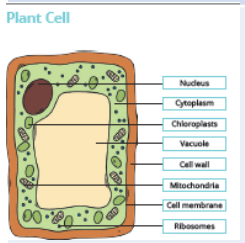
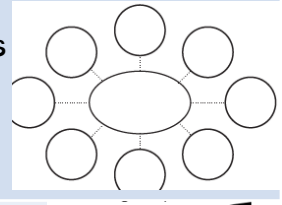
Name:

Year 9 Knowledge Organiser - Autumn 2

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.

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.

ACCELERATED READER

Scan me to take a quiz

HOW TO TAKE A QUIZ

1. Go to the school website: www.open-academy.org.uk
2. Go to Student and then Learning Area
3. Scroll Down and Click on the Accelerated Reader logo
4. To log in:

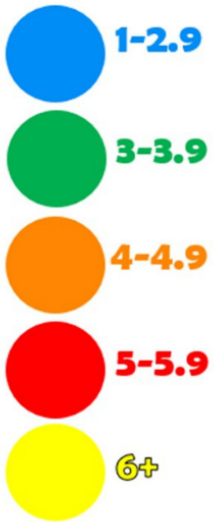
Username: firstname.surname@open-academy.org.uk

Password: Academy

*You can take a quiz on a computer, tablet or phone.

KEY TERMS

BOOK LEVELS



Book Level: A measurement of how difficult the book is.

ZPD: Your personal reading level that reflects a range of book levels. You should read books in your ZPD most of the time.

Points: Each book has a number of points available. A book is given points based on how difficult and how long it is. You earn points by passing quizzes on books you have read.

Star Reader: A reading assessment. We use Star Reader to find out your reading age and ZPD.

Accelerated Reader: A website that allows you to take quizzes on the books you have read.

Word Millionaire: A reward given to students who read one million words or more.

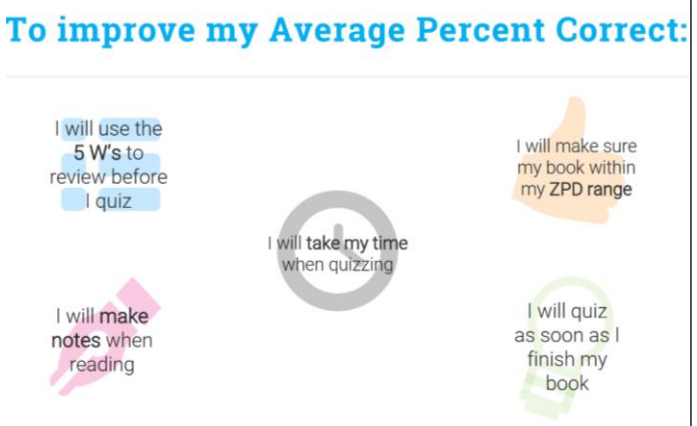
ACCELERATED READER: UNDERSTANDING YOUR TARGETS

Log in and look at the **Progress Tab** to check your targets and see your progress.

YOU HAVE 3 TARGETS EACH TERM

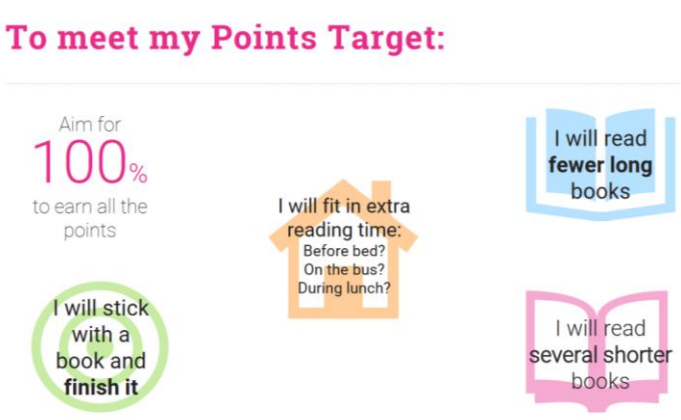
1. PERCENTAGE CORRECT:

This relates to your quiz scores. Read your book carefully and aim for high quiz scores to help meet this target.



2. POINTS:

You earn points when you pass quizzes. Read regularly (20 minutes a day) to reach your points target. Your points target is personal to you.



3. BOOK LEVEL:

Read and quiz within your recommended book level (ZPD) most of the time to reach this target.
Your Book Level target is personal to you.

- » Aspiration
  There are no barriers to your ambition
- » Leadership
  Live your own life
- » Teamwork
  Together we achieve more
- » Humility
  Put others first
- » Courage
  Handle your fear
- » Hard work
  We need to make the most of our talents
- » Respect
  Treat others as you would like to be treated yourself
- » Service
  It is better to give than to receive
- » Integrity
  Be true to yourself
- » Forgiveness
  Forgiveness is a friendship preserver
- » Thankfulness
  Appreciate others; appreciate what you have
- » Perseverance
  Never give up

Core Values

www.open-academy.org.uk

Hard Work and Perseverance

Have you ever been busy with work or a task and, having got through it all, then found the anti-climax afterwards even harder to deal with?
Following a dramatic confrontation with the prophets of Baal, Elijah found himself in a literal and spiritual wilderness. None of us are immune to bodily, emotional and spiritual tiredness. The threats of those who seek to do us harm, get to us. We feel negative about ourselves, about our circumstances, and about what might happen in the future. We get depressed. We doubt God, and feel that we have failed God. We might even feel that our lives are no longer worth living. Life seems both dark and hopeless. This is not about lack of faith.
Elijah's response is honest and leads him to meet with God not in dramatic events, but in a place of sheer silence (verse 12).
However active and enthusiastic we may be in God's service, we all have our limits. When we reach these limits, are we able to encounter God in the silence to which they lead us?

Then he was afraid; he got up and fled for his life, and came to Beer-sheba, which belongs to Judah; he left his servant there. But he himself went a day's journey into the wilderness, and came and sat down under a solitary broom tree. He asked that he might die: 'It is enough; now, O Lord, take away my life, for I am no better than my ancestors.'
1 Kings 19: 3-4

'I beg you take courage; the brave soul can mend even disaster.' Catherine the Great 'Disturb us Lord, when we are too well pleased with ourselves'-the start of a prayer that could be explored, attributed to Sir Francis Drake, believed to have been written by him before setting sail from Portsmouth in 1577. The journey would lead to his knighthood and fame as the second person ever to circumnavigate the globe.

'Courage is not the absence of fear, but rather the assessment that something else is more important than fear.' Franklin D. Roosevelt

"May your choices reflect your hopes, not your fears." Nelson Mandela (This was explored by the Archbishop of Canterbury in the first National Assembly, broadcast on April 30th and it can be found and listed to again on the Oak National Academy site)

We will be making enlarged drawings of these objects and Using different techniques on them.

The first big project we do in Year 9 is on Pop Art which is a style of Art that uses Items from popular culture as it's subject.
See examples below:

“In the future everyone will be famous
For 15 minutes”

What is POP ART?

“Marilyn” Andy Warhol

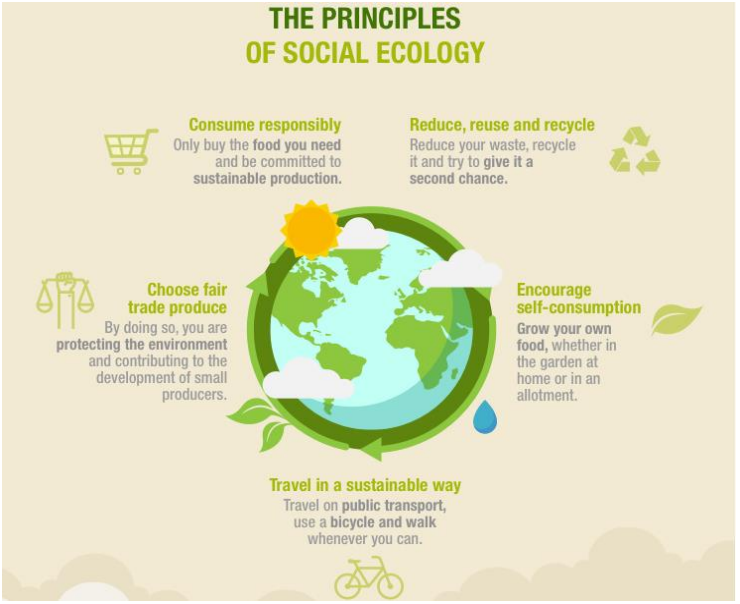
“Whaam!!!” Roy Lichtenstein

common images

everyday

- Advertisements
- Consumer goods
- Celebrities
- Photographs
- Comic strips

Year 9 Design and Technology



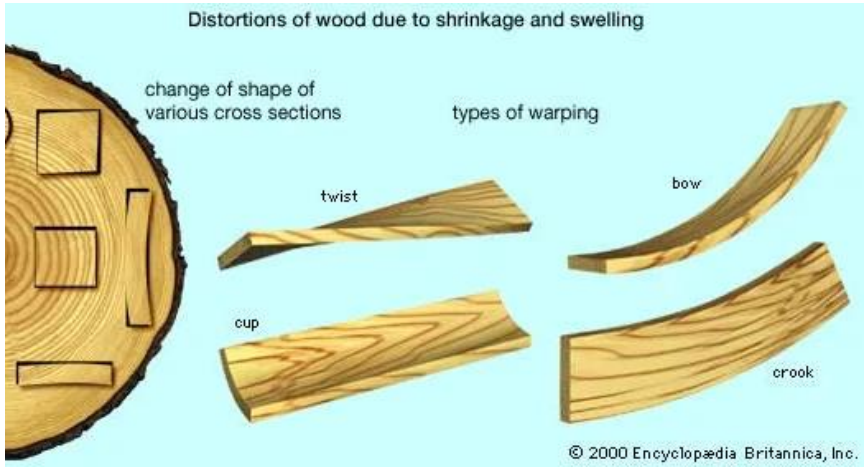
These are the key principles of design we will be looking at this term when working in the Workshop. The project is to design and make a RECYCLED palette planter.

Key Questions?

- What is the function of a planter? Will it have any extra practical design features?
- What key aesthetics do you need to consider when designing? Will using recycled materials have an impact on the appearance?
- How will planning and measuring ensure your product is durable enough to work in outside weather conditions?

Word Bank

Material properties Aesthetics Measurements Template Product Analysis Recycling Selecting Refinement Surface Treatments



- **Biodegradable materials** - this includes food scraps, cotton, wool, wood and biodegradable plastics. Carbon emissions are minimal in the production of biodegradable plastics, but there is a risk of contamination when they are recycled.

- **Less material or reduce waste** - techniques such as **nesting** can help to reduce waste, but it may not be possible to reduce or substitute materials and create a similar standard product

Belt Sander

Metal File

Tenon Saw

Special Diets

Tips on how you can….

	Definition	Foods they can't eat
Vegetarian	Someone who chooses to not eat any meat.	Meat, fish, poultry.
Vegan	Someone who doesn't eat any products derived from animals.	Meat, fish, poultry, dairy.
Lactose Intolerant	A digestive problem where the body can't digest lactose (milk sugars).	Milk, cheese, yogurt, chocolate, butter, icecream, cream.
Coeliac disease	Where the digestive system is sensitive to gluten and can't digest it.	Pasta, bread, noodles, pizza base, couscous, gluten.

Lactose is CARBOHYDRATE
Gluten is PROTEIN

Reduce the amount of sat fat	• Use less cheese and meat • Cut the visible fat off meat and remove chicken skin • Cook with oil and not butter
Reduce the amount of kcal	• Cut down on energy dense foods • Use leaner cuts of meat • Swap meat for beans and pulses
Lower the amount of salt	• Cut down on the amount of cheese • Cut down on the amount of saturated fat • Use a low fat stock cube • Don't add salt to the dish • Avoid using premade packs of seasoning
Increase the fibre content	• Add beans and pulses • Swap to whole meal • Add more vegetables • Keep the skin on potatoes

Key word	**Definition**
Seasonal ingredients	Foods that are available at certain times of the year, e.g. British-grown asparagus is only available in May, June.
Sustainable	A sustainable process or material is one that can be used without causing permanent damage to the environment or using up finite resources.
Food Miles	The distance a food product travels from where it's produced or grown to where it's sold/
Organic foods	A more natural method of farming e.g. growing crops without artificial pesticides and fertilisers.
Locally sourced foods	Items that have been purchased nearby from a farmer, fishmonger or any other fresh produce creator.
Food Waste	Food loss and waste is food that is not eaten. Overall, around 1/3 of the worlds food is thrown away.

Sausage Pasta

Ingredients (serves 2)
1 onion
1 carrot
1 stick of celery
4 sausages , (250g in total)
1 tsp dried oregano
Optional: dried chilli flakes
1 tsp dried rosemary
4 cloves of garlic
2 tablespoons balsamic vinegar
1 tin of chopped tomatoes
300 g dried penne
olive oil

Equipment
Grater
Fork
Bowl
Chopping board
Knife
Frying pan
Wooden spatula
Saucepan

Method

1. Fill up a pan half way with water and put on the hob to the boil. When the water is boiled add the pasta.
2. Finely chop the onion, celery and garlic. Grate the carrot.
3. Heat up the oil in the pan and squeeze out the sausage meat from the skins. Add the oregano, rosemary and dried chilli flakes if using.
4. Cook for 5 minutes and then add the chopped vegetables and garlic.
5. Add the can of chopped tomatoes, fill the can up half way with water and add to the mixture. Leave to simmer for 10 minutes. Stir through the balsamic vinegar.
6. When the pasta is cooked add to the sauce and mix thoroughly. Serve with grated parmesan.

You are welcome to follow this recipe, make a chilli con carne or a spaghetti Bolognese.

Mushroom and Parsley Risotto

Ingredients

One large white onion
Two celery sticks
1 garlic clove
15g butter
250g mixed mushrooms
½ pack of fresh parsley
1 vegetable stock cube
400ml boiling water
200g risotto rice
50g grated parmesan

1. Finely dice the onion, finely slice the celery and mince the garlic. Pick the parsley leaves off the stem and finely chop.
2. Soften the onion, garlic, celery and parsley stalks in oil for 10 minutes.
3. Meanwhile cut the squash into chunks and put the squash, if using or mushrooms onto a baking tray. Drizzle with oil and roast for 20 minutes.
4. Make the stock by putting the stock in a jug and adding the boiling water. Stir until the stock cube dissolves.
5. Add the rice to the frying pan with the onions and fry for a few minutes. Add the stock in a ladle at a time, stirring as you add until it is absorbed. Repeat until the rice is cooked.
6. Chop up half the roasted vegetables and add to the rice along with the parmesan, butter and chopped up parsley.
7. Serve with the remaining vegetables on top.

Tomato risotto

Ingredients

One large white onion
Two celery sticks
1 garlic clove
15g butter
1 red pepper
½ can chopped tomatoes
100g chorizo
1 vegetable stock cube
300ml boiling water
200g risotto rice
50g grated parmesan

1. Finely dice the onion, finely slice the celery and mince the garlic. Dice the pepper into 2cm size pieces.
2. Soften the onion, garlic and celery for 10 minutes.
3. Make the stock by putting the stock in a jug and adding the boiling water. Stir until the stock cube dissolves and add the tomatoes.
4. Add the rice and pepper to the frying pan with the onions and fry for a few minutes. Add the stock in a ladle at a time, stirring as you add until it is absorbed. Repeat until the rice is cooked.
5. Stir through the butter and parmesan. Serve.

Shepherds/Cottage Pie

Ingredients

For the filling:

200g minced beef/lamb

1 onion

1 carrot (grated)

1 stock cube

1 tbsp flour

For the mash:

300g potatoes

10g butter or margarine

50ml milk

Optional:

25g grated cheese for top

Baked beans

Sweetcorn

Gravy granules

Equipment;

Sauce pan, chopping board, knife, wooden spoon, jug, sauce pan, grater, peeler, masher

Method

1. Peel and chop potatoes evenly. Just cover with fresh cold water. Add I level tsp of salt. Bring potatoes to boil and then simmer for 20 minutes (time them from when they come up to boil).

2. Chop the onions finely. Grate the carrot.

3. Gently fry the onions until translucent and soft. Add the mince and cook. Once the mince is browned add the grated carrot.

4. Add stock cube and 200ml water to the mixture and bring to boil, stirring in the stock cube.

5. When potatoes are cooked, drain through a colander and mash them finely, adding butter and milk to soften and give a creamy consistency. Add pepper if wanted.

6. Place meat sauce into an ovenproof dish. Place mashed potatoes evenly over the meat. Smooth and then fork mixture round, following the shape of the dish.

7. Cover with grated cheese. Cook for 25 minutes.

Pizzas

Ingredients (makes 12)

200g strong white bread flour, plus extra for dusting

50g ground semolina (or extra flour)

1 tsp salt

1 tsp dried yeast

1 tbsp oil

100-125ml warm water

Toppings of your choice

Grated cheese

Tomato passata

Make your own tomato base: Fry garlic, add tomato passata, season with salt, pepper and herbs (dried or fresh basil) simmer for 10 minutes.

Can be frozen.

Equipment

Knife, chopping board, wooden spoon, bowl, jug, grater, rolling pin, cookie cutter

Skills: Rich yeast dough, kneading, baking, grating, shaping,

1. Pre-heat the oven to 200°CWeigh flour and add to a bowl, add yeast and salt and oil
2. Create a well in the middle of the flour and add the oil, then gradually add the warm water and mix **(make sure not to add all at once or the dough will be too wet)**
3. When smooth, work the dough on the worktop until elastic and smooth, set aside to rise while preparing the filling (if you have plenty time, leave your dough in a warm place to prove for around an hour).
4. Wash, peel, slice your vegetables, grate the cheese.
5. If using any meat – prepare that too.
6. When all is prepared, roll out the dough thinly on a baking tray covered with baking paper.
7. Add the tomato sauce, toppings and cheese.
8. Bake until crispy (10-15min)

Apple Pie

Ingredients

Pastry

100g butter

25g sugar

1 egg

175g flour

Filling

2 apples

1 tsp cinnamon (optional)

70g sugar

1tbsp Blackberries (optional)

Equipment

Bowl, weighing scales, wooden spoon, jug, whisk, chopping board, knife, peeler, teaspoon rolling pin,

Skills

Rubbing in method, pastry making, rolling out, peeling, chopping

Pastry;

1. Rub butter and flour together until it looks like breadcrumbs, then add sugar - mix
2. In a jug, whisk the egg and then add to the flour mix and stir with a wooden spoon
3. When combined, work the dough with your hands, you may have to add more flour if it is too sticky
4. When smooth, set aside to rest and start with your filling

Filling;

1. Peel and core the apples then cut into wedges
2. Mix with the cinnamon and sugar

Assembly of pie,

1. Cut your pastry in half and roll one half out to fit your pie dish. Line your pie dish.
2. Add the apples (and blackberries if using)
3. Roll out your other half of pastry and carefully lay it on top of the tin, seal bottom and top
4. Score the lid in 3 places to let steam out
5. If you have leftover pastry, you can design some pattern and lay on top

Year 9 Knowledge Organiser – Physical Education (Autumn 2 – Body Composition)

Body composition is the relative ratio of fat mass to fat-free mass (vital organs, muscle, bone) in the body. It is important to have a blend of both fat-free mass and fat to cop with everyday life. In sport this is also important depending on what you play.

Some sports performers such as rowers will need a large muscle mass to give them power and strength, whereas marathon runners will require less body fat and muscle mass to avoid them carrying too much weight. Sumo wrestlers on the other hand will require a large body mass in their performances to be successful.

How to measure your body composition

Body Mass index (BMI) BMI= Weight (kg) ÷ Height (m) x Height (m)	The advantages of this test is that it is **easy to complete**	The disadvantage is that sometimes you can have **misleading results**
Skinfold test Use callipers to measure skin on bicep, tricep, shoulder blade and hip.	The advantage of this test is that it is an **accurate measurement of percentage of body fat**	Unfortunately, the disadvantage sit that you need to use **Specialist equipment** to carry this out.

This QR code will show you the tests for body composition and is linked to our BTEC Sport course in Year 10.

Can you complete these 30 challenges?

Attempt each day and record how you feel after each day.

Do you feel healthier? Do you feel more energized?

How would completing these challenges help your body composition?

30-DAY PLANK CHALLENGE

Day 1: 20 sec
Day 2: 20 sec
Day 3: 30 sec
Day 4: 30 sec
Day 5: 40 sec
Day 6: Rest
Day 7: 45 sec
Day 8: 45 sec
Day 9: 1 min
Day 10: 1 min
Day 11: 1 min
Day 12: 1.5 min
Day 13: Rest
Day 14: 1.5 min
Day 15: 1.5 min
Day 16: 2 min
Day 17: 2 min
Day 18: 2.5 min
Day 19: Rest
Day 20: 2.5 min
Day 21: 2.5 min
Day 22: 3 min
Day 23: 3 min
Day 24: 3.5 min
Day 25: 3.5 min
Day 26: Rest
Day 27: 4 min
Day 28: 4 min
Day 29: 4.5 min
Day 30: 5 min

30-DAY CRUNCH CHALLENGE

Day 1: 25
Day 2: 30
Day 3: 35
Day 4: Rest
Day 5: 40
Day 6: 45
Day 7: 50
Day 8: Rest
Day 9: 60
Day 10: 65
Day 11: 70
Day 12: Rest
Day 13: 80
Day 14: 90
Day 15: 95
Day 16: Rest
Day 17: 100
Day 18: 105
Day 19: 110
Day 20: Rest
Day 21: 115
Day 22: 120
Day 23: 125
Day 24: Rest
Day 25: 130
Day 26: 135
Day 27: 140
Day 28: Rest
Day 29: 145
Day 30: 150

Owen Farrell

Dina Asher-Smith

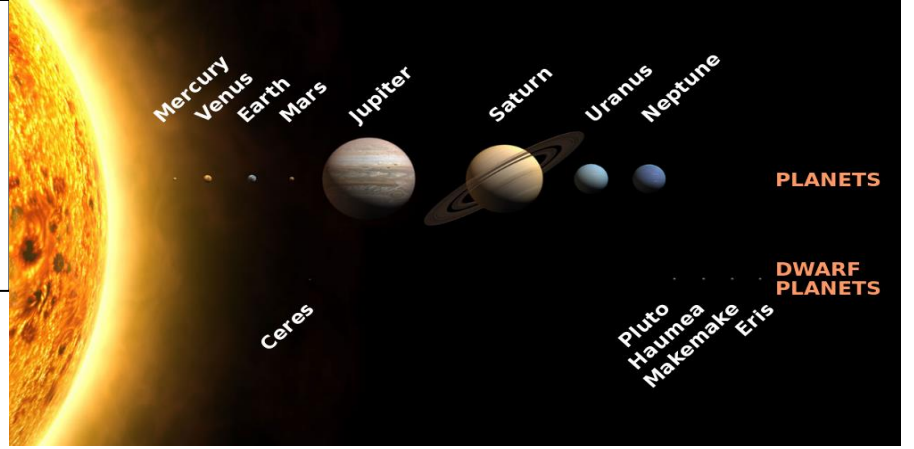
Lebron James

Look at the sports performers pictured on this page. Each one has a different set of fitness requirements for their sports and requires different body compositions.

Create a circuit traninig session for your chosen performer using the internet to help you. What will you need to consider? What equipment will you need? How will it support an athletes body composition?

Remember, everyone is born with a different level of body composition. You can make changes to your body composition by changing your exercise habits and changing your diet. However, your body composition has to be suitable for the sport you play!

SCIENCE
YEAR 9 AUT 2
ASTRONAUT



Weight = mass X gravitational field strength

Weight	*Force acting upon an object due to gravity*	Newton (N)
Mass	*How much matter*	Kilograms (Kg)

Gravity

Gravitational field strength	*Gravity exerted around an object.*	Earth's gfs = 9.8N/kg

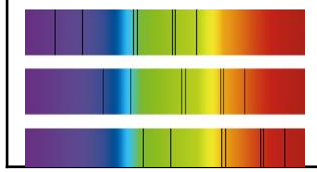
Gravitational Potential energy	*Energy gained by an object raised above the ground*	Mass X gravitational field strength X height mgh

The Big Bang	*Universe began 13.8 billion years ago*
All matter and space expanded violently from a single point.	Red—shift provides evidence for expansion.

What is our skeleton for? What do our muscles do? How would weightlessness affect them ?
What can astronauts do about it?

Planet	*A large body orbiting the Sun*
Moon	*A natural satellite orbiting a planet*
Dwarf planet	*A body large enough to have its own gravity which caused a spherical shape*
Solar system	*Any object orbiting the Sun due to gravity*
Galaxy	*Collection of billions of stars*
Universe	*Collection of galaxies*

Red-shift	*The observed increase in wavelength of light from most distance galaxies. Light moves towards the red end of the spectrum.*
Hubble (1929)	*He studied light from distant galaxies; found as frequency decreases, wavelength increases.*



Light from star in our galaxy.
Light from star in nearby galaxy.
Light from star in distant galaxy.

Light from distant galaxies is red-shifted, so galaxy is moving away from us.

Galaxies are moving away from us in all directions.

Galaxies further away have bigger red-shift so are moving faster away.

SCIENCE YEAR 9 AUT 2 ASTRONAUT

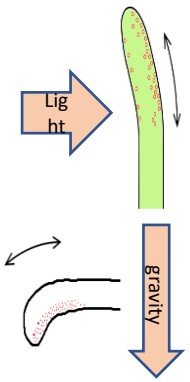
Identification of common gases

Gas	Test	Positive result
Hydrogen	***Burning splint***	'Pop' sound.
Oxygen	***Glowing splint***	Re-lights the splint.
Chlorine	***Litmus paper (damp)***	Bleaches the paper white.
Carbon dioxide	***Limewater***	Goes cloudy (as a solid calcium carbonate forms).

Growing plants in space - Photosynthesis

The plant manufactures glucose from carbon dioxide and water using energy transferred from the environment to the chloroplasts by light

Photosynthesis	***Plants make use of light energy from the environment (ENDOTHERMIC) to make food (glucose)***	Carbon dioxide + Water → Oxygen + Glucose
		$CO_2 + H_2O \rightarrow O_2 + C_6H_{12}O_6$

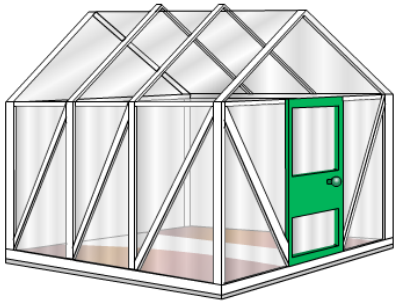


Plant responses using hormones (auxins)	***Light (phototropism)***	Light breaks down auxins and they become unequally distributed in the shoot. The side with the highest concentration of auxins has the highest growth rate and the shoot grows toward the light.
	Gravity (geotropism or gravitropism)	Gravity causes an unequal distribution of auxins. In roots the side with the lowest concentration has the highest growth rate and the root grows in the direction of gravity.
		In new shoots from a seedling the unequal distribution of auxins causes the shoot to grow away from gravity.

Factors affecting the rate of photosynthesis

Factor	How the rate is affected
Temperature	***As the temperature of the environment the plant is in increases rate of photosynthesis increases (up to a point) as there is more energy for the chemical reaction.***
Light intensity	***Light intensity increases as the distance between the plant and the light sources increases. As light intensity increases so does the rate of photosynthesis (up to a point) as more energy is available for the chemical reaction.***
Carbon dioxide concentration	***Carbon dioxide is needed for plants to make glucose. The rate of photosynthesis will increase when a plant is given higher concentrations of carbon dioxide (up to a point).***
Amount of chlorophyll	***Chlorophyll is a photosynthetic pigment that absorbs light and allows the reaction between water and carbon dioxide to occur (photosynthesis)***

SCIENCE
YEAR 9 AUT 2
ARCHITECT



Common atmospheric pollutants

Atmospheric pollutants from fuels

Combustion of fuels	***Source of atmospheric pollutants. Most fuels may also contain some sulfur.***
Gases from burning fuels	***Carbon dioxide, water vapour, carbon monoxide, sulfur dioxide and oxides of nitrogen.***
Particulates	***Solid particles and unburned hydrocarbons released when burning fuels.***

Properties and effects of atmospheric pollutants

Carbon monoxide	***Toxic, colourless and odourless gas. Not easily detected, can kill.***
Sulfur dioxide and oxides of nitrogen	***Cause respiratory problems in humans and acid rain which affects the environment.***
Particulates	***Cause global dimming and health problems in humans.***

CO_2 and methane as greenhouse gases

Carbon footprints

The total amount of greenhouse gases emitted over the full life cycle of a product/event. This can be reduced by reducing emissions of carbon dioxide and methane.

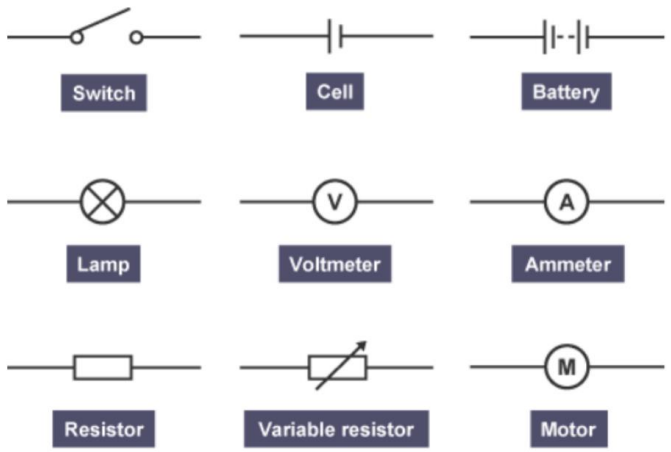
Greenhouse gases

Carbon dioxide	***Human activities that increase carbon dioxide levels include burning fossil fuels and deforestation.***
Methane	***Human activities that increase methane levels include raising livestock (for food) and using landfills (the decay of organic matter released methane).***
Climate change	***There is evidence to suggest that human activities will cause the Earth's atmospheric temperature to increase and cause climate change.***

SCIENCE
YEAR 9 AUT 2
ARCHITECT

Energy resource	How it works	Uses
Fossil Fuels (coal, oil and gas)	*Burnt to release thermal energy used to turn water into steam to turn turbines*	Generating electricity, heating and transport
Nuclear	*Nuclear fission process*	Generating electricity
Biofuel	*Plant matter burnt to release thermal energy*	Transport and generating electricity
Tides	*Every day tides rise and fall, so generation of electricity can be predicted*	Generating electricity
Waves	*Up and down motion turns turbines*	Generating electricity
Hydroelectric	*Falling water spins a turbine*	Generating electricity
Wind	*Movement causes turbine to spin which turns a generator*	Generating electricity
Solar	*Directly heats objects in solar panels or sunlight captured in photovoltaic cells*	Generating electricity and some heating
Geothermal	*Hot rocks under the ground heats water to produce steam to turn turbine*	Generating electricity and heating

Circuit Symbols



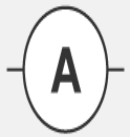
Key Terms

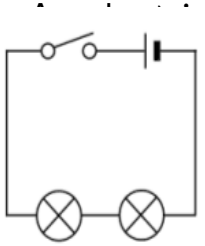
Series Circuit
A circuit where all the components are in the same loop.

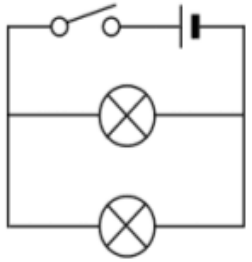
Parallel Circuit
A circuit where the components are in different loops in the circuit.

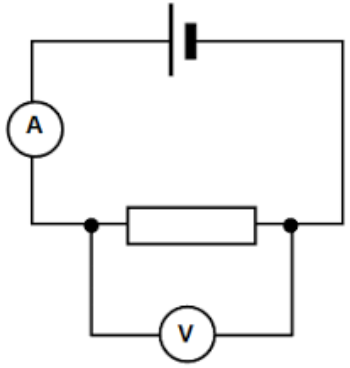
Ammeter
An electrical component that measures the size of electric current, it is connected in series
in a circuit.

Voltmeter

	Current	Potential difference
Unit	ampere, A	volt, V
Measuring device	Ammeter in series	Voltmeter in parallel
Circuit symbol of measuring device		

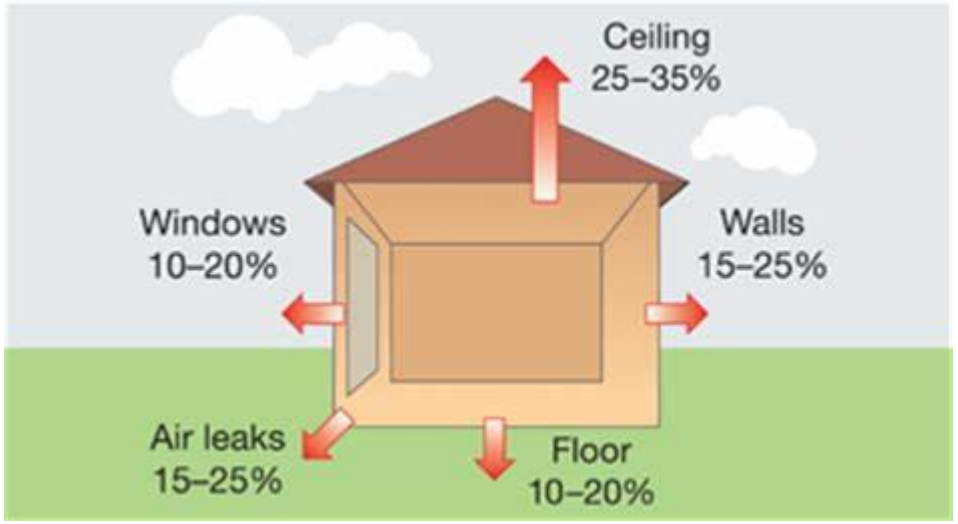




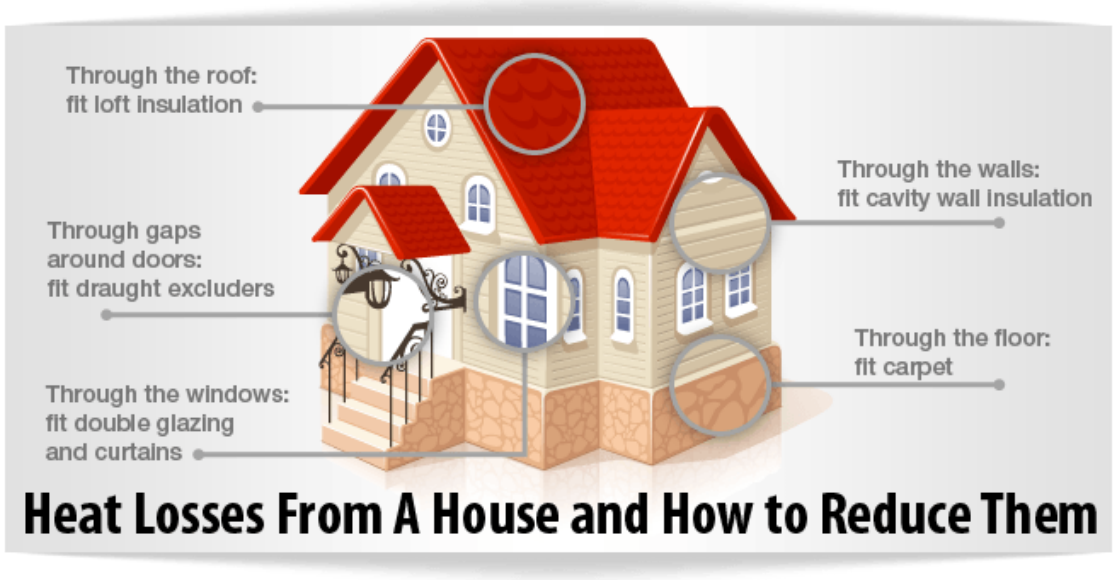


SCIENCE
YEAR 9 AUT 2
ARCHITECT

Principle of conservation of energy	***The amount of energy always stays the same.***	Energy cannot be created or destroyed, only changed from one store to another.
Ways to reduce 'wasted' energy	***Energy transferred usefully***	Insulation, streamline design, lubrication of moving parts.



Energy loss from homes



Knowledge Organiser: Year 9 Autum Term Part 2 - Understanding computers *and data representaion*

Summary

Computers use binary - the digits 0 and 1 - to store data. A **binary** digit, or bit , is the smallest unit of data in computing. ... **Binary** numbers are made up of **binary** digits (bits). . The circuits in a computer's processor are made up of billions of transistors

Boolean algebra and truth tables can be used to describe logical expressions. The most common Boolean operators are **AND**, **OR** and **NOT** (always in capitals). Each operator has a standard symbol that can be used when drawing logic gate circuits.

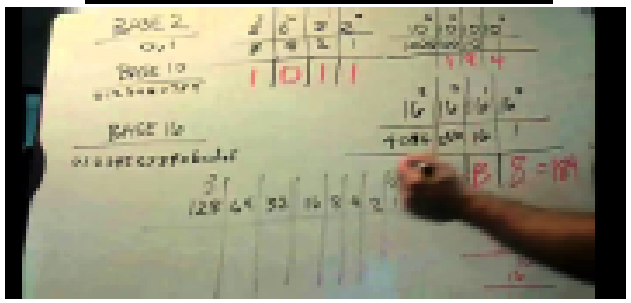
A bit pattern could represent different types of data including **text**, **image**, sound and **integer**.

Computers require input hardware, processing hardware and output hardware. The hardware that defines a computer is the **CPU** and **memory**. Without these a computer could not function. The CPU and memory work together to run programs.

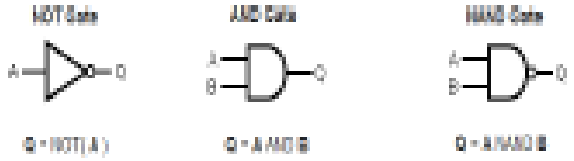
CPU - executes programs using the **fetch-decode-execute cycle.**

Memory - stores program operations and data while a program is being executed. There are several types of memory, including: **registers**, **cache**, **RAM** and **virtual memory**.

Decimal, binary and hexadecimal



Boolean Algebra



Truth Table

Input A	Output Q
0	1
1	0

Truth Table

Input A	Input B	Output Q
0	0	0
0	1	0
1	0	0
1	1	1

Truth Table

Input A	Input B	Output Q
0	0	1
0	1	1
1	0	1
1	1	0

Central Processing Unit

The **Central Processing Unit** or **CPU** is arguably the most important component of a computer.

You can think of the CPU is being like the brain in a human.

It is responsible for all of a computer's processing.

The Fetch – Decode – Execute cycle

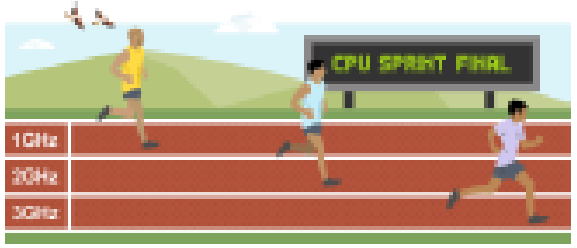
The CPU operates by repeating three operations:

FETCH – causes the next instruction and any data involved to be fetched from main memory

DECODE – decodes the instruction to make sure it can be carried out

EXECUTE – carries out the instruction

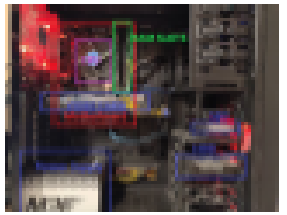
Repeat...



Key Vocabulary

Clock speed	The speed of a computer CPU, measured in hertz.
Cache	A piece of temporary memory. It can refer to a part of the RAM, storage disk, CPU, or an area for storing web pages.
CPU	Central Processing Unit - the brains of the computer that processes program instructions. Also called a microprocessor.
Execute	To run a computer program.
GHz	Gigahertz. One billion hertz per second = one gigahertz. This is a measure of frequency and is used to describe bus speeds and CPU clock speeds.
Hardware	The physical parts of a computer system, e.g. a graphics card, hard disk drive and CD drive.
Mother-board	The circuit board inside a computer that houses the CPU, memory and connections to other devices.
RAM	Memory that is constantly being written to and read from. It does not retain its contents without a constant supply of power, i.e. when a computer is turned off, everything stored in its RAM is lost.
Registers	The section of high speed memory within the CPU that stores data to be processed.
Software	Software is the programs that run on a computer.
Virtual memory	A section of a computer storage drive which is temporarily used as RAM.

PC Components



http://bit.ly/2Qxi9ab

BBC Bitesize

Year 9 Knowledge organiser: Population

Topics covered

- ✓ Population explosion
- ✓ Birth Rates, Death rates and Life expectancy
- ✓ Factors affecting population growth
- ✓ Population Density and Distribution
- ✓ Population Distribution Factors
- ✓ Population Pyramids
- ✓ Population Control
- ✓ Youthful Populations
- ✓ Ageing Populations
- ✓ Population Migration

Key Ideas:

1. I can describe the growth in world population over time
2. I can describe the distribution (spread) of people on earth
3. I can explain what affects growth and distribution of people
4. I can assess how population is impacted by youth and ageing
5. I can evaluate the benefits and challenges of migration

Skills

- ❑ To draw a line graph showing population growth/label key events ('living graph')
- ❑ To construct a 'choropleth' map, shading dense and sparse population density
- ❑ To construct population pyramid graphs
- ❑ To write a detailed piece of extended writing
- ❑ To interpret flow maps of people movement

Places and Environments

- ❖ UK
- ❖ China
- ❖ Africa
- ❖ Australia
- ❖ Canada
- ❖ Russia
- ❖ Singapore
- ❖ Syria
- ❖ Germany

Key Terms Used in this Unit

- ❑ Population growth
- ❑ Birth Rate/Death Rate
- ❑ Dense/Sparse
- ❑ Distribution
- ❑ Working Age Group
- ❑ Fertility Rate
- ❑ Infant Mortality Rate
- ❑ Rate of Natural Increase
- ❑ Sterilisation
- ❑ Birth Control
- ❑ Incentives
- ❑ Forced Abortion
- ❑ Infanticide
- ❑ Gender imbalance
- ❑ Retirement
- ❑ Push/pull factors
- ❑ Immigration
- ❑ Forced migration

World populations can be measured according to the countries average quality of life. How we measure peoples living standards can vary but most agree that Income, education and life expectancy are all important.

As these numbers are based upon averages there will always be people above and below. Averages are not always the same within different areas of a country.

Italy, the UK, South Africa, Mexico and China are just some areas of the world with differences within their own countries.

Developing countries tend to have bigger differences than richer developed countries.

What would show peoples quality of life?

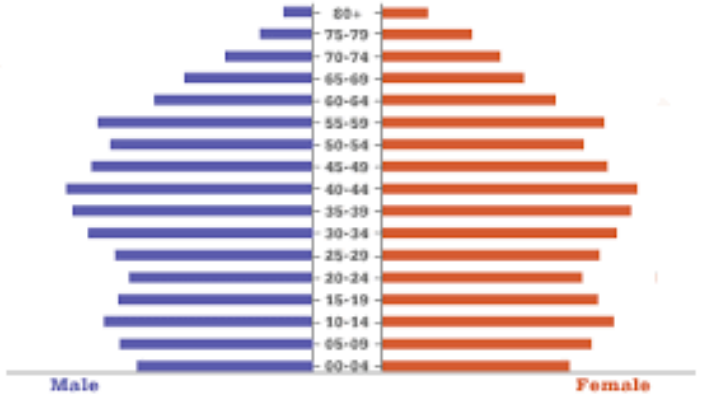
CHALLENGE – Are there any problems with using data to calculate this?

Population pyramids are simply graphs that show the amount of males and females living in a country at differing age groups.

As a country becomes more developed it will change shape from a wide Aztec pyramid shape to a tall skyscraper shape.

A wide base means a high **Birth Rate** and a low height means a low life expectancy.

Deep steps in at the side show a high **death rate**.



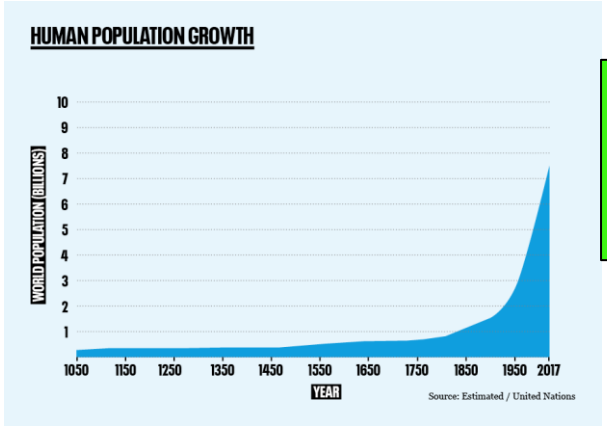
Some countries have run population control policies to try to either reduce their totals or in some cases actually increase them. China is the most famous for doing this with **a 1 Child policy**, which has now been relaxed. India also carried out population control aimed at reducing its total.

India and China contain the world's largest populations, with both countries around 1.3 billion people.
Controlling population growth sounds simple but can have both positive and negative results.

List 3 reasons why life might be better if there were less people on planet Earth

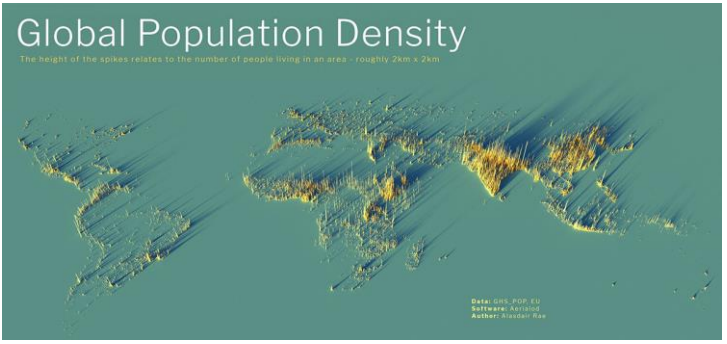
CHALLENGE - Can you suggest ways that a country could stop its population from getting too large without being too forceful?

World population has risen to well over 7.5 billion and will soon reach 8 billion. The growth rate is currently rapid.
Not everywhere in the world is rising rapidly and much of the most rapid growth rate is occurring in developing and emerging countries (poorer countries). This will present challenges for **resources** like food, water and space.



Can you use data in your answer to describe the rapid rise of world population?

CHALLENGE EXPLAIN why poorer countries are growing more quickly than richer countries



Global population is not spread evenly across the planet. Some areas have attracted more people than others.

Areas with more people are known as '**densely populated**' and those with few as '**sparsely populated'.**

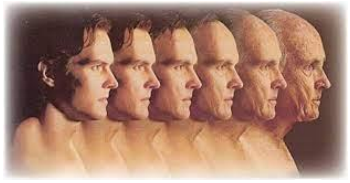
Areas with dense populations often have a number of **human and physical factors** that attract people to live there.

Physical factors include things like mountain ranges or swamps or frozen soils that make some areas **uninhabitable**.

Can you name densely populated areas of the world?

CHALLENGE – What human and physical factors explain the UK **population density map**?

The global population is not only increasing due to more people being born. As countries become more developed which most are over time, people tend to live longer then previous generations. This can put added pressures on resources like **pensions** but can also provide benefits to countries.



List 5 problems that ageing may cause to an individual or their family.

CHALLENGE – Suggest ways that ageing populations can be managed

World population has always been moving around. The most common type of movement or migration is from countryside areas to towns and cities. This is called **'Urbanisation'**.

People are sometimes forced to move e.g. fleeing genocide (known as **push factors**) or sometimes people choose to move e.g. better pay (**pull factors**).

Movements of people can have positive and negative effects on regions or countries.

Young people (in poorer countries these are young children) are the most common type to move.

Immigrants are people arriving, **emigrants** are people leaving.

Give reasons why people might want to enter the UK.

CHALLENGE – Suggest reasons why migration can provoke strong opinions.

German

Module 1: Ich Liebe Ferien (I Love Holidays)

In this Module you will learn how to:

Compare places, then and now

Describe activities in the past using, hatte es gab and war.

Talking about what you did in the past using the perfect tense.

Talk about how you travelled on holiday using 'sein.'

Talking about the weather, comparing the past and present.

German

Früher und heute • Then and today

Die Stadt ist/war ...	*The town is/was ...*
alt/modern	*old/modern*
klein/groß	*small/big*
schön/industriell	*beautiful/industrial*
historisch/touristisch	*historic/touristy*
laut/ruhig	*noisy/quiet*
Die Stadt hat/hatte ...	*The town has/had ...*
Es gibt/gab ...	*There is/was ...*
einen Strand	*a beach*
einen Marktplatz	*a town square*
einen Olympiapark	*an Olympic park*
einen Hafen	*a harbour*
eine Arena	*an arena*
eine Skatehalle	*a skate hall*
ein Einkaufszentrum	*a shopping centre*
ein Stadion	*a stadium*

Innsbruck ist/war ...	historisch touristisch alt modern klein groß laut ruhig schön industriell
Innsbruck hat/hatte ... Es gibt/gab ...	einen Marktplatz einen Strand eine Arena eine Skatehalle ein Einkaufszentrum ein Olympiastadion

Read the Strategy Box about using war and hatte (was and had) wth adjectives to describe a place.

Keep practising your German vocabulary on www.quizlet.com

- *Either*:

click on this link: Quizlet Gute Reise

Or: use your class code.

Practise your vocab using the link below:

Textivate Ich Liebe Ferien

German

Was hast du gemacht?
• What did you do?

Ich habe viele Sachen gemacht.	*I did a lot of things.*
Ich habe/Wir haben ...	*I/We ...*
Musik gehört.	*listened to music.*
Volleyball gespielt.	*played volleyball.*
einen Bootsausflug gemacht.	*did a boat trip.*
viele Souvenirs gekauft.	*bought lots of souvenirs.*
viel Fisch gegessen.	*ate lots of fish.*
die Kirche gesehen.	*saw the church.*
ein Buch gelesen.	*read a book.*
Ich bin zu Hause geblieben.	*I stayed at home.*

Wohin bist du gefahren?
• Where did you travel to?

Ich bin ... gefahren.	*I travelled ...*
nach Deutschland	*to Germany*
nach Wien	*to Vienna*

Wie bist du gefahren?
• How did you travel?

Ich bin ... gefahren.	*I travelled ...*
mit dem Auto	*by car*
mit dem Reisebus	*by coach*
mit dem Schiff	*by boat*
Ich bin geflogen.	*I flew*
Ich bin zu Fuß gegangen.	*I walked*

Mit wem bist du gefahren?
• Who did you travel with?

Ich bin ... gefahren.	*I travelled ...*
mit meiner Familie	*with my family*
mit Freunden	*with friends*

Wo hast du gewohnt?
• Where did you stay?

Ich habe ... gewohnt.	*I stayed ...*
in einem Hotel	*in a hotel*
in einem Ferienhaus	*in a holiday house*
in einem Wohnwagen	*in a caravan*
in einer Jugendherberge	*in a youth hostel*
auf einem Campingplatz	*on a campsite*
bei Freunden	*with friends*

Was hast du noch gemacht?
• What else did you do?

Ich bin ... gegangen.	*I went ...*
an den Strand	*to the beach*
in die Stadt	*into town*
windsurfen	*windsurfing*
kitesurfen	*kite surfing*
schwimmen	*swimming*
Ich bin ... gefahren.	*I went ...*
Wakeboard	*wakeboarding*
Snowboard	*snowboarding*
Ski	*skiing*
Banane	*banana boating*
Ich habe Snowtubing gemacht.	*I went snowtubing.*
Ich habe Eistennis gespielt.	*I played ice tennis.*

Grammatik
Page 23

When you refer to others, the pronoun and part of ***sein*** change.
You have learned ***sein*** (to be) already.

ich bin	***ge**fahr**en** (drove/ travelled/went)*
du bist	
er/sie/es ist	
wir sind	
ihr seid	
Sie sind	
sie sind	

Use this verb box to make sentences.

www.textivate.com
Username: openacademy
Password: first name initial and surname and 800
Go to 'my resources' to find your work.
Or go directly to the link and complete the sequence on The Perfect Tense paragraph; Textivate;Perfect Tense Paragraph

Strategie 1

Partnerarbeit

Two heads are often better than one when it comes to learning vocabulary. Working with someone else helps you to concentrate for longer and makes learning fun. Here are some activities to try with a partner:

- Play word association. Your partner says a word from Chapter 1 and you say a word that is related to it in some way. Be prepared to justify your thinking!
  - *Winter*
  - *Es schneit.*
- Play hangman or pictionary with the words from these ***Wörter*** pages.

Try doing this with a friend or sibling at home

Wie ist/war das Wetter?

• How is/was the weather?

Es ist/war ...	*It is/was ...*
sonnig	*sunny*
kalt	*cold*
heiß	*hot*
wolkig	*cloudy*
windig	*windy*
neblig	*foggy*
Es regnet.	*It is raining./It rains.*
Es schneit.	*It is snowing./It snows.*
Es donnert und blitzt.	*There is thunder and lightning.*

Practise your vocab using Quizlet Quizlet;Weather

Year 9 History: Democracy, dictatorships and the causes of the Second World War

Key words	
Democracy	A political system in which the public can vote in free elections and have freedom expression and religion
Dictatorship	A political system in which one Party or person rules the country, with no elections or freedom of expression
Cause	An event that leads to another event
Consequence	An event or an impact that happens as a result of a cause
Diversity	Differences between people, places or events
Second World War	A war that took place on several continents between 1939 and 1945
Nazi Party	Shortened name for the National Socialist German Workers Party, a far-right Party who ruled Germany between 1933 and 1945, led by Adolf Hitler
Soviet Union	Also known as the USSR, a collection of communist countries in eastern Europe, including Russia
Communism	A political system in which everything is shared equally among people and everyone has equal rights

Terms of the Treaty of Versailles	Detail
Blame	**Germany had to accept full responsibility for starting the war, even though they hadn't!**
Reparations	**Germany had to pay £6.6 billion to repair the damage of the war**
Army	**The German army was reduced to 100,000 men, no submarines, no airforce and only 6 ships. The Rhineland was also de-militarised**
Territories	**Germany gave up many areas of land, such as Alsace-Lorraine, the Sudetenland and the Polish corridor**

After the First World War, the leaders of Britain, France and the USA forced Germany to sign the **Treaty of Versailles.** The terms of this Treaty can be remembered using the word BRAT (see above)

As a result of the Reparations payments, the German economy collapsed and led to **hyperinflation in 1923.** This meant that they value of money decreased rapidly.

Although Germany recovered after 1923, the **Wall Street Crash** in 1929 led to further economic collapse in Germany. Many people turned to extreme political Parties like the Nazis and the Communists.

1919: Treaty of Versailles

1920: League of Nations formed

1923: Hyperinflation

1929: Wall Street Crash

1933: Adolf Hitler becomes Chancellor of Germany

1938: Germany marches into Austria; Munich Agreement signed

1939: Nazi-Soviet pact formed, Germany invades Czechoslovakia and Poland, WWII begins

The actions of Adolf Hitler

When Hitler became dictator of Germany in 1933, he began on his plans to rebuild Germany as a military power. He rebuilt the German army and then used it to march into Austria, invade Czechoslovakia and eventually Poland in September 1939.

The Treaty of Versailles

Although it was meant to prevent war, the harsh terms of the Treaty of Versailles actually led to a lot of anger in Germany, which helped Parties like the Nazi Party gain support. Hitler promised to end the Treaty of Versailles and take back German territories. This is exactly what he did!

What were the causes of WWII?

The Nazi-Soviet Pact

Despite being enemies, Nazi Germany and the Soviet Union made an agreement in August 1939 that neither would attack each other, at least for now. They also agreed to divide up Poland between them.

Appeasement and the Munich Agreement

In an attempt to avoid another war, British Prime Minister Neville Chamberlain made an agreement with Germany in September 1938 that Britain and Germany would not go to war with each other. The agreement also allowed Germany to take back territories in Czechoslovakia without Britain interfering.

The failure of the League of Nations

The League of Nations, set up at the end of the First World War, was to keep the peace between nations by solving issues by negotiation rather than war. They also wanted **disarmament** to occur around the world. However, the League did not enforce its ideas.

Vocabulary to learn

Pathetic fallacy
Genre
Gothic
Gothicism
Adaptation
Protagonist
Connotation
Unnatural
Imagery
Suspense
Tension
Ominous
Atmosphere
Foreboding

Structure analysis checklist:

- 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
- Aim higher: layers of meaning

Evaluate

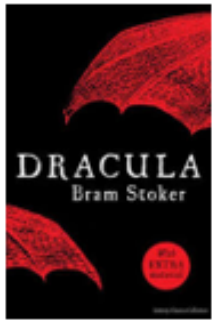
- The impressions you have of the text in relation to a statement
- The methods the writer has used to create these impressions
- How the particular **methods** create these impressions

Methods

- **Linguistic devices** – *simile, metaphor, personification, repetition, rhetorical question etc.*
- **Word choices** – *nouns, adjectives, verbs, adverbs etc.*
- **Sentence forms** – *fragment, simple, compound, complex*

Descriptor from GCSE assessment criteria
Level 4: simple vocabulary Bad Good Light Happy
Level 5: effective vocabulary Negative Positive Bright Jolly
Level 6: sophisticated vocabulary Awful Fantastic Brilliant Ecstatic
Levels 7-9: ambitious vocabulary Immoral Virtuous Dazzling Elated

Suggested Reading



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*
- Lists – to emphasise many reasons
- 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

1. Write definitions for each of the vocabulary to learn.
2. Learn how to spell the above key words by the learn/cover/check method.
3. List down at least three words that are used to convey the horror of the death scene. Beside the words add meanings.
4. Explain how the words listed above create a sense of horror.
5. List the key events of this extract. Beside each point add a quotation.
6. Create a comic strip to retell this extract of the story.
7. Explain, in your own words, how Manfred reacts when he views the death scene.
8. Create your own horror story. Try to use at least three language devices.
9. Write your own commentary of your story explaining why you have chosen particular words or language devices for effect.
10. Describe Manfred. Then explain how language has been used to portray him.
11. Explain how language has been used to portray Matilda as a character that makes the reader feel sympathetic.
12. How have verbs been used to increase the horror in the story?
13. Draw the scene and, using quotations, label the picture.
14. Find examples of any literary devices and word classes.
15. Select 5 words and create a glossary – this is a list of words and meanings.
16. Explain three things that make this story a gothic novel. E.g. it is set in the past

The Castle of Otranto by Horace Walpole

(This novel published in 1765 is viewed as the first Gothic novel.) It is a story about a father who is determined to secure an heir for his cursed estate. He arranges a marriage for his son but he is killed by falling armour on the day of his wedding to Isabella.

The first thing that struck Manfred's eyes was a group of his servants endeavouring to raise something that appeared to him a mountain of sable plumes. He gazed without believing his sight.

"What are ye doing?" cried Manfred, wrathfully; "where is my son?"

A volley of voices replied, "Oh! my Lord! the Prince! the Prince! the helmet! the helmet!"

Shocked with these lamentable sounds, and dreading he knew not what, he advanced hastily,—but what a sight for a father's eyes!—he beheld his child dashed to pieces, and almost buried under an enormous helmet, an hundred times more large than any casque ever made for human being, and shaded with a proportionable quantity of black feathers.

The horror of the spectacle, the ignorance of all around how this misfortune had happened, and above all, the tremendous phenomenon before him, took away the Prince's speech. Yet his silence lasted longer than even grief could occasion. He fixed his eyes on what he wished in vain to believe a vision; and seemed less attentive to his loss, than buried in meditation on the stupendous object that had occasioned it. He touched, he examined the fatal casque; nor could even the bleeding mangled remains of the young Prince divert the eyes of Manfred from the portent before him.

All who had known his partial fondness for young Conrad, were as much surprised at their Prince's insensibility, as thunderstruck themselves at the miracle of the helmet. They conveyed the disfigured corpse into the hall, without receiving the least direction from Manfred. As little was he attentive to the ladies who remained in the chapel. On the contrary, without mentioning the unhappy princesses, his wife and daughter, the first sounds that dropped from Manfred's lips were, "Take care of the Lady Isabella."

The domestics, without observing the singularity of this direction, were guided by their affection to their mistress, to consider it as peculiarly addressed to her situation, and flew to her assistance. They conveyed her to her chamber more dead than alive, and indifferent to all the strange circumstances she heard, except the death of her son.

Matilda, who doted on her mother, smothered her own grief and amazement, and thought of nothing but assisting and comforting her afflicted parent. Isabella, who had been treated by Hippolita like a daughter, and who returned that tenderness with equal duty and affection, was scarce less assiduous about the Princess; at the same time endeavouring to partake and lessen the weight of sorrow which she saw Matilda strove to suppress, for whom she had conceived the warmest sympathy of friendship.

YEAR 9 – CONSTRUCTING IN 2D/3D...

3D Shapes

What do I need to be able to do?

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

- Name 2D & 3D shapes
- Recognise Prisms
- Sketch and recognise nets
- Draw plans and elevations
- Find areas of 2D shapes
- Find Surface area for cubes, cuboids, triangular prisms and cylinders
- Find the volume of 3D shapes

Keywords

2D: two dimensions to the shape e.g. length and width
3D: three dimensions to the shape e.g. length, width and height
Vertex: a point where two or more line segments meet
Edge a line on the boundary joining two vertex
Face: a flat surface on a solid object
Cross-section: a view inside a solid shape made by cutting through it
Plan: a drawing of something when drawn from above (sometimes birds eye view)
Perspective: a way to give illustration of a 3D shape when drawn on a flat surface.

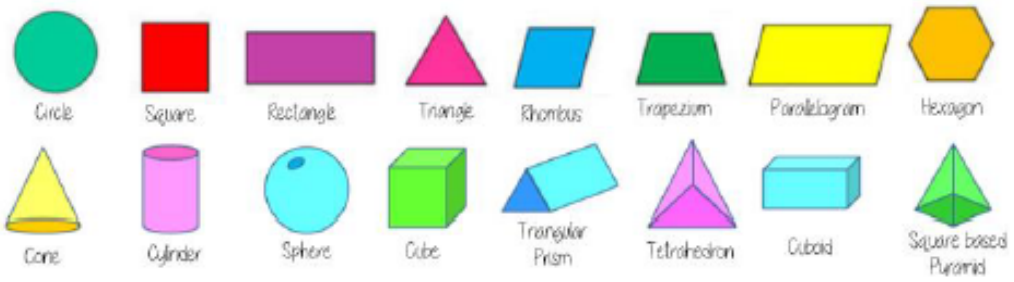
3D Shapes

Nets of 3D Shapes

Nets

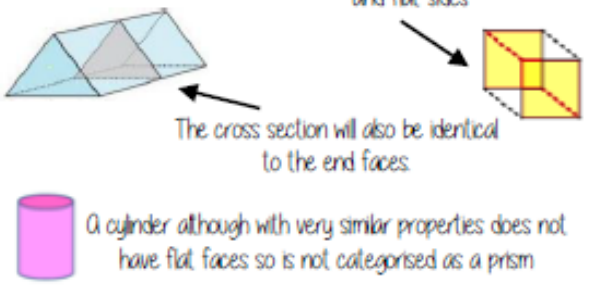
Plans and Elevation

Name 2D & 3D shapes



Recognise prisms

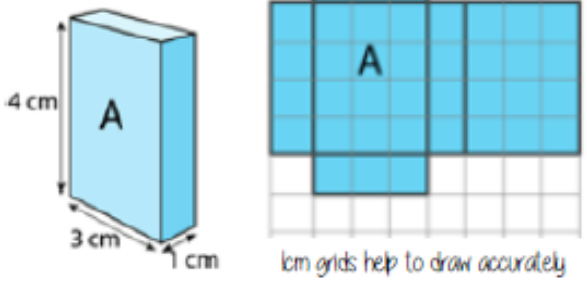
A solid object with two identical ends and flat sides

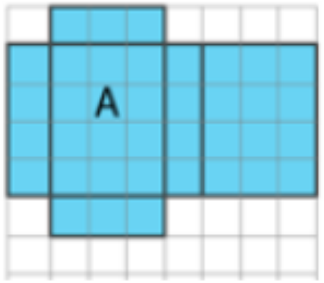


The cross section will also be identical to the end faces

A cylinder although with very similar properties does not have flat faces so is not categorised as a prism

Nets of cuboids

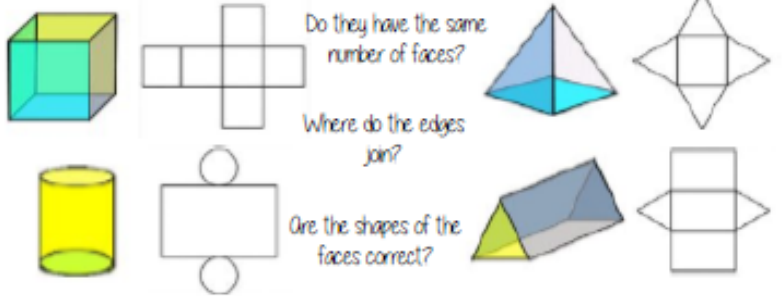




1cm grids help to draw accurately

Visualise the folding of the net. Will it make the cuboid with all sides touching

Sketch and recognise nets



Do they have the same number of faces?

Where do the edges join?

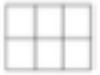
Are the shapes of the faces correct?

Plans and elevations

The direction you are considering the shape from determines the front and side views

Area of 2D shapes

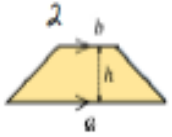
Rectangle
Base x Height



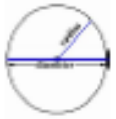
Triangle
½ x Base x Perpendicular height

Parallelogram/ Rhombus
Base x Perpendicular height

Area of a trapezium
$\frac{(a+b)}{2} \times h$

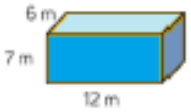


Area of a circle
$\pi \times radius^2$



Surface area

Sketching nets first helps you visualise all the sides that will form the overall surface area



Sides	6 x 7 6 x 7
Front and back	12 x 7 12 x 7
Top and Bottom	12 x 6 12 x 6

Sum of all sides is surface area

For cubes and cuboids you can also find one of each face and double it

For other shapes - not all the sides are the same, so calculate the individually

Surface area - cylinders

The area of the circle
$\pi \times radius^2$

The width of this face is the same as the circumference
$\pi \times diameter \times height$

$2 \times \pi \times radius^2 + \pi \times diameter \times height$

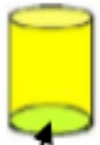
Volumes

Volume is the 3D space it takes up – also known as capacity if using liquids to fill the space

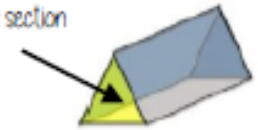
Counting cubes
Some 3D shape volumes can be calculated by counting the number of cubes that fit inside the shape

Cubes/ Cuboids - base x width x height

Remember multiplication is commutative



Cross section



Cross section

Prisms and cylinders
- area cross section x height

Height can also be described as depth

Areas – square units
Volumes – cube units

Areas and volumes can be left in terms of pi π

Surface Area

Volume of Prisms

SA of Cylinders

A job involving geometry: Architect

An architect builds design plans for offices, buildings and homes. Their key responsibilities include using the client's preferences, needs and ideas to create well-designed structures, providing clients with cost estimates, designing construction plans using specifications and scaled drawings and negotiating construction contracts.

YEAR 9 – CONSTRUCTING IN 2D/3D... Constructions & congruency

What do I need to be able to do?

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

- Draw and measure angles
- Construct scale drawings
- Find locus of distance from points, lines, two lines
- Construct perpendiculars from points, lines, angles
- Identify congruence
- Identify congruent triangles

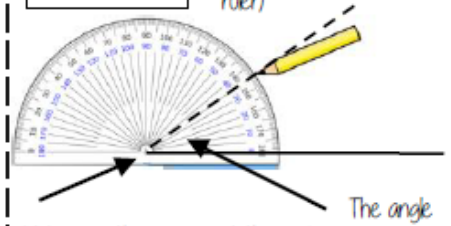
Keywords

Protractor: piece of equipment used to measure and draw angles
Locus: set of points with a common property
Equidistant: the same distance
Discorectangle: (a stadium) – a rectangle with semi circles at either end
Perpendicular: lines that meet at 90°
Arc: part of a curve
Bisector: a line that divides something into two equal parts
Congruent: the same shape and size

Draw and measure angles (R)

Draw a 35° angle

Make a mark at 35° with a pencil and join to the angle point (use a ruler)



The angle

Make sure the cross is at the end of the line (where you want the angle)

Scale drawings (R)

A picture of a car is drawn with a scale of 1:30

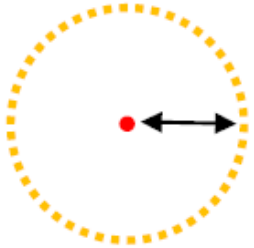
For every 1cm on my image is 30cm in real life

The car image is 10cm

Image :	Real life
1cm :	30cm
10cm :	300cm

(×10 / ×10)

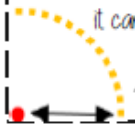
Locus of a distance from a point



All points are equidistant (the same distance) from the fixed point in the middle.

Equipment needed
The radius is the distance from the fixed point

If the point is in the corner it can only make a quarter circle



Draw and Measure Angles

Scale Drawings

Loci

Constructing Triangles

Perpend-icular Bisector

Locus of a distance from a straight line

All points are equidistant (the same distance) from line

The ends of the line are fixed points

Equipment needed

The line is straight so a ruler is used for the straight lines parallel to your original line

Locus of a distance from two lines

Also an angle bisector
This cuts the angle in half

From the angle vertex draw two arcs that cut the lines forming the angle

Keep the compass the same size and use the new arcs as centres to draw intersecting arcs in the middle

Join the vertex to the intersection

Constructing Triangles

Link to steps

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side

Locus equidistant from two points

Also a perpendicular bisector

Because if the points are joined, this new line intersects it at a 90°

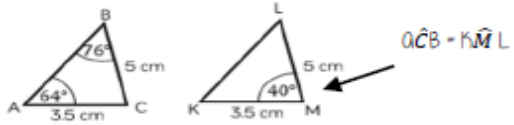
Keep the compass the same size and draw two arcs from each point

Join the intersections with a ruler.
All points on this line are equidistant from both points

Congruent figures

Congruent figures are identical in size and shape – they can be reflections or rotations of each other

Congruent shapes are identical – all corresponding sides and angles are the same size



$A\hat{C}B = K\hat{M}L$

Because all the angles are the same and AC=KM BC=LM triangles ABC and KLM are congruent

Construct a perpendicular from a point

Point

Line

Use a compass and draw an arc that cuts the line. Use the point to place the compass

Keep the compass the same distance and now use your new points to make new interconnecting arcs

Connecting the arcs makes the bisector

If P is a point on the line the steps are the same

Congruent triangles

Side-side-side

All three sides on the triangle are the same size

Angle-side-angle

Two angles and the side connecting them are equal in two triangles

Side-angle-side

Two sides and the angle in-between them are equal in two triangles (it will also mean the third side is the same size on both shapes)

Right angle-hypotenuse-side

The triangles both have a right angle, the hypotenuse and one side are the same

Perpendicular from point to line

Angle Bisector

Congruent Triangles

Landscape Gardener

A landscape gardener designs, develops, maintains and remodels gardens. Landscape gardeners are responsible for designing, crafting, regenerating and maintaining outside spaces. The creative side of a landscape gardener's job involves two main stages: briefing and design. Firstly, the landscape gardener will meet with their client to discuss their wants and desires for the proposed landscaping project. They will then produce a series of sketches, plans and designs before presenting them to the client. Once the designs are finalised, the landscape gardener will be responsible for taking care of the business side of things: hiring equipment, recruiting additional labourers where necessary, and procuring all of the required materials, such as wood, cement, wood chippings, pebbles and soil.

Year 9 RS: What is meant by sacredness?

Key words	
Sacred	Connected with God or religion. Something that is holy or spiritual.
Shrine	A place or building that is holy and associated with religion.
Worship	To shpw devotion to God through actions and service eg: prayer
Disciples	A person who follows and learns from someone else.
Pilgrimage	A religious or holy journey.
Pilgrim	A person who performs a journey which has religious significance.
Blessings	Something said or done which shows the appreciation of God.

In every religion there are special places to which people travel; usually because something important happened there. These journeys are called pilgrimages. There are many reasons why people go on pilgrimages: To renew their faith – or their belief in their God. To feel part of a larger group or family. It is commanded in the scriptures or holy writings. To bring something back (an actual souvenir, or something spiritual). Going on a pilgrimage with your fellow men and women belonging to a single religious group, reaffirms a sense of belonging in a person. Performing the different religious rites in this long and sacred journey alongside these people also breed a sense of harmony, unity, and care for one and another. One of the most important reasons for going on pilgrimage tours and seeing the places of spiritual importance is to meet other saintly people who follow a spiritual path and see how they live.

The Shrine of Our Lady-Walsingham

Pilgrimage is very important in some religious traditions. Christians believe pilgrimage can help them develop spiritually and bring them closer to God.

Pilgrims have been visiting Walsingham in Norfolk for many centuries. Walsingham is important for Christian pilgrims because an important vision about Mary, the mother of Jesus Christ, took place here.

Many Christians believe that Richeldis de Faverches, a Saxon noblewoman, lived here and had a vision in the year 1061. In this vision, Richeldis believed that she was taken by Mary, the mother of Jesus, to her home in Nazareth.

In this house in Nazareth, it is believed that the Angel Gabriel promised Mary that she would give birth to a son, Jesus. Richeldis was then asked in this vision by Mary to build an exact copy of this house in Walsingham. This is why Walsingham is often called the Nazareth of England.

Today, this copy of Mary's home in Nazareth is called the **Holy House** and is found in the Anglican Shrine or the Parish Church of Saint Mary. A statue of **Our Lady of Walsingham** is also positioned above the altar in this church.

Some Roman Catholics walk barefoot over the last mile from the Slipper Chapel to the Holy House as an act of penance. There are daily services where pilgrims pray together, especially saying the rosary, celebrating mass and receiving blessings.

Every year, on spring bank holiday, there is a national pilgrimage. Pilgrims process from the ruined priory through to the shrine. They also take part in a daily service called the **Sprinkling of the Well** as they believe that the water of the church well has qualities that can bring individual blessings. Christians born and raised in England may choose to go on a local pilgrimage. This is important as many cannot afford or are not able to make the journey to Jerusalem, Bethlehem or Nazareth.

Western Wall

Going on pilgrimage is a sacred duty for many faiths. Jerusalem is a traditional place of pilgrimage for Jewish people.

The Western wall is the most important sight for Jewish prayer and pilgrimage.

The Western Wall, or the Kotel, is thought to be the only remaining part of the **Second Temple**. The wall is not from the Temple itself, but what remains of the wall that would have surrounded the Temple. Jewish people still visit Jerusalem today as the focal point of their religion and face towards it when they pray as a sign of its importance. In fact, synagogues are traditionally orientated towards Jerusalem and Jews position themselves towards Jerusalem while reciting the Amidah. At the end of every Passover Seder celebration, Jewish people raise their glass in the hope that they will celebrate the festival 'next year in Jerusalem'. Visiting The Western Wall is a reminder to Jewish people of their history, but also gives them a link with the holiest site, the Temple. It is the closest Jewish people can get to the presence of God. Also, as the Western Wall has not been destroyed, it is a symbol of hope to the Jewish people that they too will last forever. Some Jews believe that a third Temple will be built when the Messiah comes in the future. There are many rituals that take place at the Western Wall. People write prayers on small pieces of paper and push them in between the cracks of the wall. As Jews believe that the wall is a symbol of God's presence, many believe that God can actually see what has been written.

The Ganges

Going on pilgrimage is a sacred duty for many faiths. Many pilgrimage sites are situated near to the River Ganges and reflect how important it is to Hindus.

The River Ganges is important in its own right. Some Hindus believe that it flowed from heaven to purify humans. Sometimes the river is represented in female form because many Hindus refer to it as 'mother Gangaa' or 'she'. There are various locations along the River Ganges which can attract millions of pilgrims. Many Hindus believe water (known as 'Gangaa jal') from anywhere on the River Ganges is purifying and holy.

Kumbh Mela

The 55-day **Kumbh Mela** takes place every 12 years at the union of the rivers **Ganges**, **Yamuna** and the **Saraswati**, which is no longer visible. The most recent Kumbh Mela took place in 2013 and 120 million pilgrims attended.

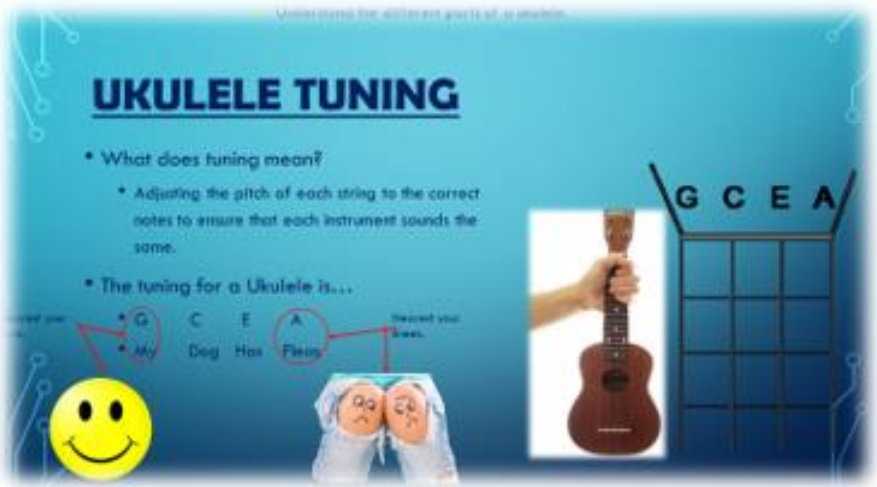
People enter the Ganges in order to purify themselves. Many pilgrims also take home small containers of water from there to give to friends and family who are not able to attend.

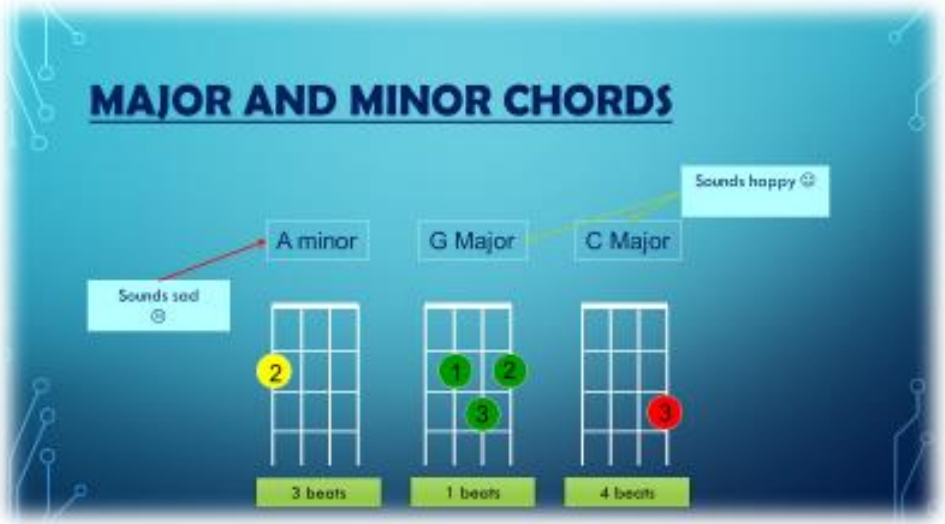
Some Hind.us visit the **Gangotri Temple** in the Himalayas. It is situated near the source of the River Ganges, where the water is believed to be purest.

Many pilgrimage sites are situated near to the River Ganges and reflect how important it is to Hindus. Many stories in scripture feature the river. The very popular avatar of Lord Vishnu as Krishna is believed to have lived at **Gokul**, on the Yamuna River, another place of pilgrimage for some Hindus. The young Lord Ganesh is also shown having adventures in and around the river.

The Ganges River is a 1569 mile long river flowing across India and Bangladesh into the Bay of Bengal. The Ganges River begins in the Himalayas' Gangotri Glacier and by the time it reaches its mouth it is the world's third largest river by discharge. In Hinduism the Ganges River is the most sacred river, and is worshipped as the Goddess Ganga. The Ganges River drains an area of 416,990 square miles, and by 2007 it was the 5th most polluted river in the world. This pollution is greatly attributed to industrial and human waste, which is not only dangerous to the humans who consume it as drinking water, but to the survival of many species that live in its water.

Year 9 Autumn Term Knowledge Organiser





World Music

Samba Music

- Originates from Brazil and is often played at carnivals and festivals
- Can have up to 2000 people in a band, all playing percussion instruments whilst marching to stay in time
- Uses polyrhythms and a fast tempo

American Music

- Often referred to as Country and Western Music, it relies heavily on guitars and drums
- Often patriotic, religious and deals with adult content
- Repetitive and easy chords but with strong melodies and lyrics

Chinese Music

- The most recognisable feature of Chinese music is the use of the pentatonic scale, which uses all the black keys on a western keyboard.
- It usually uses flutes, stringed instruments, cymbals and gongs
- The music is soothing, played at a rubato tempo and is meant to reflect nature

Bhangra Music

- Bhangra is a fusion of traditional Indian Raga music and British influences.
- It developed in the underground party scene of Indian and Pakistani immgrants who had moved to the UK in the 1970/80's
- It uses music technology and traditional singing styles and raga scales

Modern British Music

- Famous British artists and bands include The Beatles, Oasis, Rolling Stones, Queen, Elton John and Coldplay
- Grunge, grime, dubstep, punk, soft rock are all subgenres of British music
- Often have eccentric personalities and unique singing styles

Reggae Music

- Originates from Jamaica in the 1960's
- Uses syncopation (off-beat) and a rock-steady tempo
- Bob Marley was the King of Reggae music and made it famous worldwide
- Uses instruments such as drums, guitars, keyboards and trumpets

Songwriting

1) Decide on the structure on your song using introductions, verses, choruses and bridges
2) Choose your chord progression for each section
3) Add a single melody line to each section using improvisation before settling on a repeating pattern that can be altered slightly in pitch or reversed to add contrast and interest
4) Add harmony using appropriate intervals
5) Add lyrics
6) Finally, choose which instruments to use in your arrangement

Common Chord Progressions

Major Keys: C, D, F, G & A

I	IV	V
C	F	G
D	G	A
F	Bb	C
G	C	D
A	D	E

I	vi	IV	V
C	Am	F	G
D	Bm	G	A
F	Dm	Bb	C
G	Em	C	D
A	F#m	D	E

ii	V	I
Dm7	G7	Cmaj7
Em7	A7	Dmaj7
Gm7	C7	Fmaj7
Am7	D7	Gmaj7
Bm7	E7	Amaj7

I	vi	ii	V
C	Am	Dm	G
D	Bm	Em	A
F	Dm	Gm	C
G	Em	Am	D
A	F#m	Bm	E

I	V	vi	IV
C	G	Am	F
D	A	Bm	G
F	C	Dm	Bb
G	D	Em	C
A	E	F#m	D

I	IV	vi	V
C	F	Am	G
D	G	Bm	A
F	Bb	Dm	C
G	C	Em	D
A	D	F#m	E

I	iii	IV	V
C	Em	F	G
D	F#m	G	A
F	Am	Bb	C
G	Bm	C	D
A	C#m	D	E

I	IV	I	V
C	F	C	G
D	G	D	A
F	Bb	F	C
G	C	G	D
A	D	A	E

I	IV	ii	V
C	F	Dm	G
D	G	Em	A
F	Bb	Gm	C
G	C	Am	D
A	D	Bm	E

www.piano-keyboard-guide.com