

Name and Tutor group:



Year 8 Knowledge Organiser

Term 5

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CORSHAM CHARACTER

INTELLECTUAL VALUES

The pursuit of truth,
knowledge and
understanding.

Be reflective. Be curious. Be
open-minded. Be creative.



PERFORMANCE VALUES

Maximum effort, maximum
focus.

Be resilient. Always Persevere.
Contribute to Teamwork.
Be ambitious.



DREAM BELIEVE ACHIEVE

Theme park project - Knowledge Organiser

Types of logo

1. Strictly graphical symbol like the Nike "swish" or the McDonalds "Golden arch"



House style

House style means consistent use of font, logos, colour scheme, and layout on all your documents

Your theme park should have a recognisable style on your brochure, map, tickets, posters, etc

Businesses use consistent house style so you recognise their documents and advertising

2. A font based logo like Coca Cola, DELL, CNN, Sony or Nokia



3. Combination of font and graphics. This is the most common type of logo designed and most often employed by small to mid size companies.



Colour palette

Colours help set a mood - for instance consider these colours:

- Orange: Expresses energy, warmth, attention grabbing
- Blue: Seriousness, stability, trust
- Black: Sophistication, technology, power
- Green: Spring, generosity, health

DRAMA – Term 5 Year 8 . Links to History, PC and English

Derek Bentley:



- Aged 18 at the time
- Had the mental age of a 12 year old
- Never used any weapons
- Shouted 'Let him have it'

At school Derek

was described as "borderline feeble-minded"

Derek tried to join the army but was rejected

Derek was diagnosed as epileptic

Derek met Chris Craig

Derek Bentley Knowledge organiser

Key words:

- Still images
- Facial expressions
- Hot seating
- Characterisation
- Vocal skills

Christopher Craig:



- Aged 16 at the time
- Suggested breaking into a warehouse
- Brought weapons with him
- Shot a police officer

Craig shoots Fairfax in the shoulder

Sergeant Fairfax asks Craig to "Hand over the gun, lad"

Chris gives Derek weapons

Chris Craig suggested breaking into the warehouse

Derek and Craig are seen

The police are called and climb onto the roof

Bentley shouted the ambiguous phrase "Let him have it"

More police officers arrive

Craig and Derek are charged in court

New terminology:

Capital punishment: Receiving the death sentence for a crime committed – being killed for your crimes.

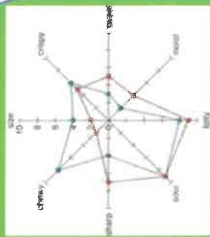
Open questions: Using questions that could have lots of different answers and details not just yes or no answers.

Reconstruction: Acting out a real event after it has happened as close to the real event as possible.

Year 8 Food Knowledge Organiser.

Sensory Analysis

Using technical descriptive words to evaluate food products. Using our senses - taste, texture, aroma and appearance. We often record this information onto a star (sensory) profile.



Discrimination testing These are used to detect differences between two or more products.

Hedonic testing

These are used to see how much we like the products



Healthy eating

What happens if we eat too much fat:

- Weight gain, Obesity
- Heart disease
- Type 2 diabetes

What happens if we eat too much sugar:

- Tooth decay
- Weight gain – obesity

What happens if we eat too much salt:

- Raised blood pressure
- Increased risk of heart disease and stroke

What happens if we don't eat enough fibre:

- Helps digestion and prevents constipation
- lower risk of heart disease, stroke, Type 2 diabetes and bowel cancer

Washing Up Routine



RINSE

STACK

WASH

DRAIN

DRY

Food provenance

Food that is grown, food that is caught, food that is reared.



EatWell Guide

The eatwell guide shows us how much of what we eat should come from each food group. What other information can you see that will help us make healthy choices?



Keywords

- Raising agent
- Obesity
- Type 2 diabetes
- Nutrients
- Balanced diet
- Provenance
- Coronary heart disease
- Conduction
- convection
- Hedonic testing

Practical

- Pasta bake
- Turkey burgers
- Chocolate brownies
- Pasta/rice salad
- Pineapple upside down cake
- Pizza
- croissants

Food Hygiene

- Food Poisoning: illness caused from eating contaminated food.
- Bacteria: Microscopic living organisms – some are good and some are bad!
- High risk foods: Foods that are high in protein and high in moisture. These foods need to be cooked and stored correctly to avoid harm

Health and Safety Rules in our Kitchen

- Wash hands thoroughly with soap and hot water
- Tie hair back
- Put on a clean apron
- Blazer and jumper off and roll up sleeves
- Bags under the table and chairs pushed under
- Sensible behaviour
- Listen to instructions
- No running in the kitchen
- Do not cough or sneeze onto food
- Use the correct colour chopping board
- Clear up spills immediately
- Do not mix raw and cooked food on the same board
- Follow the washing up routine

Conduction

Energy is transferred by direct contact



Convection

Energy is transferred by the mass motion of molecules.



Radiation

Energy is transferred by electromagnetic radiation



Year 8 Graphics

Tools, Techniques, Materials and Equipment

Paper

A compliant material made from wood pulp.



Board

Used for packaging, model making, photography and greeting cards.



Colour Rendering

A colour technique used for professional finish in DT.



Scoring

A method to create accurate folds.



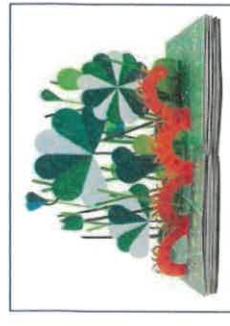
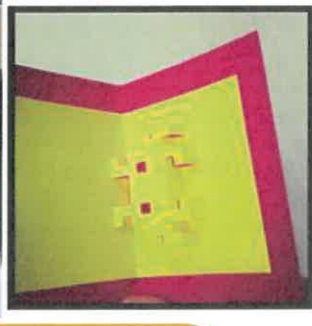
Craft knife

To accurately cut paper.



DESIGN AND TECHNOLOGY

Keywords
 Robert Sabuda
 Product
 Image
 Analyse
 Paper Sizes
 Typography
 Fonts
 Printing
 Processes
 Story Board
 Card
 Mechanisms
 Card Modelling
 Shading
 Rendering
 Rotary
 V-fold
 Internal
 Stand
 Mouth and Slide



Robert Sabuda
 The American illustrator who creates pop-up books.

Health and Safety in DT:

- Listen to your teacher's instructions
- Always wear an apron
- Long hair should be tied back
- Don't use equipment you are not trained on
- Always stand up during practical lessons
- When using machines, always wear safety glasses
- Only use the stop button in an emergency
- Work quietly and be sensible and careful at all times

What is good design?

- Clear ideas
- Annotations
- Measurements
- Content
- Presentation
- Balance

Maths in DT:

- Multiplication
- Divide
- Add / Subtract
- Measurement conversion
- Ratios
- Percentages
- Surface area




KS3 YEAR 8 D&T RESISTANT MATERIALS

Tools and Equipment

Measuring and marking

Steel rule		An accurate tool for measuring and marking out
Try square		A tool used to check right angles on wood or plastic
Template		A template is a tool used to mark out shapes repeatedly
Jig		A tool used to control the location and/or motion of another tool

Shaping and finishing

Metal file		Used to shape or smooth wood, metal or plastic
Glass paper		An abrasive paper used to smooth the surface or edges of wood
Disc sander		A machine used to smooth the edges of materials

Traditional wood joints:

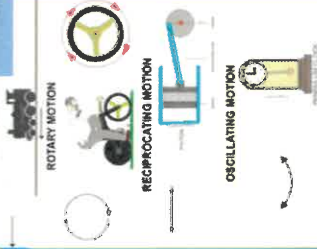
Butt Joint
Lap / Rebate Joint
Finger Joint
Dovetail Joint
Mitre Joint

Maths in DT:

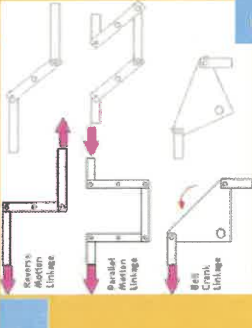
Multiplication
Divide
Add / Subtract
Measurement conversion
Ratios
Percentages
Surface area

Mechanical Devices

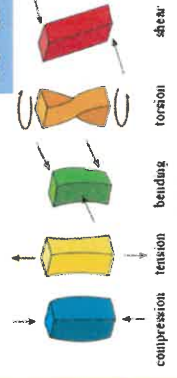
Motion



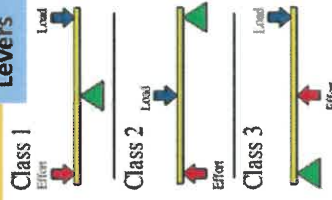
Linkages



Forces

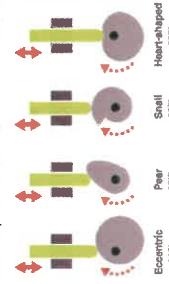


Lever

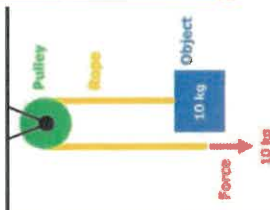


Types of cams

Different shaped cams are used for different tasks:



Pulley










Gears



2 point perspective

Cutting

Tenon saw		A hand saw with a stiff back used to cut straight lines in wood – back saw action
Coping saw		A hand saw used to cut complex shapes in wood and plastic
Scroll saw		A machine saw used to cut complex shapes in wood and plastic
Bench hook		Held against the front edge of a bench or table to support work
Pillar drill		A machine used to make holes in materials
Chisel		Used for carving or cutting a hard material such as wood, stone, or metal by hand
Laser cutter		CAM: Laser cutting is the use of a high-powered laser to cut, etch and engrave your material

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Keywords

Research
Design
Evaluation
Wood joint
Mechanical
Pulley
Linkage
Lever
Motion
Force

What is good design?

Clear ideas
Annotations
Measurements
Content
Presentation
Balance

KS3 YEAR 8

DT TEXTILES

Tools and Equipment	
Measuring and marking	
Measuring Tape	Fabric tape measure used to measure
Tailor's chalk	A temporary mark on fabric
Template / Pattern	A template / pattern is a tool used to mark out shapes repeatedly
Constructing	
Sewing needle	Helps to sew fabric together
Embroidery needle	A needle with a larger eye to accommodate embroidery thread
Sewing machine	Machine sews fabric together
Pins	A temporary method to hold fabric in place
Tacking stitch	A temporary stitch to hold fabric together

<p>Textiles Dyes:</p> <p>Natural Dyes</p> <ul style="list-style-type: none"> Plants Food / spices Grass / tree bark / leaves Onions / beetroot Cochineal <p>Chemical Dyes</p> <p>Dyes which are man-made using chemicals: consistent and vibrant.</p> <p>Fibre Categories:</p> <p>Natural Fibres</p> <p>Plant based natural fibres:</p> <ul style="list-style-type: none"> Cotton Linen Flax Coir (coconut) <p>Animal based natural fibres:</p> <ul style="list-style-type: none"> Wool Angora Silk <p>Man-made Fibres</p> <ul style="list-style-type: none"> Polyester Acrylic Nylon <p>Fabric Construction:</p> <p>Woven</p> <p>Knitted</p> <p>Bonded</p>	<p>Keywords</p> <p>Islamic</p> <p>Religion</p> <p>Design</p> <p>Product analysis</p> <p>Research</p> <p>Evaluation</p> <p>Stitch</p> <p>Scissors</p> <p>Sewing machine</p> <p>Customer</p> <p>Environment</p> <p>Function</p> <p>Material</p> <p>Seam allowance</p> <p>Hem</p> <p>Tie-Dye</p> <p>Printing</p> <p>Tesselate</p> <p>UCD</p> <p>Mordant</p>
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Cutting	
Fabric shears	Scissors used for cutting fabric
Thread scissors	Scissors used for cutting thread
Stitch ripper	Used for removing sewn stitches from fabric
Pinking shears	Creates a zig zag cut edge for decoration to prevent fraying
Adding Colour	
Tie-dye	A type of resist dye
Batik	A type of resist dye which uses wax
Block Printing	Engraved wooden blocks to produce repeat patterns
Fabric paint / pens	Paint / pens which can be applied to fabrics

Types of Seams:


- Plain
- French
- Flat felled
- Bound
- Lapped

Maths in DT:

- Multiplication
- Divide
- Add / Subtract
- Measurement conversion
- Ratios
- Percentages
- Surface area

Health and Safety in DT:

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A is for **Aesthetics**

C is for **Cost**

C is for **Customer**

E is for **Environment**

S is for **Size**

S is for **Safety**

F is for **Function**

M is for **Material**

Vocabulary	Definition
Revolution	Forcible overthrow of a government or social order
Animalism	System designed by Old Major for a happy life free of human interference
Commandments	Seven rules by which the animals will live
Unalterable	Cannot be changed or adapted
Equality	Being equal
Untrustworthy	Not being able to trust someone, deceitful
Capitalism	an economic & political system where a country's trade & industry are controlled privately for profit, rather than by the state.
Socialism	An economic & political system where trade & industry are controlled centrally for the good of all
Patriotic	Being devoted to your country
Corruption	Dishonesty or fraudulent behaviour by rulers
Republic	A state where power is held by the people & their elected officials (America is a republic) (Britain is a Monarchy)
Exploitation	Treating someone unfairly to benefit from their work

Context

- Orwell was a Socialist.
- He despised the cruelties in the Soviet Union model of socialism.
- The novel is an anti-totalitarian novel.
- Each character represents different historical figures.
- Pig represent educated Russians who took power.
- Moses represents the exploitation of religion in communism.
- The Sheep represent the Russian Masses. The Hens – collective farmers ordered by Stalin to surrender their livelihoods.

An allegorical tale with direct links to the history of the Soviet Union in the early 20th century. The book charts the corruptions of **Communist** ideals of equality, where workers are promised equality and freedom and are eventually repressed and treated as bad, if not worse, as under the previous rule of the **capitalist 'Tsar'**. **Snowball** represents **Trotsky**, a passionate component of **Animalism (Communism)** who is expelled by **Napoleon (Stalin)**. **Napoleon** follows a similar rise to power as **Stalin**, using fear and propaganda to control the masses, including show trials and executions. By the end of the novel, the **ideals of communism** have been so far abused and forgotten, that Napoleon meets and forms agreements with former oppressors. Orwell was a British journalist and author, who wrote two of the most famous political novels of the 20th century 'Animal Farm' and 'Nineteen Eighty-Four'. When Orwell saw a kid whipping a horse, he had an idea: "It struck me that if only such animals became aware of their strength we should have no power over them, and that men exploit animals in much the same way as the rich exploit the working class". This inspired him to write the novel.

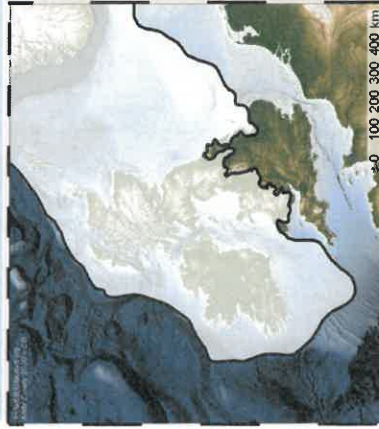
Terminology	Definition
Symbolism	Use of symbols to represent ideas or qualities
Imagery	Visually descriptive language
Motif	A recurring set of words/phrases or imagery for effect
Allegory	Extended metaphor in which a symbolic story is told
Omniscient third person narrative	All knowing narrator who is not involved in the action but sees it all happening



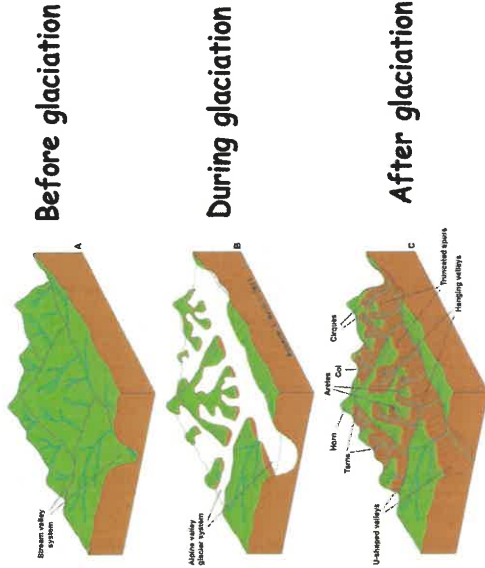
CHAPTER	Guide to events
CH1	The animals hold a meeting to discuss overthrowing the humans. They decide on rules if they are successful.
CH2	The animals run the men off the farm & the Jones' and rename it Animal Farm, destroying signs of slavery
CH3	The animals work hard to collect the harvest, a committee is established & the pigs take more than their share of the rations.
CH4	Jones tries to retake the farm. News of it has spread & neighbouring farmers are worried. The animals win The Battle of the Cowshead.
CH5	Mollie leaves the farm. Napoleon takes over all the decisions.
CH6	The pigs move into the farmhouse, they trade and the animals work hard to farm and build the windmill, overcoming setbacks. A storm destroys the windmill.
CH7	Napoleon starves the hens when they refuse to lay more eggs, he convinces them off a different version of The Battle of the Cowshead.
CH8	The pigs re-read the commandments, change them and get drunk. Frederick buys timber with forged money & blows up the windmill.
CH9	The piglets go to school, the farm becomes a republic with Napoleon as the President. Boxer looks forward to retiring, his strength fails and he is sent to the slaughterer. Most animals don't realise & whiskey arrives from the money confusing them.
CH10	Time passes, animals die, the conditions are poor for most and the pigs act like humans. The other animals can't tell the animals from the humans.

The world 20,000 years ago (the last ice sheet)

20,000 years ago, the global temperature plummeted and an ice sheet covered most of Europe.



Only the southern half of England was not covered by ice. This meant that all the land that was under the ice was shaped and changed by the ice creating glacial landscapes. (Humans only started to live in the UK 12,000 years ago)



Before glaciation

During glaciation

After glaciation

Where are glaciers today?

A glacier is a river of ice. It flows down hill due to gravity.



Glaciers are found in every continent. They are found in high altitude areas (mountains) and high latitude areas (Antarctica). The UK no longer has any glaciers.

What is a glacier?

How is a glacier formed?

1. Glaciers are formed in cold places where snow falls each year in the winter.
2. Every winter the layer of snow is added to and so the snow gets compacted over 100s of years.
3. Eventually the snow turns to ice and as it gets thicker/heavier it flows downhill due to gravity.

How does a glacier move?

Mountain glaciers can move at around 300m a year. The ice at the bottom of the glacier melts under pressure and helps the glacier slide down the mountain.

How a glacier changes the landscape

A glacier uses 3 main processes to shape the landscape

Freeze thaw weathering

Water freezes in cracks in rocks, expands and makes the cracks wider so weakens the rocks.

Plucking

Loosened blocks or rocks become frozen to the glacier. As the glacier moves forward, the rocks is plucked from the cliff or ground and moves with the glacier.

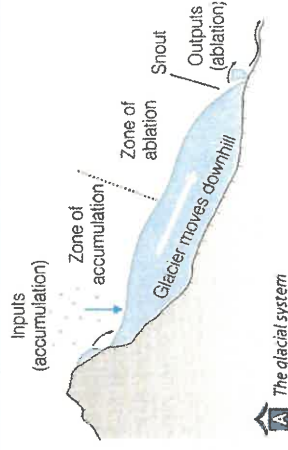
Abrasion

Due to plucking, the glacier is full of rocks. These rocks then scrape and grind against the ground and cliff making it deeper and wider.

What is a glacier?

Advancing and retreating glaciers.

An advancing glacier is a glacier that is getting longer (more ice is being added to it each year than is melting).
A retreating glacier is a glacier that is getting smaller as more ice is melting than is being added. Today most glaciers are retreating.



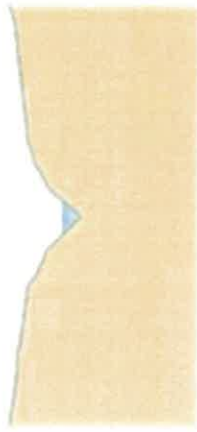
Year 8 Geography – How did glaciers shape our world?

Year 8 Geography – How did glaciers shape our world?

What is a U-Shape Valley?

U shape valleys are formed when a huge glacier slides down a mountain, using abrasion to carve into the valley, changing a v-shape valley into a U-Shape valley.

Glaciers take the easy route down a mountain. They follow old river valleys.



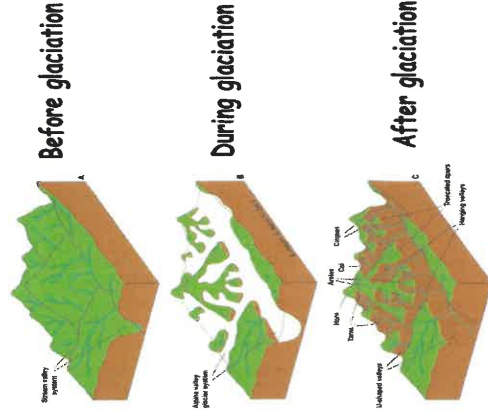
Up in the mountains, a river carves out a V-shaped valley. But when a glacier bulldozes its way down the valley ...

... it widens and deepens it, through abrasion and plucking. The valley becomes U-shaped.

What are depositional landforms from a glacier?

Depositional landforms are formed when the glacier drops the material it carried. This material is called till. This often happens when the glacier retreats leaving behind a changed landscape.

Erratics	Drumlins	Moraine
Very large boulders that have been carried a long way by the glacier. When the ice melts the boulder drops.	Smooth egg shape hills that can be 100-800m long. They are usually found in groups and were formed when the glacier moved over the material it dropped.	Debris that has been carried by the glacier forming long ridges made up of till. The moraine can be at the foot of where the glacier used to be or at the side.



What is a corrie?

Corries are huge bowl shaped into the mountain. Plucking and abrasion make a deep hollow in the landscape. When the glacier melts the hollow is revealed. A lake may be left called a tarn.

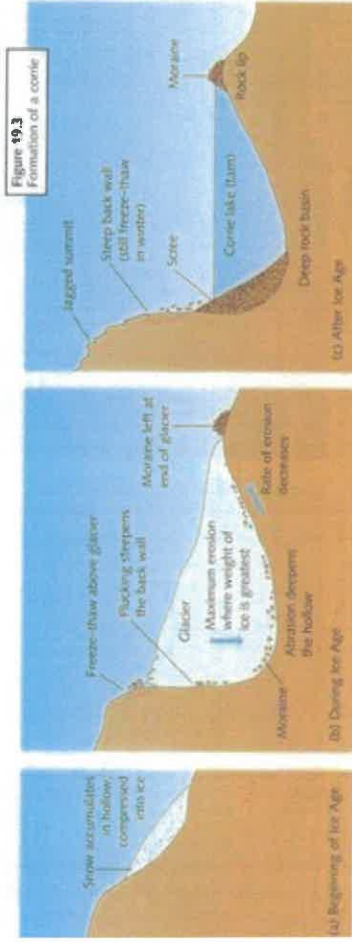


Figure 19.3 Formation of a corrie

What is an Arête and a pyramidal peak?

Arêtes are formed when you have 2 corries back to back creating a sharp looking knife edge.

Pyramidal peaks are formed when there are 3 or more corries back to back.

Arête



Sometimes two corries form side by side. The glaciers erode the rock between them, leaving a sharp ridge of rock. It is called an **arête**.

Pyramidal peak



Imagine three or four corries around a mountain top. The glaciers erode their back walls, cutting into the mountain top. It becomes a **pyramidal peak**.

Y8 German course KO

Meeting and greeting

Hallo!	Wie heißt du?
Ich helfe ...	He/She is ...
Hallo!	My name is ...
Guten Tag!	Hello/Hi!
Wie geht's?	Hello!
Gut, danke. Und dir?	How are you?
Nicht schlecht.	Fine, thanks. And you?
Tschüs!	Not bad.
Auf Wiedersehen!	Bye!
	Goodbye!

Die Zahlen 1–19

eins
zwei
drei
vier
fünf
sechs
sieben
acht
neun
zehn
elf

zwölf
dreizehn
vierzehn
fünfzehn
sechzehn
siebzehn
achtzehn
neunzehn

Wie alt bist du?
Ich bin ... Jahre alt.
Wie alt ist (Julia)?
(Julia) ist ... Jahre alt.

Wo wohnst du?

Ich wohne in ...
Er/Sie/Es wohnt in ...
...England
...Irland
...Nordirland
...Schottland
...Wales
...Deutschland
...Österreich
...der Schweiz

Numbers 1–19

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

How old are you?
I am ... years old.
How old is (Julia)?
(Julia) is ... years old.

Where do you live?

I live in ...
He/She/It lives in ...
England
Ireland
Northern Ireland
Scotland
Wales
Germany
Austria
Switzerland

Wie bist du?

Ich bin ...
Er/Sie ist ...
faul
freundlich
intelligent
kreativ
launisch
laut
lustig
musikalisch
sportlich

What are you like?

I am ...
He/She is ...
lazy
friendly
intelligent
creative
moody
loud
funny
musical
sporty

Lieblingsachen

Mein Lieblingssport ist ...
Mein Lieblingsmonat ist ...
Meine Lieblingsmusik ist ...
Meine Lieblingszahl ist ...
Meine Lieblingssendung ist ...
Meine Lieblingsfußballmannschaft ist ...
Mein Lieblingsspiel ist ...
Mein Lieblingsland ist ...
Mein Lieblingsauto ist ...
Was ist dein Lieblingssport?
Was ist deine Lieblingszahl? What's your favourite number?

Was ist dein Lieblingsland?

Favourite things

My favourite sport is ...
My favourite month is ...
My favourite music is ...
My favourite number is ...
My favourite programme is ...
My favourite football team is ...
My favourite game is ...
My favourite country is ...
My favourite car is ...
What's your favourite sport?
number?
country?

Hast du einen Computer?

Ich habe ...
einen Computer
einen iPod
einen Fußball
eine Gitarre
eine Wii
eine Schlange
ein Handy
ein Keyboard
ein Skateboard

Have you got a computer?

I have ...
a computer
an iPod
a football
a guitar
a Wii
a snake
a mobile phone
a keyboard
a skateboard

Fragewörter

Wie?
Was?
Wo?
Woher?
Wer?

Question words

How?
What?
Where?
Where ... from?
Who?

Oft benutzte Wörter

und
(und) auch
aber
sehr
ziemlich
nicht
Was denkst du?
Ich denke, ...
Ich auch!
Ich nicht!

Was? Du spinnst!

Hauttiere

Hast du ein Haustier?
Ich habe ...
einen Goldfisch
einen Hamster
einen Hund
ein Kaninchen
eine Katze
eine Maus
ein Meerschweinchen
ein Pferd
eine Schlange
einen Wellensittich
kein Haustier

Pets

Have you got a pet?
I have ...
a goldfish
a hamster
a dog
a rabbit
a cat
a mouse
a guinea pig
a horse
a snake
a budgie
no pet

Eigenschaften

Wie ist er/sie/es?
Er/Sie/Es ist ...
dick/schlank
frech/niedlich
gemein/süß
groß/klein
kräftig
schlau
(super)lustig
Er/Sie/Es kann ...
Italienisch sprechen
fliegen
Flöte/Fußball/Wii spielen

(schnell) laufen
lesen
Rad fahren
schwimmen

High-frequency words

and
(and) also
but
very
quite
not
What do you think?
I think ...
Me too!
Not me!/That's not what I think!
What? You're joking!

singen
springen
tanzen

sing
jump
dance

Die Zahlen 20-100

zwanzig
dreißig
vierzig
fünfzig
sechzig
siebzig
achtzig
neunzig
hundert
einundzwanzig
zweiundzwanzig

Numbers 20-100

twenty
thirty
forty
fifty
sixty
seventy
eighty
ninety
hundred
twenty-one
twenty-two

Meine Familie

Es gibt ... Personen in meiner Familie.
meine Mutter
mein Vater
mein Bruder
mein Stiefbruder/Halbbruder
meine Schwester
meine Stiefschwester/Halbschwester
meine Eltern
meine Großeltern
Hast du Geschwister?

My family

There are ... people in my family.
my mother
my father
my brother
my stepbrother/half-brother
my sister
my stepsister/half-sister
my parents
my grandparents
Have you any brothers and sisters?

Ich habe zwei Brüder.

Ich habe drei Schwestern.

Ich bin Einzelkind.

Ich habe keine Geschwister.

I have two brothers.

I have three sisters.

I am an only child.

I have no brothers and sisters.

Die Farben

schwarz
weiß
grau
braun
rot
orange
gelb
grün
blau
indigoblau
violett
lila

Colours

black
white
grey
brown
red
orange
yellow
green
blue
indigo
violet
purple

rosa
bunt
hellblau/dunkelblau

pink
brightly coloured
light blue/dark blue

Haare und Augen

Hair and eyes

Er/Sie hat ...

He/She has ...

schwarz/braune/blonde/rote Haare
kurze/lange/mittellange Haare
blau/braune/grüne/grau Augen

black/brown/blond/red hair
short/long/mid-length hair
blue/brown/green/grey eyes

Die Monate

The months

Januar
Februar
März
April
Mai
Juni
Juli
August
September
Oktober
November
Dezember

January
February
March
April
May
June
July
August
September
October
November
December

Das Datum

The date

Wann hast du Geburtstag?

When is your birthday?

am 1. (ersten) Januar
am 3. (dritten) Februar
am 7. (siebten) März
am 8. (achten) April
am 15. (fünfzehnten) Mai
am 29. (neunundzwanzigsten) Juni
Ich habe (heute) Geburtstag.

on 1 January
on 3 February
on 7 March
on 8 April
on 15 May
on 29 June
It's my birthday (today).

Oft benutzte Wörter

High-frequency words

und
aber
oder
ziemlich
sehr

and
but
or
fairly, quite
very

Enquiry: Why was WW1 called 'The Great War'?

Outline: When war broke out between two alliances in Europe in 1914, the conflict became a world war due to the empires that the countries owned around the world. Millions of people were affected by a war which has been called the first industrialised war due to the new technology developed to win.

Date	Events	Description
1882 and 1907	Triple Alliance and Triple Entente	Germany, Austro-Hungary and Italy formed the Triple Alliance in 1882 and France, Russia and Britain formed the Triple Entente in 1907. These were defensive to protect each other from war.
1914	WW1 began	Archduke Franz Ferdinand from Austria was assassinated by a Serbian in Sarajevo. This became the excuse used to launch the war in August.
1916	Battle of the Somme Battle of Jutland	The Somme was a catastrophic battle for Britain. Jutland saw a naval stalemate between Germany and Britain.
1917	Battle of Passchendaele Russia left the war and the USA joined.	Huge loss of life, mainly due to crucial tactical errors in the battle. Russia's revolution led to them making peace with Germany but the USA joined on the Triple Entente side which was crucial to their victory.
1918	WW1 ended	Germany and its allies surrendered in November 1918 and an armistice was signed.



History – Year 8 Knowledge Organiser Topic 5

Key individuals



Walter Tull. First Black person to be made a British army officer. He played football for Tottenham before the war. Tull died in the war in 1918.



Edith Cavell Worked as a nurse who helped soldiers from both sides. Was arrested by Germany and executed in 1915.



Wilfred Owen. A soldier who was famous for his poetry about the war. Owen attended a hospital to treat his PTSD. He died in the war in 1918.



The Red Baron. A German fighter pilot who was respected by British pilots. He had over 80 air victories but died in 1918.



Furthering learning
Want to find out more about the First World War?



Key vocabulary:

Alliance system: groups of countries who supported each other in case there was a war.

Arms race: competition between countries to have the most weapons.

Assassination: murder of an important political person.

Conscientious objector: someone who is allowed to avoid fighting and undertakes non-violent work.

Conscription: being forced to join the armed forces.
Empire: territories which are controlled by another more powerful country.

Encirclement: The Triple Alliance feared being surrounded by its enemies in the Triple Entente.

Escalation: before the war broke out, the situation was becoming intense and tension was growing.

Nationalism: a strong attachment to your country where you actively dislike other countries.

No man's land: land between the two side's trenches. Very dangerous to cross.

Recruitment: campaign to encourage men to join the army which often used propaganda.

Remembrance: the act of remembering the past so that it is not forgotten.

Shell shock: the name given to PTSD which was caused by trench warfare,

Stalemate: when neither side is winning

Tank: invented during the war to try and solve the problem of crossing no man's land.

Trench foot: medical problem where constant wet feet led to infection.

Trench warfare: where soldiers dig trenches and attack from these.



Prior learning?

Medieval – 19th century warfare
Role of technology in war

Preparation for a summative assessment

History – Year 8
Knowledge Organiser
Topic 5

British
government
poster made
in 1915



Historical skill focus: using evidence

- What is the nature, origin and purpose of a source?
- What makes a source useful?

Section B: using evidence

Write at least two paragraphs to answer this question:

How useful is Source A to tell a historian about recruitment for the First World War?

What to focus on

What is the **NATURE** of the source? Does this make it useful?

What is the **ORIGIN** of the source? Does this make it useful?

What is the **PURPOSE** of the source? Does this make it useful?

Starting sentences

Source A is useful because...

This is shown by...

The source is also useful due to its purpose which was to...



Point = One way the source is useful is...

Evidence = This is shown by the nature of the source...

Explain = This is useful because...

Developing

I can make inferences using a source.

I can ask questions about sources such as who made the source or when it was made

Secure

I can explain how a source can be useful/not useful in a PEE paragraph.

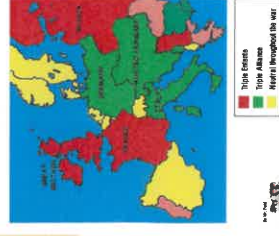
I am starting to think about the nature, origin and purpose of the source and what its impact could be.

Exceeding

I can explain how useful a source is and then make a judgement based on this information. I can write this in a PEEL paragraph.

I can accurately comment on the purpose of a source.

Europe in 1914



Nature = type of source like a painting or letter

Origin = date made and who made it

Purpose = why it was made = motivate/justify/persuade

Preparation for a summative assessment

History – Year 8
Knowledge Organiser
Topic 5

Historical skill focus: significance

- What makes an event significant?
- How can we judge significance?



Section B: Can you explain significance?

You could write one or two paragraphs to explain.

- How significant was the fight for democracy in the 19th and 20th centuries?

What to focus on:

One or two reasons why an event was significant.

Think about what makes it important; what happened? Who did it impact?

Think about the impact on them and the impact on others.



Starting sentences

One reason why this were significant was...

This makes it significant because...

Developing

I can explain a reason for the significance of individuals in a PEE paragraph.

Secure

I can explain more than one reason for the significance of individuals in a PEE paragraph.

I am beginning to compare different types of significance.

Exceeding

I can explain and compare several reasons for significance in a PEE paragraph

I am beginning to categorise for short and long term significance.

I am beginning to judge on which is the most significant area.



Point = One reason for the fight for democracy's significance is...
Evidence = This is shown by when they...
Explain = This is significant because...

YEAR 8 - DEVELOPING GEOMETRY...

Angles in parallel lines and polygons

@whisto_maths

What do I need to be able to do?

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

- Identify alternate angles
- Identify corresponding angles
- Identify co-interior angles
- Find the sum of interior angles in polygons
- Find the sum of exterior angles in polygons
- Find interior angles in regular polygons

Keywords

- Parallel:** Straight lines that never meet
- Angle:** The figure formed by two straight lines meeting (measured in degrees)
- Transversal:** A line that cuts across two or more other (normally parallel) lines
- Isosceles:** Two equal size lines and equal size angles (in a triangle or trapezium)
- Polygon:** A 2D shape made with straight lines
- Sum:** Addition (total of all the interior angles added together)
- Regular polygon:** All the sides have equal length, all the interior angles have equal size.

Basic angle rules and notation

The letter in the middle is the angle
The arc represents the part of the angle

Acute Angles
 $0^\circ < \text{angle} < 90^\circ$

Right Angles
 90°

Obtuse
 $90^\circ < \text{angle} < 180^\circ$

Reflex
 $180^\circ < \text{angle} < 360^\circ$

Straight Line
 180°

Angle Notation: three letters ABC
This is the angle at B = 113°

Line Notation: two letters EC
The line that joins E to C

Vertically opposite angles
Equal

Angles around a point
 360°

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!

Lines OF and BE are transversals (lines that bisect the parallel lines)

Corresponding angles often identified by their "F shape" in position.

Alternate angles often identified by their "Z shape" in position.

This notation identifies parallel lines

Alternate/ Corresponding angles

Because alternate angles are equal the highlighted angles are the same size

Because corresponding angles are equal the highlighted angles are the same size

Co-interior angles

Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

Triangles & Quadrilaterals

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side

Link to steps **R**

Properties of Quadrilaterals

Square
All sides equal size
All angles 90°
Opposite sides are parallel

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal

Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Trapezium
One pair of parallel lines

Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Sum of exterior angles

Exterior angles all add up to 360°

Using exterior angles

Interior Angle + Exterior angle = straight line = 180°
Exterior angle = $180 - 165 = 15^\circ$

Number of sides = $360^\circ \div \text{exterior angle}$
Number of sides = $360 \div 15 = 24$ sides

Sum of interior angles

Interior Angles
The angles enclosed by the polygon

Sum of the interior angles = $(5 - 2) \times 180$

This shape can be made from three triangles
Each triangle has 180°

Sum of the interior angles = $3 \times 180 = 540^\circ$

Remember this is **all** of the interior angles added together

Missing angles in regular polygons

Exterior angle = $360 \div 8 = 45^\circ$

Interior angle = $\frac{(8-2) \times 180}{8} = \frac{6 \times 180}{8} = 135^\circ$

Exterior angles in regular polygons = $360^\circ \div \text{number of sides}$

Interior angles in regular polygons = $\frac{(\text{number of sides} - 2) \times 180}{\text{number of sides}}$

YEAR 8 - DEVELOPING GEOMETRY...

Area of trapezia and Circles

@whisto_maths

What do I need to be able to do?

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

- Recall area of basic 2D shapes
- Find the area of a trapezium
- Find the area of a circle
- Find the area of compound shapes
- Find the perimeter of compound shapes

Keywords

Congruent: The same

Area: Space inside a 2D object

Perimeter: Length around the outside of a 2D object

Pi (π): The ratio of a circle's circumference to its diameter.

Perpendicular: At an angle of 90° to a given surface

Formula: A mathematical relationship/ rule given in symbols. E.g $b \times h =$ area of rectangle/ square

Infinity (∞): A number without a given ending (too great to count to the end of the number) – never ends

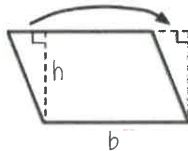
Sector: A part of the circle enclosed by two radii and an arc.

Area – rectangles, triangles, parallelograms

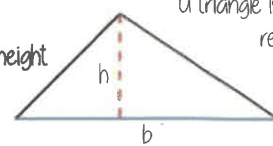
Rectangle
Base x Height



Parallelogram/ Rhombus
Base x Perpendicular height



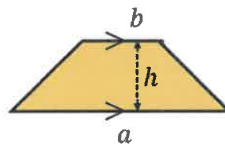
Triangle
 $\frac{1}{2} \times$ Base x Perpendicular height



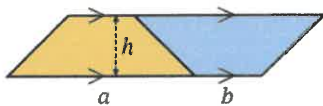
A triangle is half the size of the rectangle it would fit in

Area of a trapezium

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



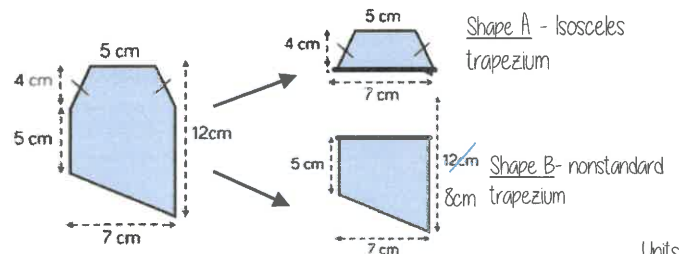
Why?



- Two congruent trapeziums make a parallelogram
- New length $(a + b) \times$ height
- Divide by 2 to find area of one

Compound shapes

To find the area compound shapes often need splitting into more manageable shapes first identify the shapes and missing sides etc first



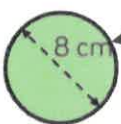
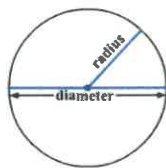
Shape A + Shape B = total area

$$\frac{(5+7) \times 4}{2} + \frac{(5+8) \times 7}{2} = 24 + 45.5 = 69.5 \text{ cm}^2$$

Area of a circle (Non-Calculator)

Read the question – leave in terms of π or if $\pi \approx 3$ (provides an estimate for answers)

Area of a circle
 $\pi \times \text{radius}^2$



Diameter = 8cm
 \therefore Radius = 4cm

$$\begin{aligned} \pi \times \text{radius}^2 \\ = \pi \times 4^2 \\ = \pi \times 16 \\ = 16\pi \text{ cm}^2 \end{aligned}$$

Find the area of one quarter of the circle



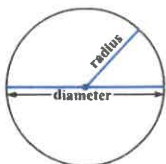
Circle Area = $16\pi \text{ cm}^2$
Quarter = $4\pi \text{ cm}^2$

Area of a circle (Calculator)



SHIFT $\times 10^x$

Area of a circle
 $\pi \times \text{radius}^2$



How to get π symbol on the calculator

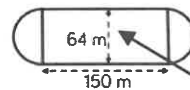
It is important to round your answer suitably – to significant figures or decimal places. This will give you a decimal solution that will go on forever!

Compound shapes including circles

Circumference
 $\pi \times \text{diameter}$

Compound shapes are not always area questions
For Perimeter you will need to use the circumference

Spotting diameters and radii



This dimension is also the diameter of the semi circles.

$$\begin{aligned} \text{Arc lengths} &= \pi \times 64 \\ &= 64\pi \end{aligned}$$

Don't need to have this because there are 2 ends which make the whole circle

Arc lengths + Straight lengths = total perimeter

$$\begin{aligned} &= 64\pi + 150 + 150 \\ &= (300 + 64\pi) \text{ m} \\ \text{OR} &= 501.1 \text{ m} \end{aligned}$$

Still remember to split up the compound shape into smaller more manageable individual shapes first

YEAR 8 - DEVELOPING GEOMETRY...

Line symmetry and reflection

@whisto_maths

What do I need to be able to do?

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

- Recognise line symmetry
- Reflect in a horizontal line
- Reflect in a vertical line
- Reflect in a diagonal line

Keywords

Mirror line: a line that passes through the center of a shape with a mirror image on either side of the line

Line of symmetry: same definition as the mirror line

Reflect: mapping of one object from one position to another of equal distance from a given line.

Vertex: a point where two or more-line segments meet.

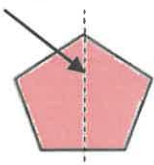
Perpendicular: lines that cross at 90°

Horizontal: a straight line from left to right (parallel to the x axis)

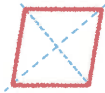
Vertical: a straight line from top to bottom (parallel to the y axis)

Lines of symmetry

Mirror line (line of reflection)



Shapes can have more than one line of symmetry...
This regular polygon (a regular pentagon has 5 lines of symmetry)



Rhombus
two lines of symmetry

Parallelogram

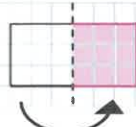
No lines of symmetry



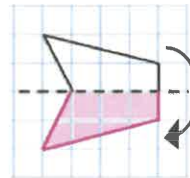
A circle has an infinite amount of lines of symmetry



Reflect horizontally/ vertically (1)



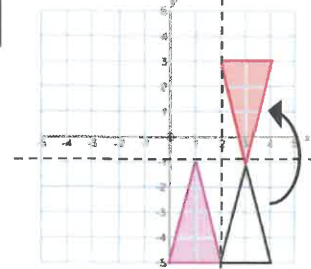
Reflection in a vertical line



Reflection in a horizontal line

Note: a reflection doubles the area of the original shape

Reflection on an axis grid

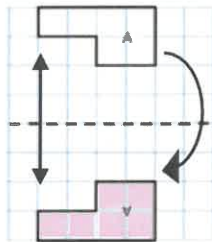


Reflection in the line $x=2$

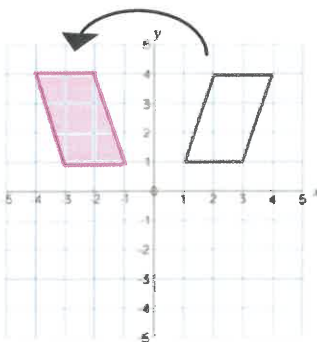
Reflection in the line $y=2$

Reflect horizontally/ vertically (2)

All points need to be the same distance away from the line of reflection



Reflection in the line y axis — this is also a reflection in the line $x=0$



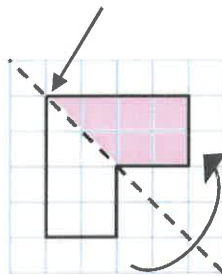
Lines parallel to the x and y axis

REMEMBER

Lines parallel to the x-axis are $y = \dots$
Lines parallel to the y-axis are $x = \dots$

Reflect Diagonally (1)

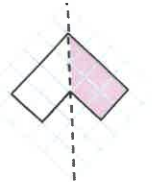
Points on the mirror line don't change position



Fold along the line of symmetry to check the direction of the reflection

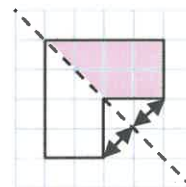
Turn your image

If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)



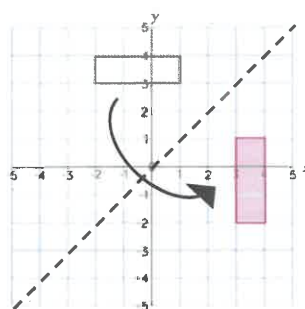
Drawing perpendicular lines

Perpendicular lines to and from the mirror line can help you to plot diagonal reflections

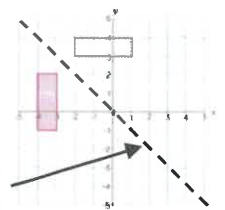


Reflect Diagonally (2)

This is the line $y = x$ (every y coordinate is the same as the x coordinate along this line)

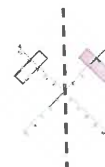


This is the line $y = -x$
The x and y coordinate have the same value but opposite sign



Turn your image

If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)



HISTORICAL CONTEXT

1. Programme music is **descriptive**, suggesting visual images or 'telling a story'. The descriptive idea or **story-line is known as the programme**.
 2. Instrumental music that is free of a programme and exists purely for its own sake is known as absolute music.

3. Although descriptive music had always existed, **orchestral programme music became very popular during the Romantic period** (roughly the 19th century) when music developed close links with **literature and painting**.

4. Musical devices used to express the story or inspiration include:
Musical motifs - short melodic or rhythmic ideas used to represent characters or images
Transformation of themes where a basic theme undergoes changes to mirror a situation
Orchestral colour - use of instruments to represent characters or images
Imitation of sounds e.g. birdsong or thunder
Use of musical elements - dynamics, harmony, tempo, key

Instruments and common associations (Musical Clichés)

Woodwind	Natural sounds such as bird song, animals, rivers
Brass	Soldiers, war, royalty, ceremonial occasions
Tuba	Large and slow moving things
Harp	Tenderness, love
Glockenspiel	Magic, fairy tales
Timpani/Drums	War, fighting, thunder
Strings	Often used to portray emotions: passion, grief etc.

Key Composers

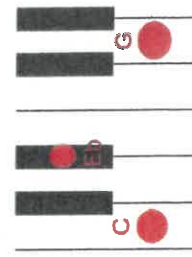
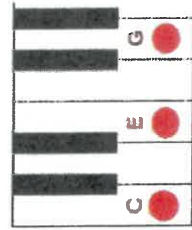
Hector Berlioz - Symphonie Fantastique (1830)
Modest Mussorgsky - Pictures at an Exhibition (1874)
Camille Saint-Saëns - The Carnival of the Animals (1886)
Paul Dukas - The Sorcerer's Apprentice (1897)

DYNAMICS (= Volume)

Term	Symbol:	Effect:
pianissimo	<i>pp</i>	very soft
piano	<i>p</i>	soft
mezzo piano	<i>mp</i>	moderately soft
mezzo forte	<i>mf</i>	slightly loud
forte	<i>f</i>	loud
fortissimo	<i>ff</i>	very loud
fortepiano	<i>fp</i>	loud then soft
sforzando	<i>sfz</i>	sudden accent
crescendo	\llcorner	gradually louder
diminuendo	\lrcorner	gradually softer

TEMPO (= Speed)

<i>Largo</i>	Very Slow
<i>Adagio</i>	Slow
<i>Andante</i>	Walking pace
<i>Moderato</i>	Moderate
<i>Allegro</i>	Fast
<i>Vivace</i>	Lively
<i>Presto</i>	Very fast
<i>Ritardando</i>	Getting slower
<i>Accelerando</i>	Getting faster



YEAR 8 – KNOWLEDGE ORGANISER: Evidence for the Existence of God

KEYWORDS

- Atheism/Atheist** The belief that God does not exist
- Theism/Theist** The belief that God does exist
- Omnibenevolent God** is all-loving
- Omnipotent-** God is all powerful
- Immanent** - God is acting within the world today and can be known personally
- Eternal** - without beginning or end
- Creation** - The act by which God brings about the existence of the universe
- Transcendent** - God is outside of space and time.
- Cosmological (The First Cause)**
- Teleological** (The argument from design)
- Religious Experience** (for example Miracles or Conversion)
- Moral Argument** (knowing right from wrong)
- Ontological Argument** (God is that which nothing greater can be conceived)



COSMOLOGICAL ARGUMENT (The First Cause)

A deductive argument which seeks to persuade us that God exists based on the idea that there exists in the universe evidence of that everything that exists has a cause. If we go back to the very beginning, we will reach the point where everything began and so reach a **first cause**. That first cause must itself be **uncaused** otherwise we would just go back into an infinite chain of causes. There is only one being which we can say is eternal and uncaused and powerful enough to create an entire universe. That being is GOD.

The first theologian to come up with this argument was **Thomas Aquinas**. It was later developed by Islamic Philosophers and the argument was called the **Kalam** argument.

Objections/Weaknesses

What caused God?

Why can't the universe have always existed if we say the same about God? Just because things in the universe have a cause - it doesn't mean the universe has to have a cause.

The Big Bang gives evidence that it was a spontaneous & random event
How do we know everything in the universe has a cause, have we checked - Aquinas is making claims he cannot prove

RELIGIOUS EXPERIENCE - Miracles

A religious experience has significance for the person who experiences it. It involves a sense of the holy or numinous. A person may say they had personally 'seen', 'heard' or 'felt' God. The experience cannot be proved, but the individual will be convinced of the reality of what has happened. It might lead to a radical change in behaviour or outlook on life. **Miracles** are events which break the laws of nature. By definition they are events which are seen as 'good'. For example - someone being healed or cured of an illness, a vision or the dead raising.

Weaknesses/Objections - David Hume - 1) "A wise man proportions his belief to the evidence". Hume suggests that a wise man considers which side is supported by the most evidence. E.g. if we take the miracle of Jesus walking on water from the bible, there is more evidence to support the fact people cannot walk on water rather than the one time that Jesus did, and so we should not believe it. 2) He also claims that miracles often come from "ignorant nations", making accounts of miracles unreliable. For example, many of the claims of miracles within the bible are made by poor, uneducated fishermen and peasants, which is not an adequate source. 3) Finally, He argues that miracles in other religions cancel each other out. Miracles from Hinduism or Buddhism, he argues, cancels out those from Christianity of Islam. As such, Hume suggests that instead of picking just one to believe in, we should deny them all.

Teleological Argument Also known as the argument from design. The name "the teleological argument" is comes from the Greek word *telos*, meaning "end" or "purpose". When arguments speak of the universe being 'ordered', they mean that it shows intelligent design or purpose. Like an architect designing a skyscraper. The universe could not have happened by chance

Thomas Aquinas first came up with the argument in the 13th century. Isaac Newton 17th century argued that the "thumb alone would convince me of God's existence"



William Paley 18th century used the analogy of the Watchmaker & the Watch.

Objections; 1) Evolutionary Theory and natural selection show us that development of species and humans is by chance not design. Charles Darwin. 2) David Hume - argued that there is flaws in the design - suffering and cruelty in nature lead us to question if God is the all loving designer.

RELIGIOUS EXPERIENCE - Conversion

Religious Experiences are positive and encouraging. The effects of them are permanent and life-changing. For the example of Nicky Cruz: In the 1960s the MauMaus were one of the most feared gangs in New York and Nicky was their leader. By the age of 18 he has committed awful crimes including shooting a young boy. Nicky encountered a Christian man called David. One day while he heard him preaching and he began to think of all the awful things he had done. David asked the crowd "stand up those who want your life changed" Nicky went to the front and for the first time ever, prayed. He felt all the fear and hatred leave him. After that he started to regularly attend church, he handed in all his weapons, completed Bible college and went back to his gang to preach the gospel and teach them about God. He had **CONVERTED**.



REVELATION and ENLIGHTENMENT

While religious people accept that God is transcendent and beyond human understanding most believe that it is possible to know something of God's nature and purposes through **revelation** **Enlightenment** means to be 'awakened'. It is a word used to describe a person who has come to understand religious truths, e.g. The Buddha

Special Revelation is where God makes himself known personally through visions or an event. For example St Bernadette had a vision of the Virgin Mary in Lourdes, France.

General Revelation is more indirect, e.g. seeing God through nature. This can also be knowing God through Holy Books or Scripture. Muhammad for example had a special revelation on Mount Hira, an angel gave him the words of the Qur'an. Today Muslims use this sacred text to help them to have a closer relationship to Allah and to know how to live a good Muslim life. **Objections** 1) Unfortunately, there is no scientific evidence to support that these are real events. Someone having a vision of God or hearing his voice could be imagining it or suffering from a psychosis. 2) Most people who have their faith confirmed by religious experiences such as a vision already have a faith - they were always going to believe it to be true. 3) General Revelations such as holy books provide little evidence as there are so many different holy scriptures out there. Which is the truth?

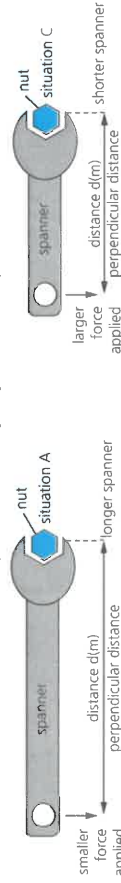
Work

- In physics, **work done** is the energy transferred when a force is used to move an object a certain distance
- Like energy, work is measured in **Joules (J)**
- Work can be done in a range of situations e.g. lifting a book work is done against gravity, when you slide a book along a table work is done against friction
- We calculate work with the equation:

$$\text{work done (J)} = \text{force (N)} \times \text{distance moved (m)}$$

- A **simple machine** makes it easier to lift things, they reduce the force needed
- A **force multiplier** uses a smaller **input force** (what you apply) to generate a larger **output force** (what is created)
- If you increase the distance from the pivot, less input force is needed to be used for the same output force as before
- A **lever** is an example of a force multiplier; a longer lever will require a less input force than a shorter lever to produce the same output force

The physics of unscrewing a tight nut with a spanner



Radiation

- **Radiation** is a method of transferring energy without the need for particles
- An example of radiation is thermal energy being transferred from the Sun to us through space (where there are no particles)
- This type of radiation is known as **infrared radiation**, it is a type of wave just like light
- The hotter an object is the more infrared radiation it will emit (give out)
- The amount of radiation emitted and absorbed depends on the surface of the object:

- Darker matte surfaces absorb and emit more infrared radiation
- Shiny and smooth surfaces absorb and emit less infrared radiation, instead reflecting this
- The amount of infrared radiation being emitted can be viewed on a **thermal imaging camera**



Energy and temperature

- The **temperature** of a substance is a measure of how hot or cold it is
- Temperature is measured with a **thermometer**, it has the units of degrees Celsius (°C)
- The **thermal energy** of a substance depends on the individual energy of all of the particles, it is measured in Joules (J)
- As all particles are taken into account, a bath of water at 30 °C would have more thermal energy than a cup of tea at 90 °C as there are many more particles
- The faster the particles are moving, the more thermal energy they will have
- When particles are heated they begin to move more quickly
- The energy needed to increase the temperature of a substance depends on:
 - the mass of the substance
 - what the substance is made of
 - how much you want to increase the temperature by

Conduction

- **Conduction** is the transfer of thermal energy by the vibration of particles, it cannot happen without particles
- This means that every time particles collide they transfer thermal energy
- Conduction happens effectively in solids as their particles are close together and can collide often as they vibrate around a fixed point
- Metals are also good **thermal conductors** as they contain electrons which are free to move
- In conduction the thermal energy will be transferred from an area which has a high **thermal energy store** (high temperature) to an area where there is a low thermal energy store (low temperature)
- Gases and liquids are poor conductors as their particles are spread out and so do not collide often, we call these **insulators**



Convection

- **Convection** is the transfer of thermal energy in a liquid or a gas, it cannot happen without particles
- As the particles near the heat source are heated they spread out and become less dense, this means that they will rise
- More dense particles will take their place at the bottom nearest the heat source creating a constant flow of particles
- This is known as a **convection current**
- Convection cannot happen in a solid as the particles cannot flow, they can only move around a fixed point



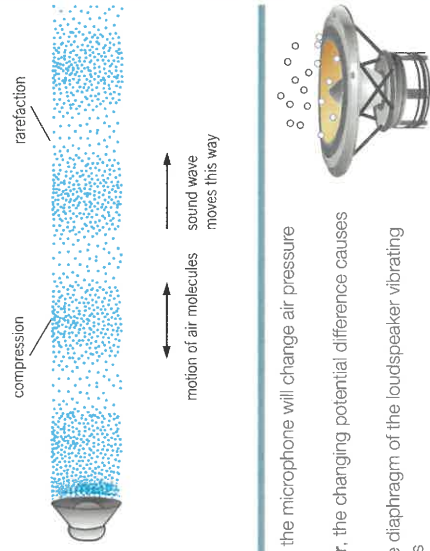
Key terms

Make sure you can write definitions for these key terms.

conduction convection convection current convection current thermometer force multiplier thermal conductor thermal conductor thermal energy store thermal energy store thermal imaging camera thermal imaging camera insulator insulator input force input force lever lever output force output force simple machine simple machine temperature temperature work done work done

Sound waves

- Any **wave** transfers energy from one place to another
- Sound waves cause particles to vibrate backwards and forwards in the direction of the wave, this produces areas of high pressure (**compression**) and low pressure (**rarefaction**)
- As there are areas where the air pressure is different in a sound wave, we can call sound waves a type of **pressure wave**
- Sound can be detected with a **microphone**, the microphone will change air pressure into a changing potential difference
- Sound can be produced with a **loudspeaker**, the changing potential difference causes changes in air pressure
- Changes in air pressure will be caused by the diaphragm of the loudspeaker vibrating and causing the movement of the air particles



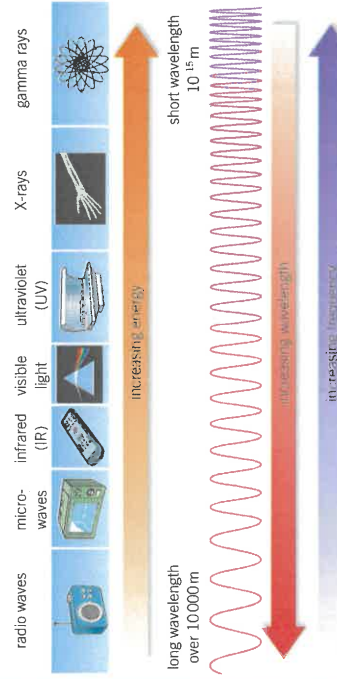
Types of waves

- Transverse waves** vibrate at 90° to the direction in which they are travelling, they move up and down as well as forward
 - Longitudinal waves** vibrate in the direction in which they are travelling
-
- When waves are put together they **superpose**, this means they will either add together or cancel each other out
 - When the waves are in line with one another they add together, increasing the amplitude of the wave
 - When the waves are not in line, they will cancel each other out, decreasing the amplitude of the wave

Ultrasound

- Humans can hear sounds with a frequency between 20–20000Hz.
- ultrasound** is any sound with a frequency of higher than 20000Hz
- As ultrasound has a high frequency, it causes the particles it interacts with to vibrate more quickly, this means that it can be used in:
 - Ultrasound cleaning – dirt particles are 'shaken' off of objects
 - Physiotherapy – the ultrasound waves causes liquid particles in the body to move more quickly and hence get warmer

Electromagnetic spectrum

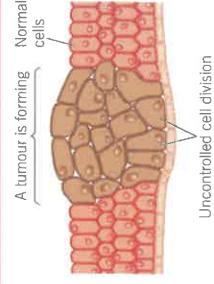


Uses of the electromagnetic spectrum

- Radio waves**: TV signals
- Microwaves**: Mobile phones
- Infrared**: Heating and cooking
- Visible light**: Photography
- Ultraviolet waves**: Detecting forgeries, sunbeds
- X-rays**: Imaging broken bones
- Gamma rays**: Killing cancer cells

Ionisation

- The higher the frequency of the wave, the higher the energy
- High energy waves can lead to **ionisation**, where electrons are knocked off of atoms in cells
- This can cause mutations in cells if the DNA is affected and this can lead to cancerous tumours forming
- The ionising waves in the electromagnetic spectrum are gamma, X-rays and ultraviolet rays



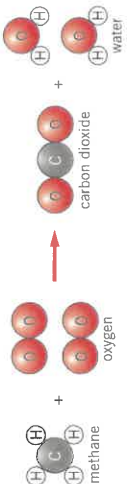
Key terms

Make sure you can write definitions for these key terms.

- compression electromagnetic spectrum gamma rays infrared ionisation
 pressure wave radio waves rarefaction superpose transverse wave
 longitudinal wave loudspeaker microphone microwave microwaves
 ultrasound ultraviolet visible light wave X-rays

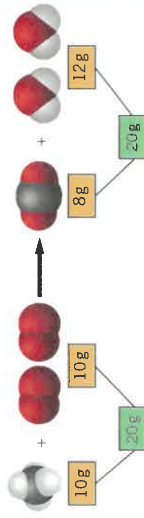
Chemical reactions

- Word equations can represent a **chemical reaction**:


- The **reactants** are on the left side of the arrow and the **products** are on the right side of the arrow
- We use an arrow instead of an equals sign as it represents that the reactants are changing into a new substance
- In a reaction, the amount of each type of atom stays the same, however they are rearranged to form a new product

Conservation of mass

- In a reaction the mass will be **conserved**, this means that the total mass of the reactants will be equal to the total mass of the products
- If it appears that some of the mass has been lost, this means that a gas has been produced and escaped, accounting for the lost mass



Balanced symbol equations show the amounts of all of the individual atoms in a reaction

- The symbols used are from the Periodic Table
- They also show:
 - Formulae of reactants and products
 - How the atoms are rearranged
 - Relative amounts of reactants and products



Combustion

- Combustion** is the burning of a **fuel** in oxygen
- A fuel is a substance which stores energy in a chemical store
- Examples of fuels include petrol, diesel, coal and hydrogen
- When a carbon based fuel undergoes combustion, it will produce water and carbon dioxide

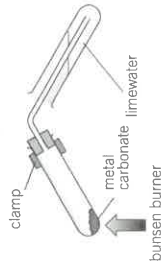
$\text{methane} + \text{oxygen} \rightarrow \text{carbon dioxide} + \text{water}$
- Hydrogen can also be used as a fuel, this is much better than traditional fossil fuels as it does not produce carbon dioxide:

$\text{hydrogen} + \text{oxygen} \rightarrow \text{water}$

Thermal decomposition

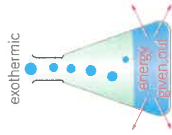
- A **thermal decomposition** reaction is one where the reactants are broken down (decomposition) using heat (thermal energy)
- An example of this is with metal carbonates:

$\text{zinc carbonate} \rightarrow \text{zinc oxide} + \text{carbon dioxide}$
- We can test for this carbon dioxide by bubbling the gas through limewater, if the limewater turns cloudy, the gas is carbon dioxide

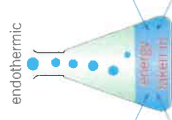


Exothermic and endothermic reactions

- Exothermic** reactions involve a transfer of energy from the reactants to the surroundings
- As energy is transferred to the surroundings this will show an increase in temperature
 - Examples of exothermic reactions include combustion, freezing, and condensing

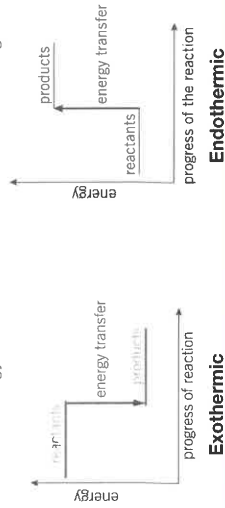


- Endothermic** reactions involve a transfer of energy from the surroundings to the reactants
- As energy is taken into the reactants a decrease in temperature will be shown
 - Examples of endothermic reactions include thermal decomposition, melting, and boiling



Energy level diagrams

- Energy level diagrams** show the values of energy between the reactants and the products in a reaction
- If the energy is greater in the reactants than the products then the reaction is exothermic as energy has been given out to the surroundings
 - If the energy is lower in the reactants than the products then the reaction is endothermic as energy has been taken in from the surroundings



Bond energies

- Energy must be used to break **chemical bonds**, meaning that this reaction is endothermic
- Energy is given out when chemical bonds are made, meaning that this reaction is exothermic
- To see if a reaction is endothermic or exothermic, you must find the difference in the energy needed to break and to make the bonds in the reaction
- If the energy needed to break the bonds is less than the energy given out when making the bonds, the reaction is exothermic
- If the energy needed to break the bonds is more than the energy released when making the bonds, the reaction is endothermic

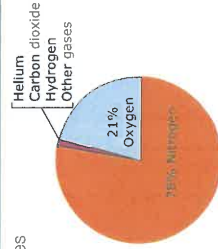
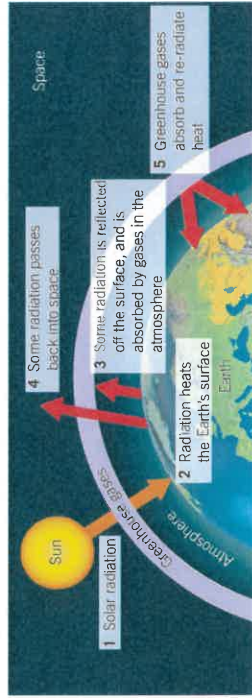
Key terms

Make sure you can write definitions for these key terms.

balanced symbol equation chemical bond chemical reaction combustion conserved conservation of mass decomposition fuel endothermic
 energy level diagram exothermic products reactants thermal decomposition

The atmosphere

- The air around us all of the time is known as the **atmosphere**. It is made up of a mixture of gases
- When the Sun heats the Earth's surface, some of the radiation is absorbed and some is reflected back into space
- Some of the gases in the atmosphere absorb radiation that is about to be reflected into space, this keeps the Earth at a warmer temperature than it would be without the atmosphere, this is needed as otherwise it would be too cold for life
- The gases in the atmosphere which absorb and trap this radiation are known as **greenhouse gases**, the most commonly known greenhouse gases are carbon dioxide and methane



Extracting metals

- Metals are a **natural resource**. with most being found joined with other elements in compounds
- Naturally occurring metals and their compounds are known as **minerals**
- An **ore** is a naturally occurring rock which contains enough of a mineral to be worth extracting
- An example of an ore is Bauxite, which contains aluminium hydroxide
- When metals are extracted they first have to be separated from other minerals in the ore, then they need to undergo a chemical reaction to separate them from the other element that they are joined to in a compound
- If a metal is below carbon in the reactivity series, it can be extracted by reacting it with carbon in a displacement reaction
- As carbon is more reactive it will take the place of the metal in the compound, leaving the metal on its own:
carbon + metal oxide → metal + carbon dioxide
carbon + copper oxide → copper + carbon dioxide
- If the metal is above carbon in the reactivity series, **electrolysis** can be used, this involves separating the metal by using electricity

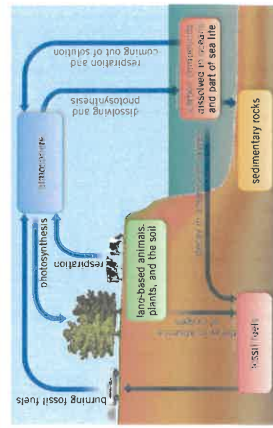
Reactivity series
magnesium
aluminium
carbon
zinc
iron
lead
copper

Global warming

- Global warming** is the gradual increase in temperature of the Earth
- This is closely linked to the rise in carbon dioxide levels in the atmosphere

The carbon cycle

- The **carbon cycle** is the processes by which carbon is naturally transferred to different stores through a range of natural processes
- Carbon is released into the atmosphere through **combustion of fossil fuels**, and animal **respiration**
- It is then reabsorbed by plants during **photosynthesis**



Climate change

- Long term changes to weather patterns are known as **climate change**
- This can cause the ice caps to melt, leading to sea levels rising and flooding of low level land
- Graphs alone cannot confirm that humans are the cause, but the majority of scientists now believe that human activity is a very likely cause
- We can help to prevent climate change by:
 - Using renewable energy resources
 - Using cars less
 - Buying and wasting less resources

Recycling

- Recycling** is the collecting and processing of materials that have been used so that the resources can be used again
- Recycling can have both advantages and disadvantages:

Advantages	Disadvantages
<ul style="list-style-type: none"> Resources will last longer It uses less energy than extracting new materials It reduces waste and pollution 	<ul style="list-style-type: none"> Separating rubbish can be seen as a nuisance The lorries collecting recycling produce pollution Some materials are easier to recycle than others

Key terms

Make sure you can write definitions for these key terms.

atmosphere carbon cycle climate change combustion ore photosynthesis recycling global warming greenhouse gas mineral natural resource

Respiration

- Respiration is the process in which energy is released from the molecules of food which you eat
- Respiration happens in the mitochondria of the cell
- Aerobic respiration** involves oxygen, it is more efficient as all of the food is broken down to release energy
glucose + oxygen → carbon dioxide + water
- The glucose is transported to the cells in the blood **plasma**
- The oxygen is transported to the cells in **red blood cells**, by binding with **haemoglobin**
- Carbon dioxide is a waste product and is transported from the cells to the lungs to be exhaled
- Anaerobic respiration** is a type of respiration which does not use oxygen, it is used when the body cannot supply the cells with enough oxygen for aerobic respiration
- Anaerobic respiration releases less energy than aerobic respiration
glucose → lactic acid
- The **lactic acid** produced through anaerobic respiration can cause muscle cramps
- Lactic acid will build up if there is not enough oxygen present in the blood supply to break it down. This is known as an **oxygen debt**

Fermentation

- Fermentation** is a type of anaerobic respiration which occurs in yeast
- Instead of producing lactic acid, yeast produces ethanol, which is a type of alcohol
glucose → ethanol + carbon dioxide
- This process can be used to form alcohol to drink or to allow bread and cakes to rise

Plant minerals

Plants need minerals for healthy growth, if they do not have enough of these minerals this is known as a **mineral deficiency**

Mineral	What is it used for?	What happens if there is not enough?
nitrates (contain nitrogen)	healthy growth	poor growth and older leaves yellow
phosphates (contain phosphorus)	healthy roots	poor growth, younger leaves look purple
potassium	healthy leaves and flowers	yellow leaves with deadpatches
magnesium	making chlorophyll	leaves will turn yellow

Fertilisers can be used to stop plants from suffering with mineral deficiencies

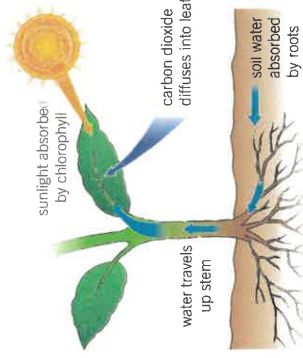
Key terms

Make sure you can write definitions for these key terms.

aerobic respiration algae anaerobic respiration chlorophyll mineral deficiency photosynthesis plasma potassium producer red blood cells

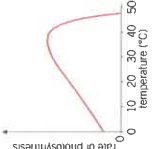
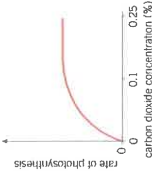
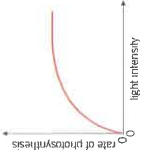
Photosynthesis

- Photosynthesis** is the process which occurs in the chloroplasts to produce glucose using sunlight
- water + carbon dioxide + sunlight → glucose + oxygen
- Any organism that can use photosynthesis to produce its own food is known as a **producer**, these are not just limited to plants but can include other organisms such as **algae**



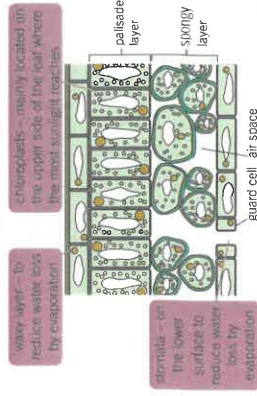
The rate of photosynthesis can be affected by:

- Light intensity – the higher the light intensity the higher the rate of photosynthesis up to a point
- Carbon dioxide concentration – the higher the carbon dioxide concentration the higher the rate of photosynthesis up to a point
- Temperature – the optimum temperature is the temperature at which photosynthesis occurs at the highest rate, before and after this the rate will be less



Leaves

- To best adapt for photosynthesis leaves have a number of adaptations
- They are thin to allow the most light through
- There is a lot of **chlorophyll** to absorb light
- They have a large surface area to absorb as much light as possible



Natural selection

- Scientists believe that the organisms which we see on Earth today have gradually developed over millions of years, this is known as **evolution**
- Charles Darwin came up with the concept of **natural selection**, he said that only the best adapted animals will survive to pass on their **genes**, weaker animals will die out
 - Organisms with the best adaptations survive and reproduce, weaker organisms die out and do not pass on their genes
 - Over a long period of time the best adaptations continue to be passed on which can lead to a new species being formed
- One example of natural selection can be seen in giraffes, only the giraffes with the longest necks would be able to eat from trees, the ones with shorter necks would not be able to eat and die out
- This would mean that only the gene for long necks would be passed on, leading to all giraffes having long necks

Extinction

- A species will become **extinct** when all of a species die out
- The **fossil record** shows us that animals have existed in the past which have now become extinct
- Extinction can be caused by:
 - Changes to the environment
 - Destruction of habitat
 - New diseases
 - Introduction of new predators
 - Increased **competition**
- When a species becomes extinct, the variety of species within an ecosystem is reduced, this is also known as a reduction in **biodiversity**
- The more diverse a **population** is, the more likely they are to survive environmental changes

Punnett squares

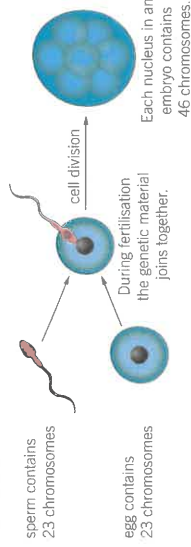
		Possible alleles from father	
		B	b
Possible alleles from mother	b	(recessive allele for blue eyes) bb Offspring will have blue eyes as both alleles are recessive	(recessive allele for blue eyes) bb Offspring will have blue eyes as both alleles are recessive
	B	(dominant allele for brown eyes) Bb Offspring will have brown eyes as B is dominant	(dominant allele for brown eyes) Bb Offspring will have brown eyes as B is dominant

Genetic modification

- Genetic modification** is the process which scientists can use in order to alter the genes of an organism
- Examples of this include altering cotton to produce higher yields, altering bacteria genes to produce medicines and altering crops to produce their own insecticides

Inheritance

- Characteristics** are passed along from parents to their offspring
- Half of the genetic information comes from each parent, this is passed on through the sex cells in the process of fertilisation

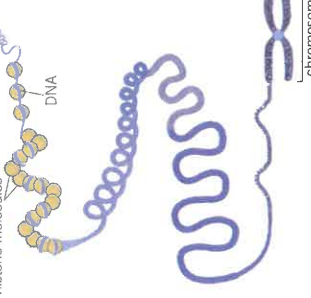


- DNA** is the material which contains all of this genetic information

DNA – in the shape of a double helix



- Chromosomes** – long strands of DNA which hold many genes, humans have 46 of these in the nucleus of cells



Genetics

- For every characteristic an organism will have two **alleles**, this is two different genes which can code for the same characteristic, one is inherited from each parent
- Dominant** alleles will cause the characteristic to be displayed even if they are with another allele, this is represented by a capital letter
- Recessive** alleles will not be displayed as characteristics unless there are two of the same allele, they are the characteristic least likely to be shown, this is represented by a small letter
- We can predict the inheritance of characteristics using a **Punnett square**

Key terms

Make sure you can write definitions for these key terms.

allele biodiversity characteristics chromosome competition DNA dominant punnett square evolution extinct fossil record gene genetic modification mutation natural selection population punnett square recessive

Saludos

¡Hola!
 ¿Qué tal?
 Bien, gracias.
 fenomenal
 regular
 fatal
 ¿Cómo te llamas?
 Me llamo...
 ¿Dónde vives?
 Vivo en...
 ¡Hasta luego!
 ¡Adiós!

¿Qué tipo de persona eres?

Soy...
 divertido/a
 estupendo/a
 fenomenal
 generoso/a
 genial
 guay
 listo/a
 serio/a
 simpático/a
 sincero/a
 tímido/a
 tonto/a
 tranquilo/a

Mi pasión

Mi pasión es...
 Mi héroe es...
 el deporte
 el fútbol
 la música
 el tenis

¿Tienes hermanos?

Tengo...
 una hermana
 un hermano
 una hermanastra
 un hermanoastro
 No tengo hermanos.
 Soy hijo único./Soy hija única.

Greetings

Hello!
 How are you?
 Fine, thanks.
 great
 not bad
 awful
 What are you called?
 I am called...
 Where do you live?
 I live in...
 See you later!
 Goodbye!

What sort of person are you?

I am...
 amusing
 brilliant
 fantastic
 generous
 great
 cool
 clever
 serious
 nice, kind
 sincere
 shy
 silly
 quiet, calm

My passion

My passion is...
 My hero is...
 sport
 football
 music
 tennis

Do you have any brothers or sisters?

I have...
 a sister
 a brother
 a half-sister/stepbrother
 a half-brother/sister
 No tengo hermanos.
 I am an only child. (male/female)

Numbers 1-31

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14

Los números 1-31

uno
 dos
 tres
 cuatro
 cinco
 seis
 siete
 ocho
 nueve
 diez
 once
 doce
 trece
 catorce

quince
 dieciséis
 diecisiete
 dieciocho
 diecinueve
 veinte
 veintuno
 veintidós
 veintitrés
 veinticuatro
 veinticinco
 veintiséis
 veintisiete
 veintiocho
 veintinueve
 treinta
 treinta y uno

¿Cuántos años tienes?

Tengo... años.
 ¿Cuándo es tu cumpleaños?
 Mi cumpleaños es el... de...

enero
 febrero
 marzo
 abril
 mayo
 junio
 julio
 agosto
 septiembre
 octubre
 noviembre
 diciembre

How old are you?

I am... years old
 When is your birthday?
 My birthday is the... of...

January
 February
 March
 April
 May
 June
 July
 August
 September
 October
 November
 December

¿Tienes mascotas?

Tengo...
 una cobaya
 un conejo
 un gato
 un perro
 un pez
 un ratón
 una serpiente
 No tengo mascotas.
 ¿Cómo es?
 ¿Cómo son?

Do you have pets?

I have...
 a guinea pig
 a rabbit
 a cat
 a dog
 a fish
 a mouse
 a snake
 I don't have any pets.
 What is it like?
 What are they like?

Los colores

blanco/a
 amarillo/a
 negro/a
 rojo/a
 verde
 gris
 marrón
 azul
 rosa
 naranja

Colours

white
 yellow
 black
 red
 green
 grey
 brown
 blue
 pink
 orange

Palabras muy frecuentes

bastante
 no
 mi, mis
 muy

High-frequency words

quite
 no/not
 my
 very

pero
también
tu/tus
un poco
y
a la derecha
a la izquierda
en el centro
hay
un chico
una chica
creo que

¿Qué te gusta hacer?

Me gusta...
Me gusta mucho...
No me gusta...
No me gusta nada...
chatear
escribir correos
escuchar música
jugar a los videojuegos
leer
mandar SMS
navegar por Internet
salir con mis amigos
ver la televisión
porque es...
porque no es...
interesante
guay
divertido/a
estúpido/a
aburrido/a

¿Qué haces en tu tiempo libre?

bailo
canto karaoke
hablo con mis amigos
monto en bici
saco fotos
toco la guitarra

Expresiones de frecuencia

a veces
de vez en cuando
nunca
todos los días

¿Qué tiempo hace?

hace calor
hace frío
hace sol
hace buen tiempo
llueve
nieva
¿Qué haces cuando llueve?

Las estaciones

la primavera
el verano
el otoño
el invierno

¿Qué deportes haces?

but
also, too
your
a bit
and
on the right
on the left
in the centre/middle
there is/there are
a boy
a girl
I think that

What do you like to do?

I like...
I really like...
I don't like...
I don't like at all...
to chat online
to write emails
to listen to music
to play videogames
to read
to send text messages
to surf the net
to go out with friends
to watch TV
because it is...
because it is not...
interesting
cool
amusing, funny
stupid
boring

What do you do in your spare time?

I dance
I sing karaoke
I talk with my friends
I ride my bike
I take photos
I play the guitar

Expresiones of frequency

sometimes
from time to time
never
every day

What's the weather like?

it's hot
it's cold
it's sunny
it's nice weather
it's raining
it's snowing
What do you do when it's raining?

The seasons

spring
summer
autumn
winter

What sports do you do?

Hago artes marciales.
Hago atletismo.
Hago equitación.
Hago gimnasia.
Hago natación.
Juego al baloncesto.
Juego al fútbol.
Juego al tenis.
Juego al voleibol.
¡Me gusta!
¡Me gusta mucho!
¡Me gusta muchísimo!
¡Me encanta!

Los días de la semana

lunes
martes
miércoles
jueves
viernes
sábado
domingo
los lunes
los martes

Algunas preguntas

¿Qué...?
¿Cuándo...?
¿Dónde...?
¿Cómo...?
¿Cuántos...?

Palabras muy frecuentes

con
cuando
generalmente
mucho
no
o
pero
porque
sí
también
y
¿Y tú?

I do martial arts.
I do athletics.
I do/go horseriding.
I do gymnastics.
I do/go swimming.
I play basketball.
I play football.
I play tennis.
I play volleyball.
I like it!
I like it a lot!
I really, really like it!
I love it!

The days of the week

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
on Mondays, every Monday
on Tuesdays, every Tuesday

Some questions

What/Which...?
When...?
Where...?
How/What...?
How many...?

High-frequency words

with
when
generally
a lot
no
or
but
because
yes
also, too
and
And you?