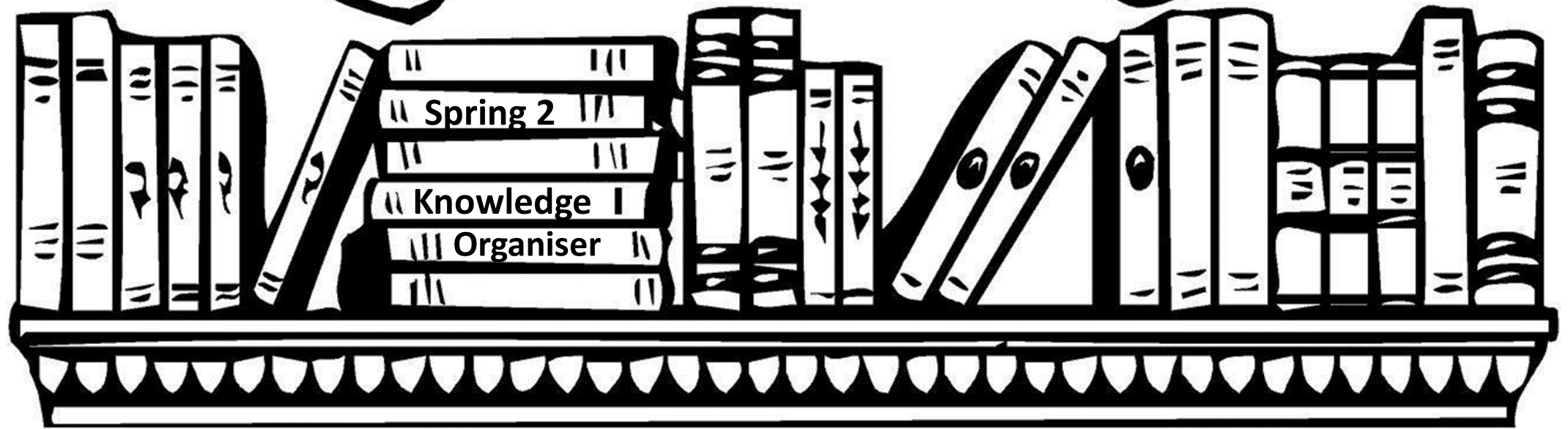


Knowledge




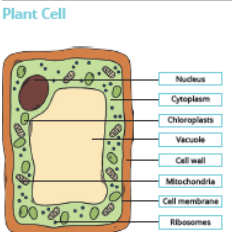
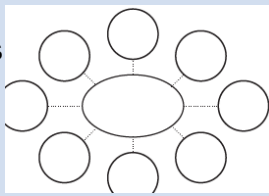


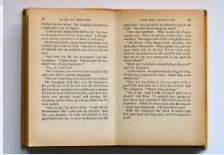

is power

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.

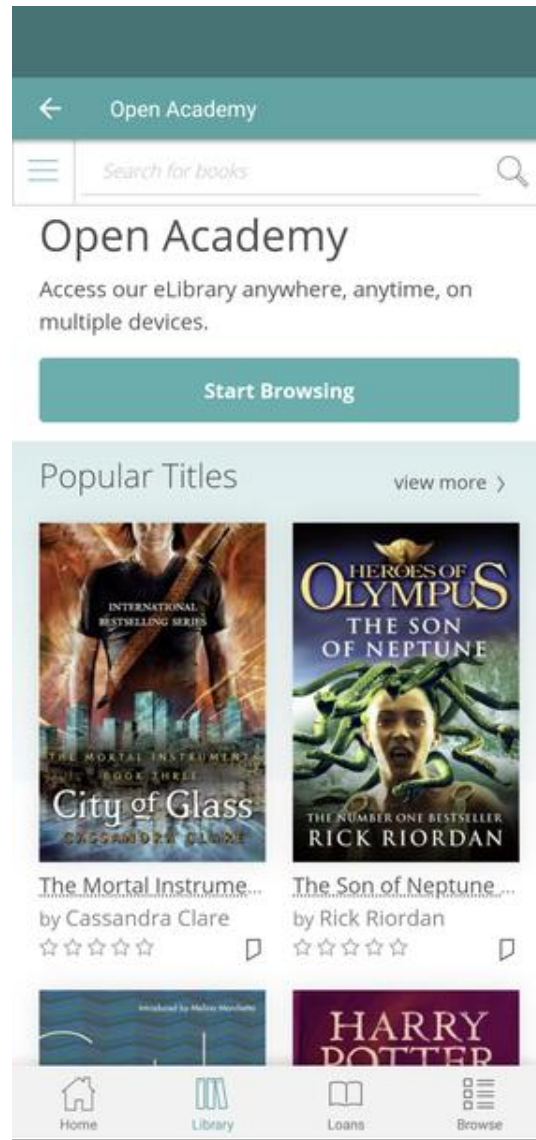
The knowledge is evolutionary not revolutionary. Approximately half the knowledge is new and half helps you revise. Many of the activities are changing. We hope you enjoy them.

In SKL you will be continuing to think about making choices leading to your options. You will also move into a topic that relates to maths. What is a personal budget and how will I manage my finances? It is great opportunity to play monopoly and Game of Life at home.

Subject	Page Number	Subject	Page Number
Reading	3	Computer Science	29
Art	5	RS	30
Maths	6	DT	32
English	9	Food	33
History	14	Geography	39
Science	16	Music	39
Deutsch	25	PE	42
Drama	28	Things to think about	43

Idea	Explanation
<p>Make some flash cards or PowerPoint slides. Make top trumps.</p> 	<p>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.</p>
<p>Make a poster.</p> 	<p>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!</p>
<p>Draw spider diagrams, or for the adventurous mind maps.</p> 	<p>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.</p>
<p>Write a song or a rap.</p> 	<p>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.</p>
<p>Plan a lesson</p> 	<p>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.</p>
<p>Write a story or comic strip.</p> 	<p>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.</p>
<p>Write a quiz. Design a game.</p> 	<p>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.</p>

READING AT HOME



Access eBooks anytime, anywhere with our school eBook platform.

Scan this QR code to be taken to the website and start borrowing today:

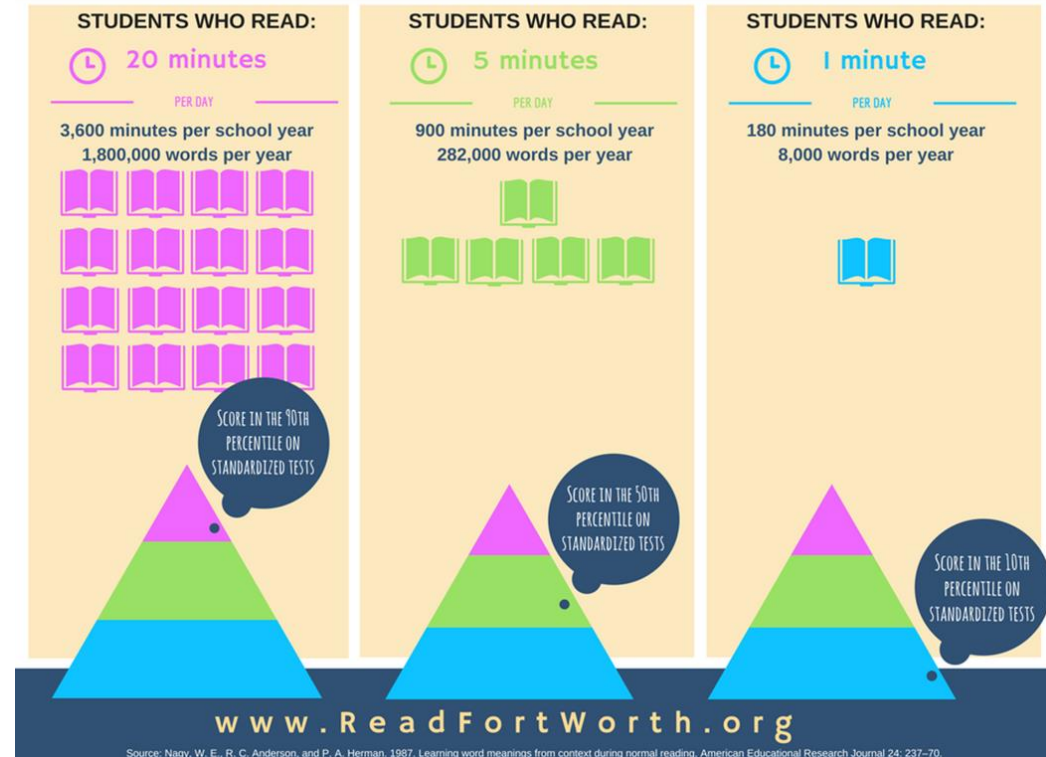


SCAN ME

Please contact Miss Ling if you are unsure of your log in details.

<https://openacademy.eplatform.co/>

Why read 20 minutes at home?



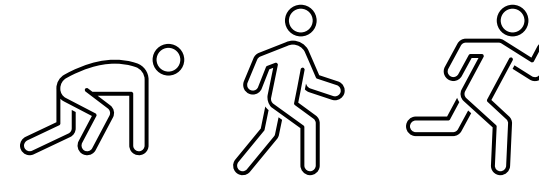
Reading has a number of benefits:

- Success at school
- Mental health & wellbeing
 - Better sleep
- Develop empathy
- Escapism (books can take you anywhere) ...and more!



ReadFit

A workout for your brain!



Read More • Build Reading Stamina • Make Reading a Daily Habit

To be a good reader, much like a marathon runner, you need to put in time and practice to be successful. Runners train over time, gradually increasing the difficulty by increasing the amount of time they run, the distance they run and the speed at which they run.

You can apply a similar idea to reading. To train to be a great reader, you can start by reading easier books, for a short period of time, and by breaking your book into small chunks (i.e. a few pages at a time). As you continue your reading training, you can gradually build up to reading more difficult texts, reading for longer and reading bigger sections of your book in one go.

ReadFit is a programme designed to help you on your reading journey. With beginner and hero challenges, each week there will be daily “reading workouts” to help you read more and reach 20 minutes of daily reading. Complete the “workouts” to unlock digital badges and rewards.

WEEK 1 ReadFit LOG

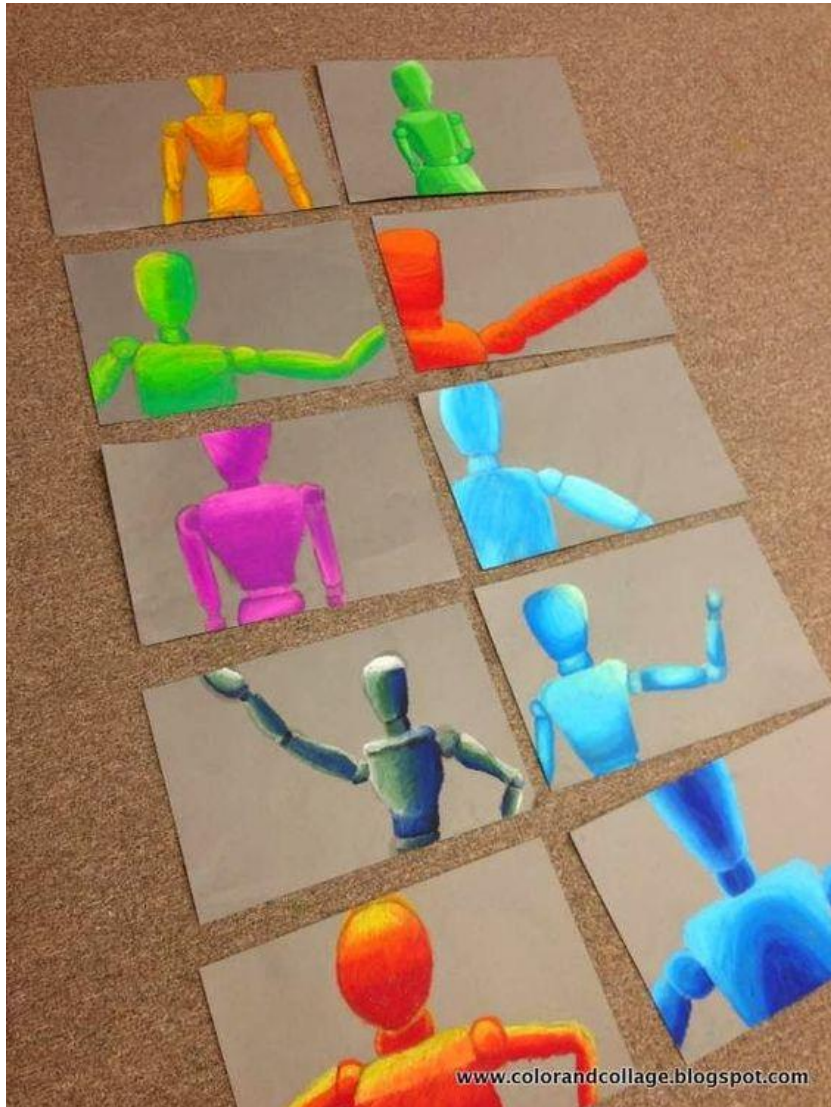
Title of the book I am reading:

Day 1 Page to	Day 2 Page to	Day 3 Page to	
Day 4 Page to	Day 5 Page to	Main characters	Tricky words
I thought the book was (what are you enjoying or disliking about the book, share your thoughts here):		I found the book: Easy Okay Hard Very Difficult I would recommend this book to others: Yes No	

View the weekly challenges in Teams,
or scan the QR code to take part

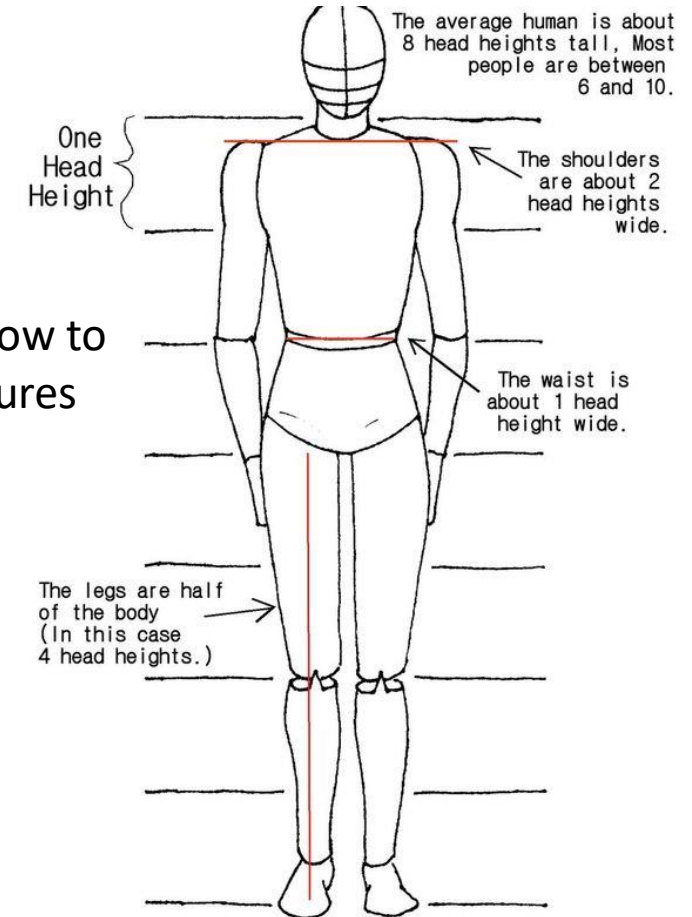


Colour, Tone and Depth



- Year 9 are looking at the Human Figure this term and making drawings From the wooden mannequins.

- They are studying proportion and how to Apply tone to show 3D form on the figures



Rotation & Translation

@whisto_maths

What do I need to be able to do?

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

- Identify the order of rotational symmetry
- Rotate a shape about a point on the shape
- Rotate a shape about a point not on a shape
- Translate by a given vector
- Compare rotations and reflections

Keywords

Rotate: a rotation is a circular movement.

Symmetry: when two or more parts are identical after a transformation.

Regular: a regular shape has angles and sides of equal lengths.

Invariant: a point that does not move after a transformation.

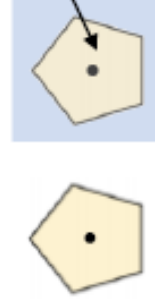
Vertex: a point two edges meet.

Horizontal: from side to side.

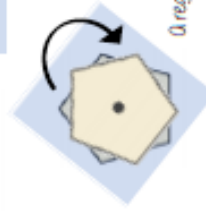
Vertical: from up to down.

Rotational Symmetry

Tracing paper helps check rotational symmetry.

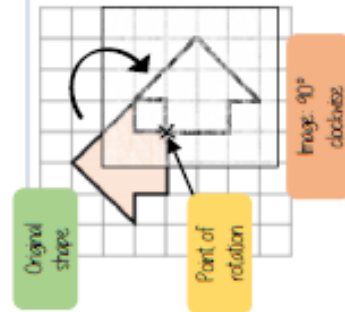


1. Trace your shape (mark the centre point)
2. Rotate your tracing paper on top of the original through 360°
3. Count the times it fits back into itself



A regular pentagon has rotational symmetry of order 5

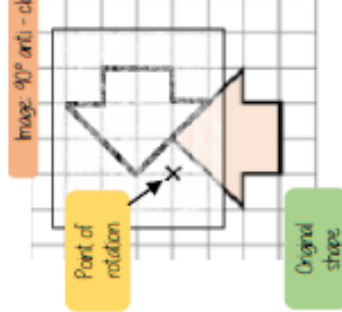
Rotate from a point (in a shape)



1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape



Rotate from a point (outside a shape)

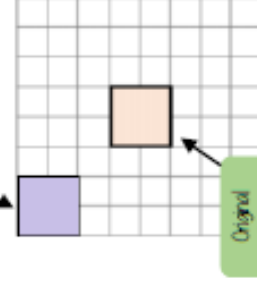


1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

Translation and vector notation



Translation $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$



Every vertex has been translated by the same amount

Compare rotations and reflections



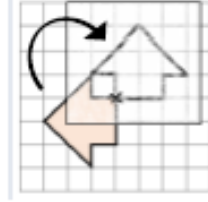
R Reflections are a mirror image of the original shape.

Information needed to perform a reflection:
- Line of reflection (Mirror line)

Rotations are the movement of a shape in a circular motion

Information needed to perform a rotation:

- Point of rotation
- Direction of rotation
- Degrees of rotation



YEAR 9 — REASONING WITH GEOMETRY...

Deduction

@whatso_maths

What do I need to be able to do?

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

- Identify angles in parallel lines
- Solve angle problems
- Make conjectures with angles
- Make conjectures with shapes

Keywords

Parallel two straight lines that never meet with the same gradient

Perpendicular two straight lines that meet at 90°

Transversal a line that crosses at least two other lines

Sum the result of adding two or more numbers

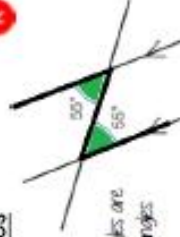
Conjecture a statement that might be true but is not proven

Equation a statement that says two things are equal

Polygon a 2D shape made from straight edges

Counterexample an example that disproves a statement

Alternate angles



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

Corresponding angles



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.

Solving angle problems

Angles on a straight line

180°

Vertically opposite angles

Equal

Angles around a point

360°

Link angle facts to algebra



Triangles

Sum of angles is 180°

Isosceles have the same base angles

Form an equation

$$2x + 4x = 180^\circ$$

State the reason

The sum of angles on a straight line is 180°

Solve

$$2x + 4x = 180^\circ$$

$$6x = 180^\circ$$

$$x = 30^\circ$$



Interior Angles

The angles enclosed by the polygon

$$(Number\ of\ sides - 2) \times 180$$

Making conjectures with angles

True

Always

Never

False

Sometimes

Proving a conjecture

A pattern is noticed for many cases

Disproving a conjecture

Only one counterexample is needed to disprove a conjecture



Apply the angle rules

The sum of angles in a triangle is 180°

Test the theory

$$180 - 70 - 20 = 90$$

$$180 - 85 - 5 = 90$$

$$180 - 45 - 45 = 90$$

Make conjecture

The angle that meets the circumference in a semi circle is 90°

Making conjectures with shapes

Keywords and facts to recall with shape

Area: the amount of space inside a shape

Perimeter: the length around a shape

Regular Polygons: All sides and angles are equal

Quadrilateral Facts

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

Rule

No parallel lines

Equal lengths on top sides

Equal lengths on bottom sides

One pair of equal angles

YEAR 9 — REASONING WITH GEOMETRY...

Pythagoras' theorem

@whisto_maths

What do I need to be able to do?

- By the end of this unit you should be able to:
 - Use square and cube roots
 - Identify the hypotenuse
 - Calculate the hypotenuse
 - Find a missing side in a right-angled triangle
 - Use Pythagoras' theorem on axes
 - Explore proofs of Pythagoras' theorem

Keywords

Square number: the output of a number multiplied by itself

Square root: a value that can be multiplied by itself to give a square number

Hypotenuse: the largest side on a right-angled triangle. Always opposite the right angle.

Opposite: the side opposite the angle of interest

Adjacent: the side next to the angle of interest

Squares and square roots

R



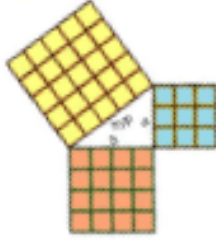
This can also be written as 6^2

$\sqrt{\quad}$ is the square root symbol
e.g. $\sqrt{64} = 8$
Because $8 \times 8 = 64$

1 × 1	2 × 2	3 × 3	4 × 4	5 × 5	6 × 6	7 × 7	8 × 8	9 × 9	10 × 10
1	4	9	16	25	36	49	64	81	100

Square numbers

Determine if a triangle is right-angled



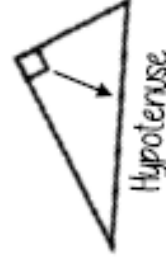
If a triangle is right-angled, the sum of the squares of the shorter sides will equal the square of the hypotenuse.

$$a^2 + b^2 = \text{hypotenuse}^2$$

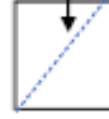
$$\begin{aligned} \text{e.g. } a^2 + b^2 &= \text{hypotenuse}^2 \\ 3^2 + 4^2 &= 5^2 \\ 9 + 16 &= 25 \end{aligned}$$

Substituting the numbers into the theorem shows that this is a right-angled triangle.

Identify the hypotenuse



The hypotenuse is always the largest side on a triangle because it is opposite the biggest angle.



Polygons can still have a hypotenuse if it is split up into triangles and opposite a right angle.

Calculate the hypotenuse



Either of the short sides can be labelled a or b

$$a^2 + b^2 = \text{hypotenuse}^2$$

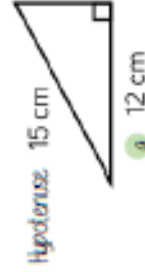
1. Substitute in the values for a and b

$$\begin{aligned} 3^2 + 6^2 &= \text{hypotenuse}^2 \\ 9 + 36 &= \text{hypotenuse}^2 \\ 45 &= \text{hypotenuse}^2 \end{aligned}$$

2. To find the hypotenuse, square root the sum of the squares of the shorter sides.

$$\begin{aligned} \sqrt{45} &= \text{hypotenuse} \\ 6.71\text{cm} &= \text{hypotenuse} \end{aligned}$$

Calculate missing sides



Either of the short sides can be labelled a or b

$$a^2 + b^2 = \text{hypotenuse}^2$$

$$12^2 + b^2 = 15^2$$

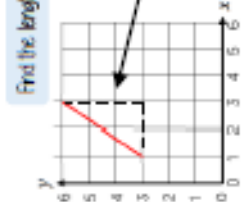
1. Substitute in the values you are given

$$\begin{aligned} 144 + b^2 &= 225 \\ -144 & \end{aligned}$$

Rearrange the equation by subtracting the shorter square from the hypotenuse squared

$$\begin{aligned} \text{Square root to find the length of the side} \\ b^2 &= 111 \\ b &= \sqrt{111} = 10.54 \text{ cm} \end{aligned}$$

Pythagoras' theorem on a coordinate axis



Find the length of the line segment

The segment can be made into a right-angled triangle by adding the sides on the diagram.

The line segment is the hypotenuse

$$a^2 + b^2 = \text{hypotenuse}^2$$

The lengths of a and b are the sides of the triangle.

Be careful to check the scale on the axes

Vocabulary to learn

Afghanistan
Province
Shellshock
Battalions
Battle
Trench warfare
Bayonet
Declaration
Frontline
Military
Segregation
Hysteria
Suffrage

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

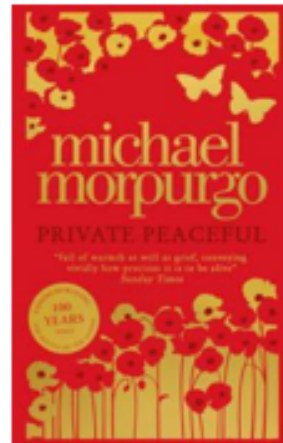
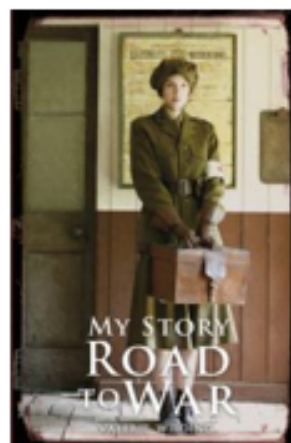
Methods

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

Example GCSE question:

Compare the ways poets present ideas about power in and in one other poem from 'Power and conflict' (anthology given in KS4).

Reading suggestions



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

Write your own definitions of these two words.

War is...

Conflict means...

You can use a dictionary for conflict if you have not used or heard this word before.



Siegfried

Sassoon: 1st
World War
soldier and
poet



Wilfred

Owen: 1st
World War
soldier and
poet

Soldier's Declaration – Sassoon's protest against military authority and what he believed to be the needless sacrifice of young men.

I am making this statement as an act of wilful defiance of military authority because I believe that the war is being deliberately prolonged by those who have the power to end it. I am a soldier, convinced that I am acting on behalf of soldiers. I believe that the war upon which I entered as a war of defence and liberation has now become a war of aggression and conquest. I believe that the purposes for which I and my fellow soldiers entered upon this war should have been so clearly stated as to have made it impossible to change them and that had this been done the objects which actuated us would now be attainable by negotiation.

I have seen and endured the sufferings of the troops and I can no longer be a party to prolonging these sufferings for ends which I believe to be evil and unjust. I am not protesting against the conduct of the war, but against the political errors and insincerities for which the fighting men are being sacrificed.

On behalf of those who are suffering now, I make this protest against the deception which is being practised upon them; also I believe it may help to destroy the callous complacency with which the majority of those at home regard the continuance of agonies which they do not share and which they have not enough imagination to realise.

Using dictionaries to find the meaning of any tricky words, translate Sassoon's letter into one that a soldier might write today, feeling as Sassoon did about the recruitment of soldiers.

Sentence starter:

'It is with anger and disgust that I write this statement on the recruitment of soldiers entering into war...'

Ext: Try to use a variety of sentence lengths; shorter powerfully charged sentences mixed with longer explanatory sentences.

E.g. 'I am disgusted. I am not only disgusted by the way in which the soldiers have been mistreated and deceived, but also by the lack of support from the country that they are dying to protect.'

Dulce et Decorum est (Propatria Mori)

By Wilfred Owen

Bent double, like old beggars under sacks,
Knock-kneed, coughing like hags, we cursed through sludge,
Till on the haunting flares we turned our backs
And towards our distant rest began to trudge.
Men marched asleep. Many had lost their boots
But limped on, blood-shod. All went lame; all blind;
Drunk with fatigue; deaf even to the hoots
Of tired, outstripped Five-Nines that dropped behind.
Gas! GAS! Quick, boys! – An ecstasy of fumbling,
Fitting the clumsy helmets just in time;
But someone still was yelling out and stumbling,
And flound'ring like a man in fire or lime...
Dim, through the misty panes and thick green light,
As under a green sea I saw him drowning.
In all my dreams, before my helpless sight,
He plunges at me, guttering, choking, drowning.

If in some smothering dreams you too could pace
Behind the wagon that we flung him in,
And watch the white eyes writhing in his face,
His hanging face, like a devil's sick of sin;
If you could hear, at every jolt, the blood
Come gargling from the froth-corrupted lungs,
Obscene as cancer, bitter as the cud
Of vile, incurable sores on innocent tongues, --
My friend, you would not tell with such high zest
To children ardent for some desperate glory,
The old Lie: Dulce et decorum est
Pro Patria mori.

Use the
purple
literary
devices and
word class
box to
annotate
the poem

'Dulce et Decorum Est Propatria Mori'

Translated means: it is sweet and right/fitting to die for one's country.

Do you think the title shows this, or is the title ironic? Explain using PEE and quotes.



Died March
1945, just
weeks before
the end of
WW2

Anne Frank is one of the most famous J..... victims of the
H....., because of the diary she kept during her time in
h..... before being captured by the n..... She was only 13
years old when she and her family went into h..... The writing
from the two years she spent in such close p..... to her
family, was discovered and p..... by her father, Otto Frank.

proximity, Nazis, Jewish, Holocaust, published, hiding (x2)

Extracts from Anne's diary

1. Our little room looked very bare at first with nothing on the walls; but thanks to daddy who had brought my film star collection and picture postcards on beforehand, and with

the aid of a paste-pot and brush, I have transformed the wall into one gigantic picture. This makes it look much more cheerful.

2. Twice they rattled at the bookcase, then there was nothing, the footsteps withdrew, we were saved so far. A shiver seemed to pass from one to another. I heard someone's teeth chattering, no-one said a word.
3. I've only dismal and depressing news for you today. Our many Jewish friends are being taken away by the dozen. These people are treated by the Gestapo without a shred of decency, being loaded into cattle trucks and sent to Westerbork, the big Jewish camp in Drente.

TASK: Write 1-2 diary entries from Anne, or another child of war's perspective.

- Include descriptions of your particular circumstance e.g. who are you with? Where are you? How did you get here?
- Include your thoughts and feelings about what is happening to you, your family and your country.
- Remember you are still a child, so, like Anne, relatively minor issues and problems will still affect you and will be worth mentioning in your diary entries; this will create realism.

Key words	
National Socialism	A political system in which a strong government rules a country and protects the interest of one racial group.
Adolf Hitler	An Austrian politician who became leader of the Nazi Party in 1921 and led them to power by 1933. Hitler shot himself in 1945.
The SA	Abbreviation of 'Sturmabteilung' or 'Storm Division'. Known as the brown shirts, they were an armed wing of the Nazi Party in its early years
The SS	Abbreviation of 'Schutzstaffel' or 'Protection Squadron'. Known as the black shirts, they took over from the SA as the Nazis' most loyal and committed soldiers. Oversaw much of the Holocaust.
Hitler Youth	A series of youth organisations in Nazi Germany, where young boys would learn practical and military skills and girls would learn how to be 'good' mothers and wives
Anti-Semitism	Hatred of discrimination of Jews. This had existed for centuries but was particularly important in Nazi Germany.
The Holocaust	General term given to the treatment of Jews and other 'undesirables' by the Nazis between about 1938 and 1945.
Eugenics	The belief that it is possible and desirable to improve the human race by selective breeding and by eradicating undesirable elements or 'genetic' traits.

The Carrot:

For those who did as they were told and matched the Nazi ideal, there were many benefits for living in Nazi Germany. Propaganda also promised people happiness if they supported the Nazi regime.



The stick:

The Nazis made it very clear that anyone who disobeyed their rules would be punished. This meant prison and execution for many. They also set up 'work and education' camps in Germany.

The Nazis controlled society through the 'carrot and stick method'

Why did people support the Nazis?

Although the Nazi Party never won an election in Germany, they did have a lot of support in some sections of society. Some historians say that the Nazis won support through 'negative cohesion', which means that their supporters did not always agree with each other, but supported the Nazis because shared a fear of hatred of something/someone else. Some reasons for supporting the Nazis are as follows:

- **The Great Depression of 1929** – led to a lot of unemployment and poverty in Germany. The Nazis promised to end unemployment and also provided aid to many who could not afford food.
- **Fear/hatred of Communism** – Many middle and upper class people saw that if the communists took power they would lose their wealth. The Nazis were one of the most active and vocal groups against communism.
- **Appeal to traditional values** – The Nazis promised a return to 'traditional' German values which many people thought had been forgotten in the 1920s.
- **Propaganda and anti-Semitism** – The Nazis put the blame for many of Germany's problems on the Jews. For desperate people looking for someone to blame this idea could easily become attractive.

The Nazis promised the German people that they would create a 'Third Reich' and bring all true Germans to glory. Although there were some advantages for certain people, they ultimately failed to meet most of their promises and when WWII began they ended many of their policies aimed at helping the German people. On the right are some examples of people who did and did not benefit from Nazi rule.

The Holocaust

Although there is historical debate around when the Holocaust started, the word is usually used to describe the mistreatment and murder of over 6 million Jews and millions of others by the Nazis, either because of their race, religion, sexuality, ability or lifestyle.

The Holocaust did not begin suddenly but was a process that arguably began in 1933 and continued until the Nazis were defeated in 1945.

The most well-known feature of the Holocaust is the concentration and death camp, where prisoners were systematically murdered, overseen by the SS.

Social group	Advantages	Disadvantages
Women	Women were rewarded for marrying and having children through loans and medals. They were also praised in Nazi propaganda.	Women lost many of the freedoms they had enjoyed in the 1920s. They were now pressured into becoming housewives and mothers, and many lost their jobs under the Nazis.
Workers	Unemployment dropped dramatically under the Nazis and workers were usually able to find work. They were also given benefits such as cheaper holidays, cars and activities.	Wages did not rise as much as promised, and the employment figures covered up the fact that many were working in conscripted (compulsory) work for very little money. As the war began many of the previous benefits for workers ended.
Young people	Hitler Youth organisations were set up for boys and girls. These were mostly fun and offered opportunities for adventure.	Young people were targeted for propaganda, particularly through school where they learnt national socialist ideas. Any young people who had fun in the 'wrong' way were punished, often being put in camps.
'Undesirables'	There were virtually no advantages to fitting into this category.	Referred to as the 'untermenschen', Jews, eastern Europeans, homosexuals, people with disabilities, Roma/Sinti people, criminals and Jehovah's Witnesses were put in camps and often killed or worked to death.

1933 – The Nazis call for Jewish businesses to be boycotted, Jewish books are banned and Jews are banned from some jobs

1935 – Homosexuals can now be arrested, and the Nuremberg Laws make Jewish people non-citizens.

1938 – In an event known as 'Kristallnacht' thousands of Jewish businesses, homes and synagogues are looted. 91 Jews are killed.

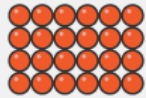


1940 – Auschwitz, the largest concentration camp, is built in Poland.

1941 – Mass killing of Jewish and Eastern European people begins

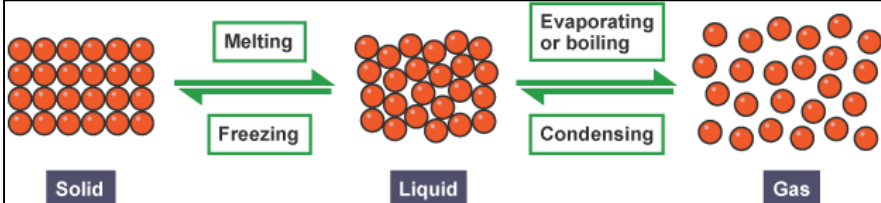
1942–45 – Jews from all over Europe are taken to death camps and systematically murdered

PARTICLES

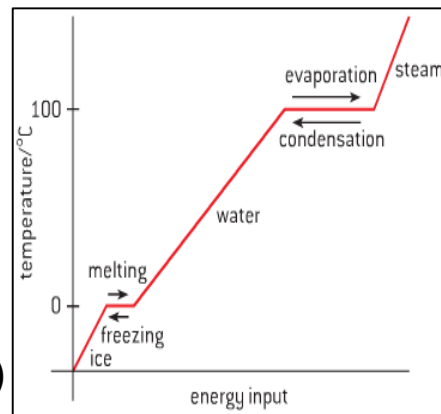
Key knowledge – Particle theory, states of matter, changes of state, diffusion, density

State	Solid	Liquid	Gas
Diagram			
Arrangement of particles	Regular arrangement	Randomly arranged	Randomly arranged
Movement of particles	Vibrate about a fixed position	Move around each other	Move quickly in all directions
Closeness of particles	Very close	Close	Far apart

The particles should be the same in all 3 diagrams.



As a substance is heated it gains **energy**.
When the particles gain enough energy They overcome the **forces** between them.
Whilst a **change of state** is happening the **temperature** of the substance does not change. (flat line on graph)



Density

1 kg of a gas has a larger volume than 1 kg of a solid.
There is empty space between particles in a gas, but in a solid, they are tightly packed together.

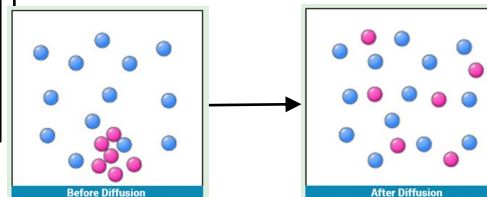
$$\text{Density} = \text{Mass} / \text{Volume}$$

... so the density of the gas is much smaller than the density of the solid.

Diffusion

Particles in a liquid or a gas **spread out** from an area of **high concentration** to an area of **low concentration** until the concentrations are equal.

The **higher** the concentration **gradient** the **faster** the net diffusion.
The **higher** the **temperature** the **faster** the net diffusion.
If the particles that are spreading are water molecules we call this process **osmosis**.



How Science works

Risk Assessment

Hazard	Risk	Level of risk	Control measure
What could cause harm? e.g. electricity	What harm could it cause? e.g. electrical shock, burns to the skin	How likely is it to happen and how bad would it be? Low, medium or high risk?	What safety precautions will be taken? e.g. wear safety goggles, ensure all wires and equipment is tested, fused, earthed and insulated. Do not use near water.

The independent variable – The one factor that can be changed in an investigation

The dependent variable – The one thing that needs to be measured in an investigation

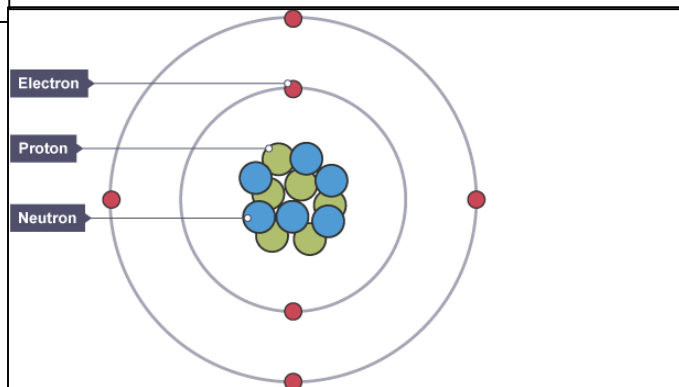
Control variable – all the factors that need to be kept the same to ensure the investigation is fair

Mendeleev's beard 1

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

Structure of the Atom

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

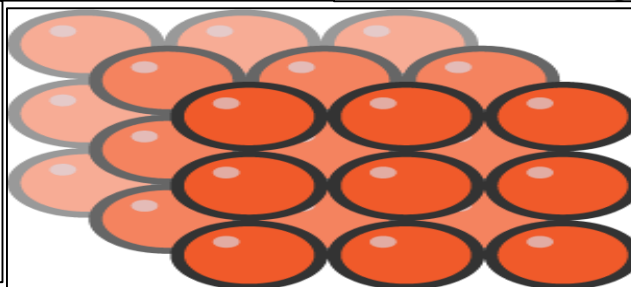


1	2		3	4	5	6	7	0
								He
Li	Be							
Na	Mg							
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir
Fr	Ra	Ac						

Metals Non-metals

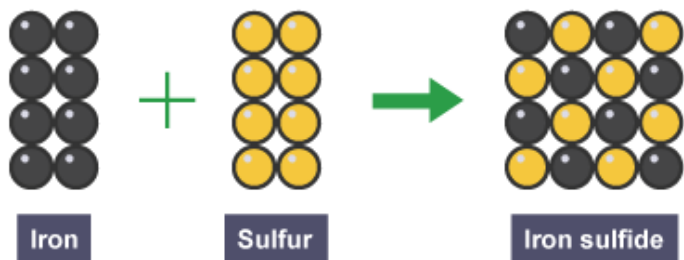
Atoms

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



Chemical reactions

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



Chemical equations

The changes in chemical reactions can be modelled using equations. In general, you write:

reactants → products

The reactants are shown on the left of the arrow, and the products are shown on the right of the arrow. Do not write an equals sign instead of an arrow. If there is more than one reactant or product, they are separated by a plus sign.

Word equations

A word equation shows the names of each substance involved in a reaction, and must not include any chemical symbols or formulae. For example:

iron + sulphur → iron sulphide

In this reaction, iron and sulphur are the reactants, and iron sulphide is the product.

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

Compounds

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

Chemical reactions

2

Chemical Reactions

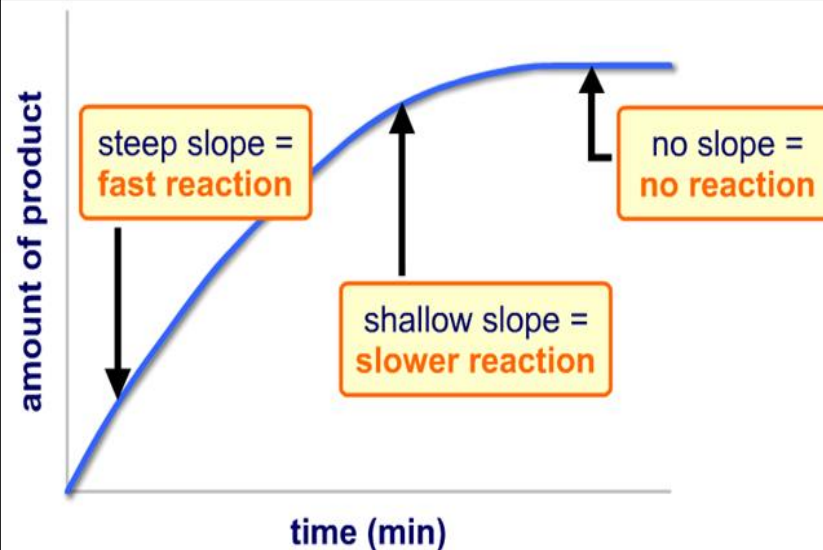
Chemical reactions occur when particles collide with enough **ENERGY**. The minimum amount of energy particles need to react when colliding is called the **ACTIVATION ENERGY**.

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

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

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

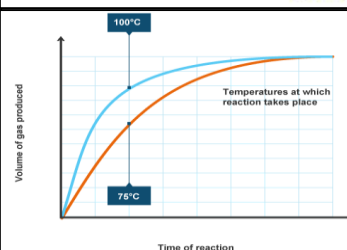
Increasing the surface area of a **SOLID** (you cannot change the surface area of a liquid or gas) **increases the number of successful collisions**. This increases the rate of reaction.



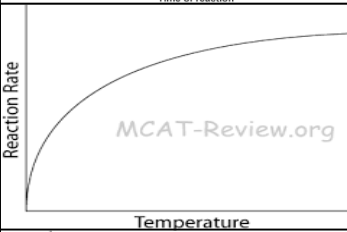
Collision Theory: chemical reactions occur when reactant particles **collide** with a certain amount of **energy**.

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

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



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



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

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



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

Factors affecting the rate of reaction

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

FORCES

A force can be a **push** or a **pull**, for example when you open a door you can either push it or pull it. You can not see forces, you can only see what they do.

When a force is applied to an object it can lead to a change in the objects **Speed**

Direction of movement

Shape (think about a rubber band)

Forces can also be divided into 2 types, contact forces and non contact forces.

Contact forces for example friction, are caused when two objects are in contact.

Other forces for example gravity, are **non contact forces**. The two objects do not need to be in contact for the force to occur.

The unit of force is the **Newton (N)**, this is named after Sir Isaac Newton, who came up with many theories including those to do with gravity and the three laws of motion. We measure force using a piece of equipment called a Newton metre.

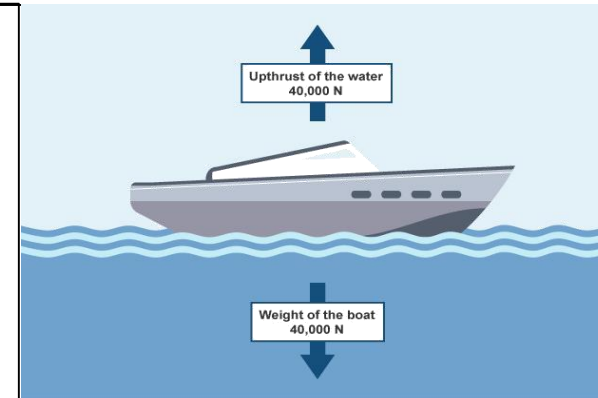
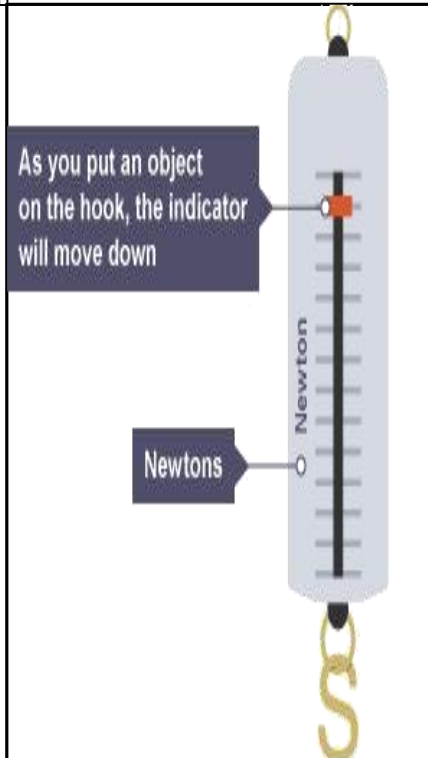
Balanced forces

When two forces acting on an object are equal in size but act in opposite directions, we say that they are **balanced forces**.

If the forces on an object are balanced (or if there are no forces acting on it), this is what happens:

- a stationary object stays still
- a moving object continues to move at the same speed and in the same direction

Remember that an object can be moving, even if there are no forces acting on it.



Force Diagrams

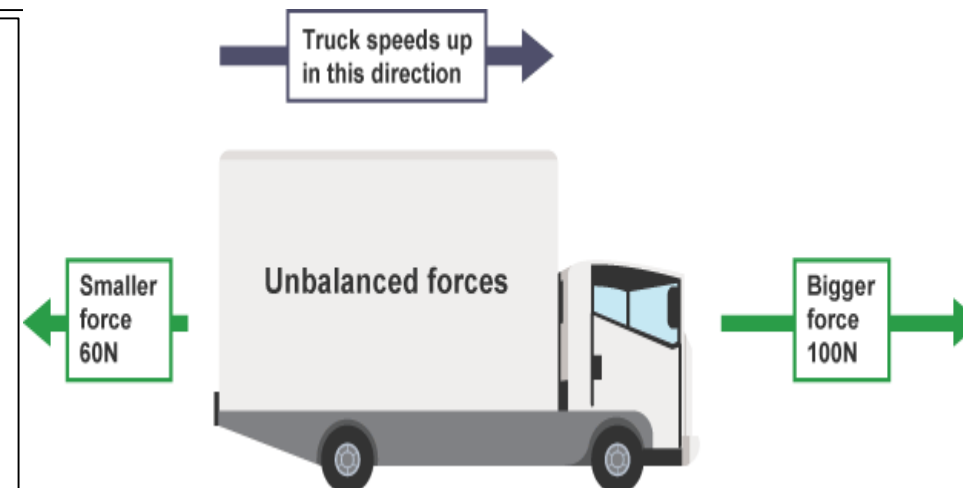
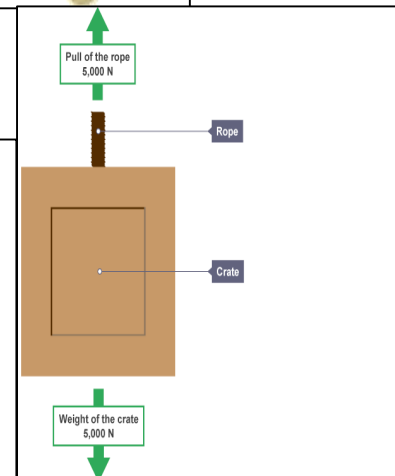
To show the forces acting on a body we use a free body force diagram. A **free body force diagram** shows all of the forces that are acting on the body. It has arrows that show the direction the force acts, the larger the arrow, the larger the force. A free body force diagram should always have labelled arrows.

Unbalanced forces

When two forces acting on an object are not equal in size, we say that they are unbalanced forces. The overall force acting on the object is called the **resultant force**. If the forces are balanced, the resultant force is zero.

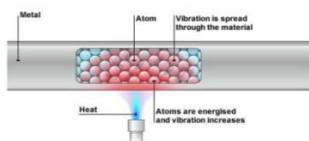
If the forces on an object are unbalanced, this is what happens:

- a stationary object starts to move in the direction of the resultant force
 - a moving object changes speed and/or direction in the direction of the resultant force
- In the example below, the resultant force is the difference between the two forces:
 $100 - 60 = 40 \text{ N (to the right)}$



Key Terms	Definitions
Energy	Energy is a quantity that is stored in many objects and situations. Anything storing energy can do work .
Work	Work is done when energy changes from one store to another.
Potential energy	Potential energy is energy stored in objects that don't seem to be doing anything. See the examples.
Chemical potential energy	Energy stored in fuels (like wood, or the gas we run Bunsen burners on) is called chemical potential energy.
Elastic potential energy	Elastic objects, like springs or rubber bands, store elastic potential energy when they are stretched.
Gravitational potential energy	Any object that is not on the ground has gravitational potential energy. This is because they are lifted up in a gravitational field, and could fall down!
Kinetic energy	Movement energy. Any moving object stores kinetic energy.
Thermal energy	Also known as heat energy. All objects store some thermal energy, because the particles are moving. The higher the temperature of an object, the more thermal energy it stores.
Conservation of energy	The law that says energy cannot be created or destroyed. It can only change how it is stored.

Conduction



Heat energy is conducted through the solid in this way. As the atoms of the solid gain kinetic energy the temperature of the solid increases.

ENERGY

Energy Transfer

Energy is transferred, so it changes store, in loads of situations. Examples to know:

- When a fuel is burned, the chemical potential energy in the fuel ends up stored as **thermal energy** in the surroundings;
- When an object falls off a shelf, the **gravitational potential energy** it stores is transferred (changed) to kinetic energy while it is falling.
- When the object hits the floor, all the gravitational potential energy it had to start with ends up stored as **thermal energy** in the surroundings.
- When a spring that's been stretched is released, the **elastic potential energy** it stored is transferred to kinetic energy then to thermal energy

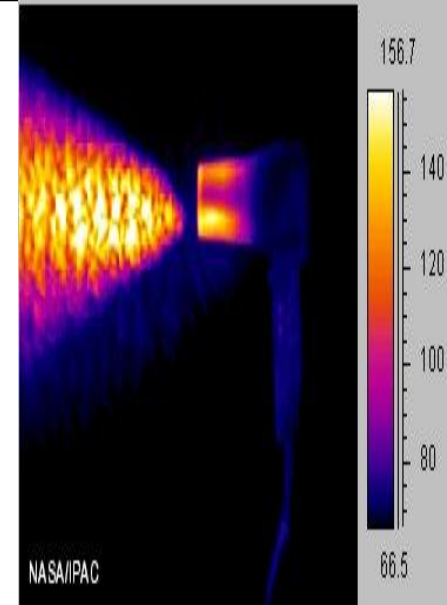
Energy Stores

Energy can be stored in objects, or when objects are doing something. It is a quantity measured in joules (J). Examples to know:

Energy is stored in fuels as **chemical potential energy**
 Energy is stored in anything elastic when it is stretched, as **elastic potential energy**
 Energy is stored in any object that has been lifted up, because the object stores **gravitational potential energy**
 Energy is stored in moving objects as **kinetic energy**.
 Energy is stored in any object as **heat energy**. (obviously, if it is cold, it doesn't store much heat energy!) This is also known as *thermal energy*.

Thermal energy transfer by radiation

All objects give out some infra red radiation, but the hotter they are the more radiation they give out. All objects can also absorb infra red radiation: when they do, they heat up. Radiation can travel through empty space – so this is how the Sun heats up the Earth. The objects don't have to be touching, unlike in conduction, and there are no particles involved.



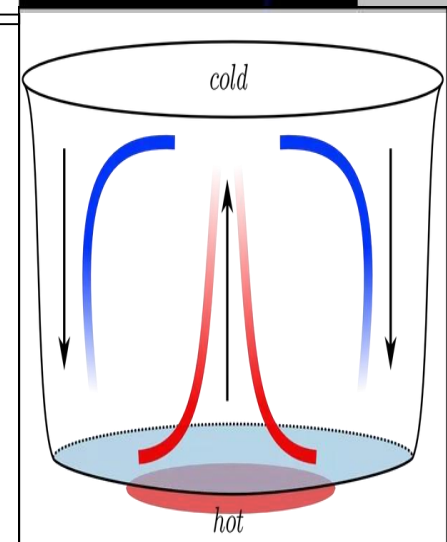
Convection

Heat can be transferred from one place to another by convection.

Fluids

Liquids and gases are fluids because they can be made to flow. The **particles** in these fluids can move from place to place. Convection occurs when particles with a lot of heat energy in a liquid or gas move and take the place of particles with less heat energy.

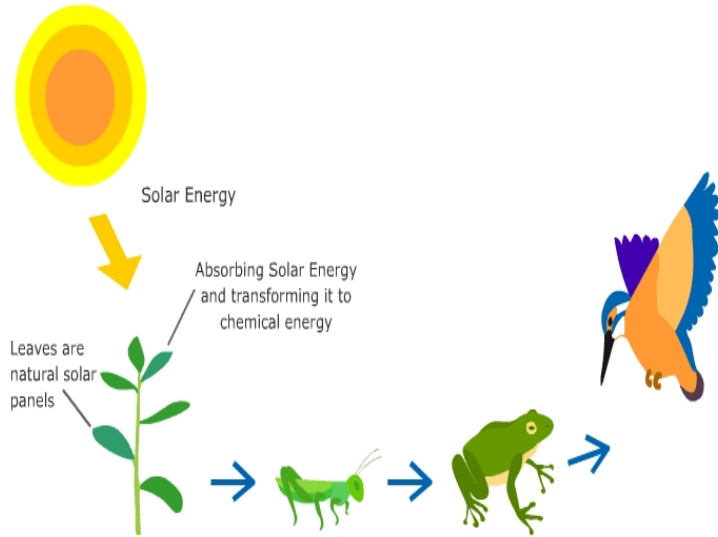
Liquids and gases **expand** when they are heated. This is because the particles in liquids and gases move faster when they are heated than they do when they are cold.



Thermal energy transfer by conduction

Hot materials can transfer thermal energy to other materials that they are touching. This is called **conduction** of thermal energy. As the diagram shows, the particles that are heated increase in kinetic energy when they are heated. They bump into neighbouring particles and pass on (transfer) thermal energy. This is why a table feels warm after a hot cup of tea is lifted from it, and the reason why thermal energy can pass through the bottom of a saucepan to cook your dinner.

BIO-ENERGETICS (ENERGY IN BIOLOGICAL SYSTEMS)



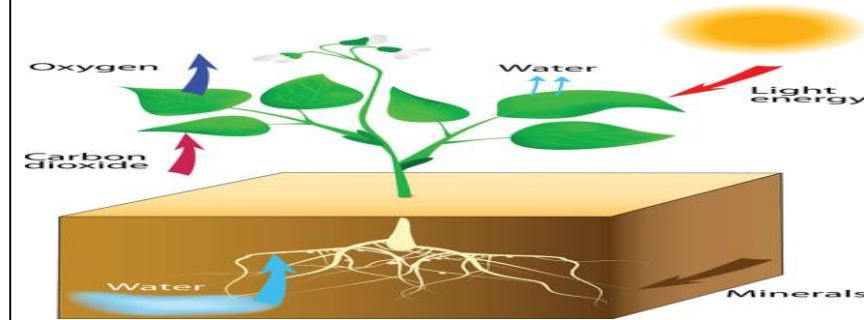
Plant is eaten by grasshopper is eaten by frog is eaten by bird.
Stored chemical energy is transferred from the plant to the grasshopper, to the frog, to the bird, enabling each in turn to function as a living organism.

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The feeding relationships are one way in which organisms depend on each other. To begin with, almost all organisms rely on the Sun as the original source of energy for their ecosystem. Plants and algae can make use of the Sun's energy to produce food molecules, in the process of photosynthesis. This is why they are called **producers**. Other types of organism can't do this, so they rely on the plants and algae.

• **Consumers** eat the producers, so the energy from the sun flows through the ecosystem. Molecules (which contain the energy) also flow through, and get recycled when organisms produce waste (poo and wee!) and after they die and decay. The diagram helps to show this.

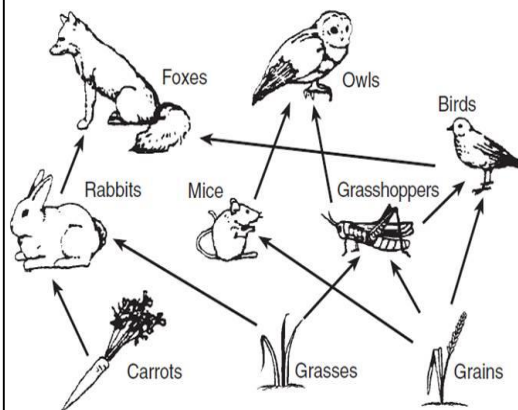
• You can see that all the organisms in the ecosystem depend on each other. This is called **interdependence**. The consumers wouldn't survive without the producers capturing energy from the sun, the producers wouldn't survive without the decomposers recycling molecules for them to use (e.g. nutrients from the soil),



Plants make use of light energy from the environment (**ENDOTHERMIC**) to make food (glucose)

Carbon dioxide + Water
→
Oxygen + Glucose

A food web shows many feeding relationships. It connects many food chains, since many organisms eat more than one other organism, and are eaten by more than one other.



(Not drawn to scale)

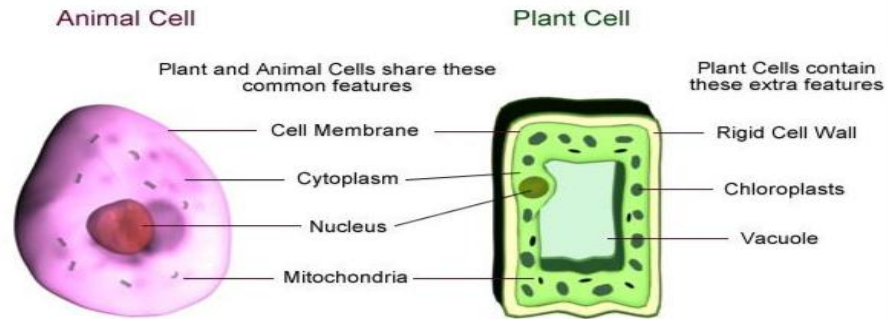
Aerobic respiration

Respiration with oxygen.
Occurs inside the mitochondria continuously

Glucose is oxidised by oxygen to transfer the energy the organism needs to perform its functions.

Aerobic respiration releases a large amount of energy from each glucose molecule

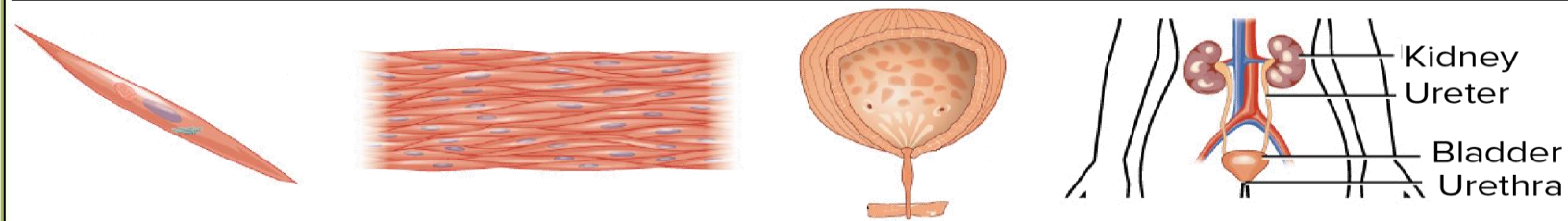
**glucose + oxygen →
carbon dioxide + water**



Body organization

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

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



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

Muscle cell

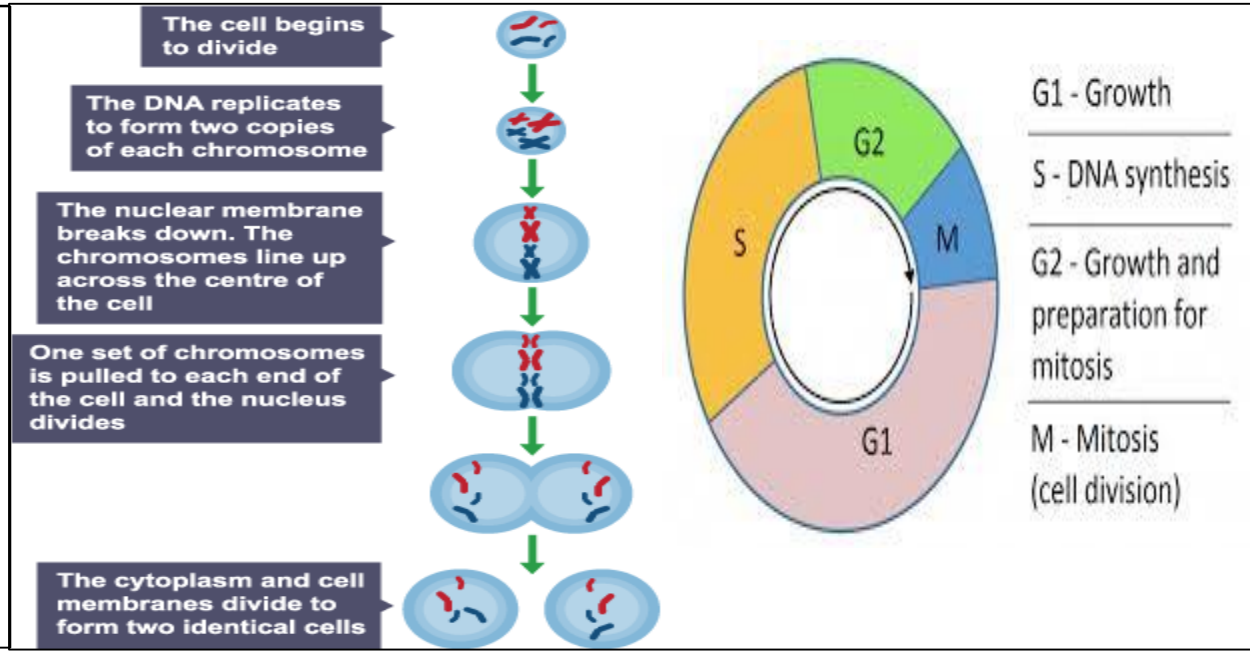
The human cell nucleus contains 46 chromosomes or 23 pairs. They are ultimately long strands of coiled up **DNA**.

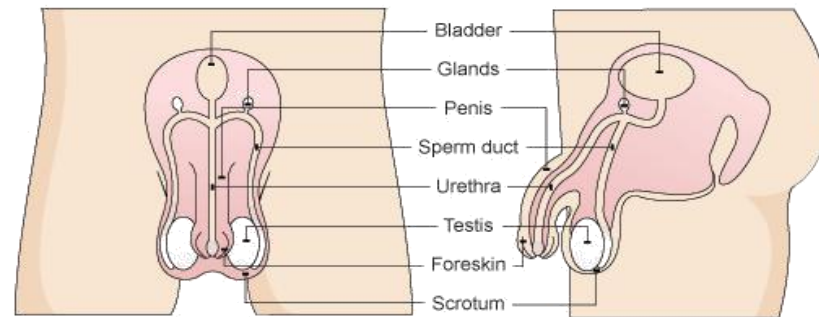
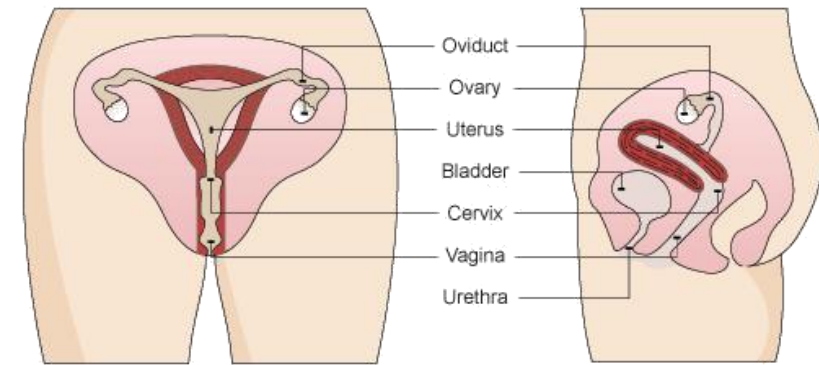
Cells are continually lost or made. All cells have a life cycle known as the cell cycle To make new cells the body carries out cell division in a process known as mitosis

Muscle tissue

Organ (bladder)

Organ system





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

Oviducts

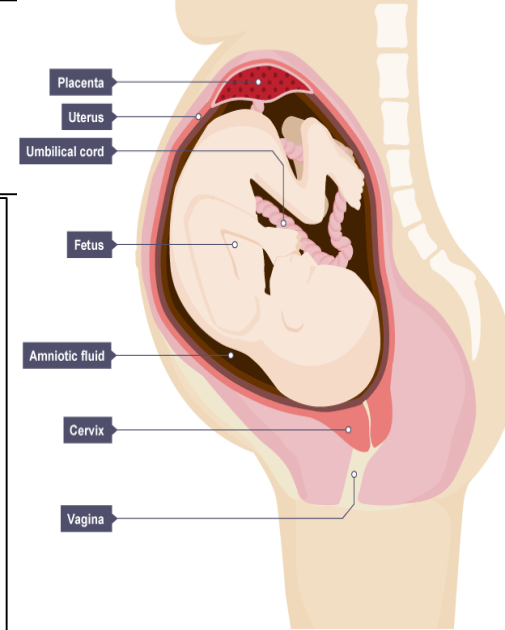
Each ovary is connected to the uterus by an oviduct. This is sometimes called a Fallopian tube or egg tube. The oviduct is lined with cilia, which are tiny hairs on cells. Every month, an egg develops, becomes mature and is released from an ovary. The cilia waft the egg along inside the oviduct and into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

Uterus and cervix

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

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

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



Testes

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

The testes have two functions:

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

Sperm duct and glands

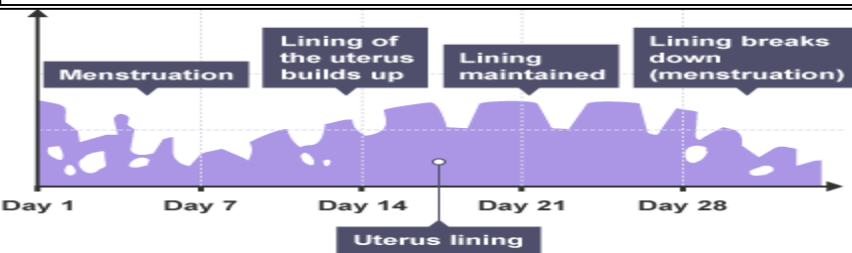
The sperm pass through the sperm ducts, and mix with fluids produced by the glands. The fluids provide the sperm cells with nutrients. The mixture of sperm and fluids is called semen.

Penis and urethra

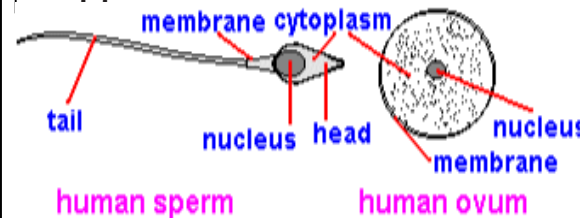
The urethra is the tube inside the penis that can carry urine or semen. A ring of muscle makes sure that there is no chance of urine and semen getting mixed up.

The menstrual cycle

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



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



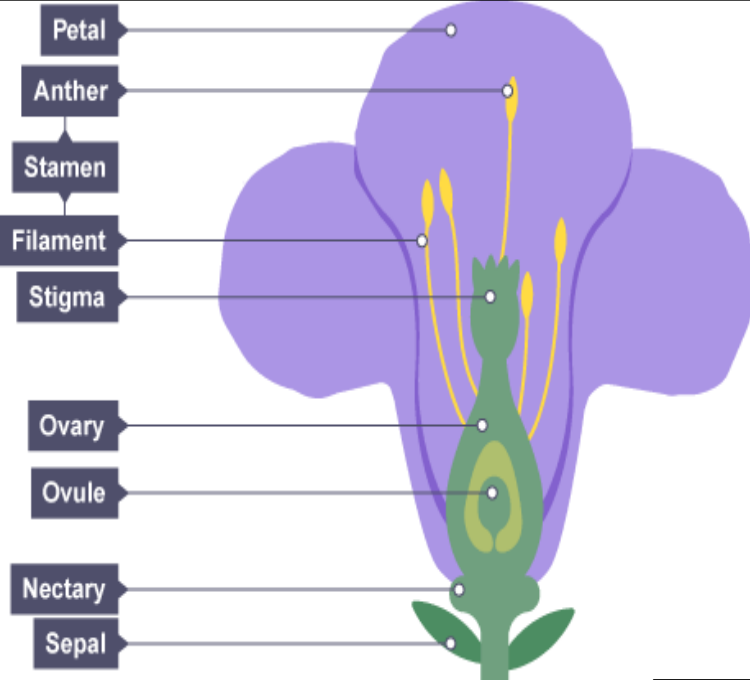
Fetal development and birth

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

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

CELLS AND REPRODUCTION 3

PLANT REPRODUCTION



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

Seed dispersal

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

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

Seeds can be dispersed in many ways:

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

Wind – for example sycamore seeds

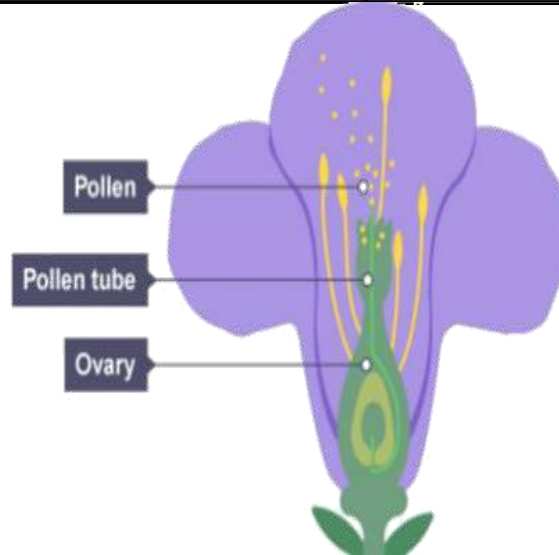
Water – for example coconuts

Pollination

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

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

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



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

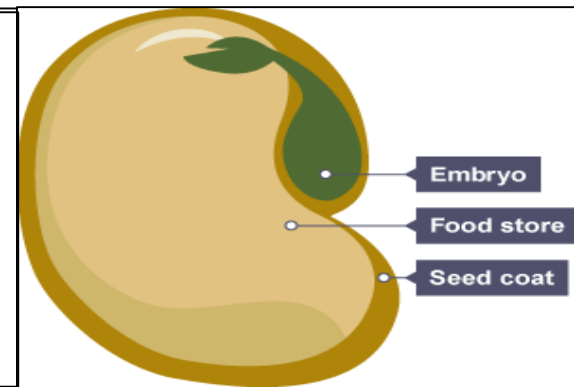
the ovules become seeds

the ovary wall becomes the rest of the fruit

Seeds

A seed has three main parts:

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



Module 4: Klassenreisen machen Spaß! (School

Here is the vocabulary you will need for Stimmt 2, Module 4. trips are fun!)

Remember, you can hear the German pronunciation by clicking on the **Soundfile** links on the electronic version of this KO.

In der Jugendherberge

• In the youth hostel

die Hausordnung	<i>rules of the house</i>
Man muss vor 22:00 Uhr ins Bett gehen.	<i>You have to go to bed before ten o'clock.</i>
Man muss das Bett machen.	<i>You have to make the bed.</i>
Man muss das Zimmer sauber halten.	<i>You have to keep the room clean.</i>
Man muss vor acht Uhr aufstehen.	<i>You have to get up before eight o'clock.</i>
Man muss abwaschen.	<i>You have to wash up.</i>
Man darf nicht rauchen.	<i>You must not smoke.</i>
Man darf nicht im Zimmer essen.	<i>You must not eat in the room.</i>
Man darf keine laute Musik hören.	<i>You are not allowed to listen to loud music.</i>

In this Module you will learn how to:

- talk about typical breakfasts
- discuss typical German food
- understand and use recipes
- talk about healthy lifestyles
- understand and respond to longer texts
- describe and compare dinner parties

www.textivate.com

Username: openacademy

Password: surname800

Go to 'my resources' to find your work.



[Soundfile](#)



[Soundfile](#)

Der Tagesablauf • Daily routine

Ich stehe auf.	<i>I get up.</i>
Ich wasche mich.	<i>I get washed.</i>
Ich dusche mich.	<i>I have a shower.</i>
Ich ziehe mich an.	<i>I get dressed.</i>
Ich frühstücke.	<i>I have breakfast.</i>
Ich gehe aus.	<i>I go out.</i>
Ich komme zurück.	<i>I come back.</i>
Ich esse zu Abend.	<i>I have dinner/the evening meal.</i>
Ich gehe ins Bett.	<i>I go to bed.</i>

Um wie viel Uhr? • At what time?

um ... Uhr	<i>at ... o'clock</i>
um fünf/zehn/zwanzig nach ...	<i>at five/ten/twenty past ...</i>
um fünfundzwanzig vor ...	<i>at twenty-five to ...</i>
um Viertel nach ...	<i>at quarter past ...</i>
um Viertel vor ...	<i>at quarter to ...</i>
um halb acht	<i>at half past seven</i>



[Soundfile](#)



[Soundfile](#)

Wie komme ich zum/zur ...?

• How do I get to the ...?

Geh/Geht/Gehen Sie ...!	<i>Go ...!</i>
(nach) links	<i>(to the) left</i>
(nach) rechts	<i>(to the) right</i>
geradeaus	<i>straight on</i>
Nimm/Nehmt/Nehmen Sie ...!	<i>Take ...!</i>
die erste Straße links	<i>the first street on the left</i>
die zweite Straße rechts	<i>the second street on the right</i>
Geh an der Ampel links!	<i>Go left at the lights.</i>
Geh an der Kreuzung rechts!	<i>Go right at the crossroads.</i>
der Bahnhof	<i>station</i>
der Park	<i>park</i>
die Bushaltestelle	<i>bus stop</i>
die Kirche	<i>church</i>
das Schwimmbad	<i>swimming pool</i>
das Hallenbad	<i>indoor swimming pool</i>
das Museum	<i>museum</i>
der Markt	<i>market(place)</i>
der Lehrer	<i>teacher (male)</i>
die Lehrerin	<i>teacher (female)</i>
das Souvenirgeschäft	<i>souvenir shop</i>
die Imbissstube	<i>snack bar</i>
das Eiscafé	<i>ice cream parlour</i>
vor dem/der ...	<i>in front of the ...</i>
Entschuldigung/Bitte, ...	<i>Excuse me, ...</i>
Danke (sehr/schön)./ Vielen Dank.	<i>Thank you very much.</i>
Bitte (sehr/schön).	<i>You're welcome./</i>
Nichts zu danken.	<i>Don't mention it.</i>

Auf einem Fest • At a festival

der Umzug(–e)	procession, parade
der Festwagen(–)	float (in a parade)
die Band(s)	band, group
das Kostüm(e)	costume, outfit
der Hut(–e)	hat
die Fahne(n)	flag
die Kirmes(sen)	funfair
das Fahrgeschäft(e)	ride (at funfair)
der Imbiss(e)	snack
bunt	colourful
traditionell	traditional
der Trick(s)	trick
das Handy(s)	mobile phone
die Haare (pl)	hair
die Schuhe (pl)	shoes

Read the Strategy Box to improve your accent.



[Soundfile](#)



[Soundfile](#)



Oft benutzte Wörter

• High-frequency words

zu (zum/zur)	to (to the)
vor	before, in front of
groß	big
lang	long
laut	loud
lecker	tasty
schön	nice, beautiful
toll	great
Das macht Spaß.	That's fun.
Das hat Spaß gemacht.	That was fun.

Strategie 4

Improving your pronunciation

By now, you should have a good idea of how German words are pronounced, but it is always good to practise. The vowels often cause problems, especially when there are two together. Link the words to the key phonics you learned in *Stimmt! 1* and say them out loud.

au – *sauber* as in *Haus*

ei – *Klassenreise* as in *Eis*

ie – *Viertel* as in *Biene*

eu – *Kreuzung* as in *Freund*

But note that **Museum** is a foreign word (from Latin) and the **e** and **u** are pronounced separately (like 'moo-zay-um').

Sometimes it's hard to recognise that a word is actually made up of two or more words joined together. Each part of the word is said separately. For example, by themselves **gerade** means 'straight' and **aus** means 'out'. Join them together and you have **gerade|aus** (straight on) – written as one word, but sounded as two. Similarly, there's a triple **s** in **Imbiss|stube** – the double **s** belongs to **Imbiss** and the other **s** belongs to **stube** – so it is said as two words.

You will recognise some parts of compound words, but with some new words you'll just have to listen carefully and imitate the pronunciation.

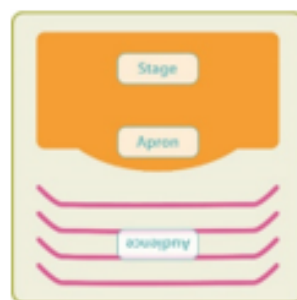
A **staging convention** is where the audience is positioned in relation to the performance space.

Different staging conventions can have different impacts on the audience. For example, having the audience **in the round**, can make them feel more involved in the action as the performers will often enter and exit through the audience.

Blocking is the act of positioning the actors on stage for maximum impact.

Theatre in Education is a style of theatre which aims to educate the audience and has a strong moral message.

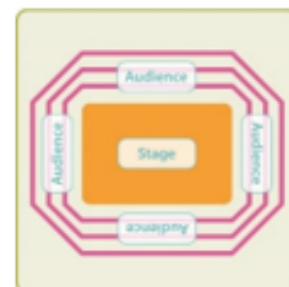
STAGING CONVENTIONS



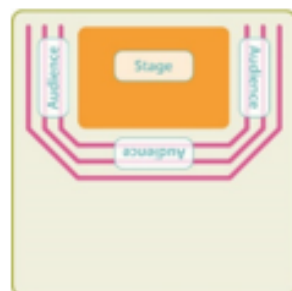
Proscenium Arch: traditionally found in older theatres, the actors perform on raised stages in a 'picture frame'.



End on: the stage is at the end of the space with the audience facing it.



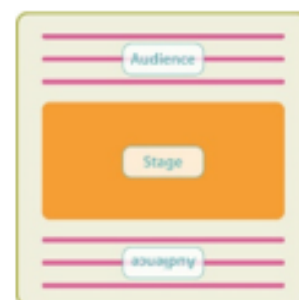
In the round: The audience surrounds the stage on all four sides.



Thrust: The stage juts out into the audience who surround it on three sides.



Black box: this type of performance space gives you a blank canvas as a performer and the audience can be placed anywhere.



Traverse: the audience sits facing each other either side of a corridor shaped performance space, a bit like a cat walk but not

Summary

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

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

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

Small Basic Language & Syntax

Variable

Computer programs use variables to store information.

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

```
TextWindow.Write("Enter your Name: ")
name = TextWindow.Read()
TextWindow.Write("Hello " + name + ". ")
TextWindow.WriteLine("How are you doing " + name + "?")
```

Sequencing

Sequencing is the specific order in which instructions are performed in an algorithm. Algorithms consist of instructions that are carried out

```
GraphicsWindow.Width = 200
GraphicsWindow.Height = 200
GraphicsWindow.PenColor = "Green"
GraphicsWindow.DrawLine(10, 10, 100, 100)
GraphicsWindow.PenColor = "Gold"
GraphicsWindow.DrawLine(10, 100, 100, 10)
```

Selection

Selection is a decision or question.

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

```
If (Clock.Hour < 12) Then
    TextWindow.WriteLine("Good Morning World")
EndIf
If (Clock.Hour >= 12) Then
    TextWindow.WriteLine("Good Evening World")
EndIf
```

Iteration

Iteration is the process of repeating steps.

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

```
For i = 1 To 24
    TextWindow.WriteLine(i)
EndFor
```



Microsoft
Small Basic
Every Kid Can Code

Key Vocabulary

Assignment	Setting the value of a variable in a computer program.
Constant	A value in computer programming that does not change.
Data Type	In computer programming, data is divided up and organised according to type, e.g. numbers, characters and Boolean.
Debug	The process of finding and correcting programming errors.
Execute	To run a computer program.
High-level language	A computer programming language used to write programs. They need to be translated into machine code through a compiler, interpreter or assembler.
Machine code	Also called object-code, this is low-level code that represents how computer hardware and CPUs understand instructions. It is represented by binary numbers.
Runtime	The period when a computer program is executing or running.
Syntax	Rules governing how to write statements in a programming language.

Algorithms

Pseudocode

```
WHILE NotSolved
    .. Instructions here ..
    FOR i ← 1 TO 5
        .. Instructions here ..
    ENDFOR
    .. Instructions here ..
ENDWHILE
```

Flowchart



<http://bit.ly/33WS6NC>



Key words	
Capital Punishment	The death penalty.
Sanctity of Life	The belief that life is God-given. It is holy and precious.
Quality of life	The idea that life must have some benefits for it to be worth living
Justice	Doing the right thing- rewarding the good and punishing the bad.
Victim	Someone who has been affected by a bad thing.
Malicious	Having or showing a desire to cause harm to someone
Perpetrator	A person who commits a crime
Pacifism	Not believing in violence.
Patriotism	A love for your country

Timothy John Evans

Timothy John Evans was one of the last people to be executed in the UK. He was convicted of murdering his daughter. During the trial Evans claimed that he was innocent and that his next door neighbour John Christie was the one who had murdered his daughter. Timothy Evans was executed by hanging in 1950.

Later on, John Christie was found to be a serial killer. Before his own execution in 1968, John Christie admitted to murdering Timothy Evans' daughter. Evans had been wrongly executed. People argue that the death sentence is too permanent a punishment and if you sentence the wrong person, there is no chance to apologise or rehabilitate the person.

The Death Penalty.

Capital Punishment: The death penalty (or capital punishment), is the execution of a criminal by the government. In most countries this happens by lethal injection.

According to Amnesty international, in 2008, 1591 people were executed in 25 countries around the world.

Should the following people be given the death penalty?

Anders Breivik

In 2011 Anders Breivik detonated bombs in Oslo and attacked a political youth camp with an assault rifle. In total, Breivik killed 77 people. He was working by himself.

He was found guilty by a Norwegian high court judge and was sentenced to 20 years in prison (The maximum sentence in Norway.) Many of the families whose relatives were killed by Breivik believe that 20 years in prison is not good enough. Breivik himself said in court 'You either have to kill me or let me go, the law in Norway is a joke!'

Ian Huntley

On 4 August 2004, Ian Huntley persuaded two ten year old girls to come into his house where he murdered them. Huntley's girlfriend lied to the police about where he was.

Huntley was the caretaker at the girl's school. He abused the trust of the girls to persuade them to come into his home. Many people in the UK were disgusted with Huntley's sentence saying that his crime deserved more than a prison sentence. Ian Huntley is now 38 and 7 years into his prison sentence. He has tried to commit suicide twice.

Muslim beliefs on the Death Penalty

Muslims follow Shari'ah law.

Everyone is subject to the law,

It is best to forgive a wrong and be charitable if it does not lose your honour. First reason

with wrongdoer.

Justice will always be carried out in public so that justice is seen to be done.

Islam accepts capital punishment, but the victim's family have the right to pardon the offender. Forgiveness is a strong theme in the Qur'an.

Sometimes monetary compensation is authorised instead of death.

Christian Beliefs on the Death Penalty

Teachings of Jesus based on forgiveness and compassion

Many Christians feel that this is the ideal, not the reality.

They focus on reforming the criminal

Many Christian reformers have focussed on ensuring prisoners are treated fairly.

These vary widely, from the pacifist view of the Quakers to the acceptance of capital punishment as allowed by law.

Roman Catholic Church considers it 'lawful slaying'

Anglican Church is opposed to it.

Arguments FOR and Against the Death Penalty

It permanently removes the worst criminals, protecting society and making it a safer place.

Only God is in control of life and death. The Bible says that all human lives are valuable.

There are alternatives to the death penalty that offer the opportunity for reformation.

The death penalty lowers the value of life in society.

Innocent people could be executed by mistake. What if it was manslaughter rather than murder?

If someone murders someone, it is just to do the same to them – they have given up their human rights.

Genesis 9:6: 'Whoever sheds a man's blood, by man shall his blood be shed.' – After the flood, God said that capital punishment should be used for murderers.

Fear of the death penalty is the best deterrent. In Singapore, where capital punishment is legal there is far less serious crime.

It is cheaper than imprisoning someone for the rest of their lives.

It gives the families of murder victim's true retribution.

Capital punishment is awful for the families of murderers to have to endure.

It is uncivilized and barbaric.



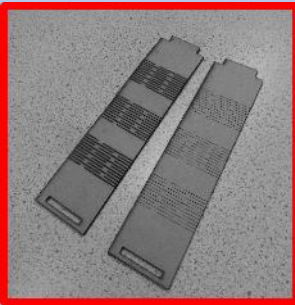
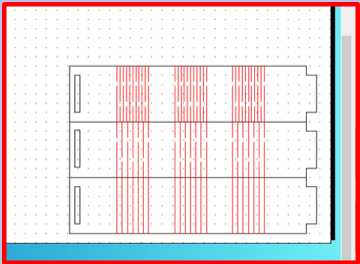


CAD Computer Aided Design



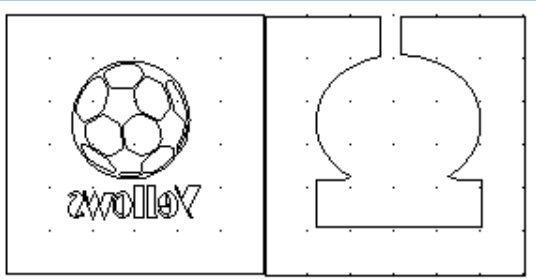
CAD is the use of computers to enable users to perform certain functions in the design process. At Open we use 2D Design and Siemens Solid Edge 3D CAD programmes.

In year 9 you will be introduced to the basics of 2D design, progressing to 3D CAD later on in the year.

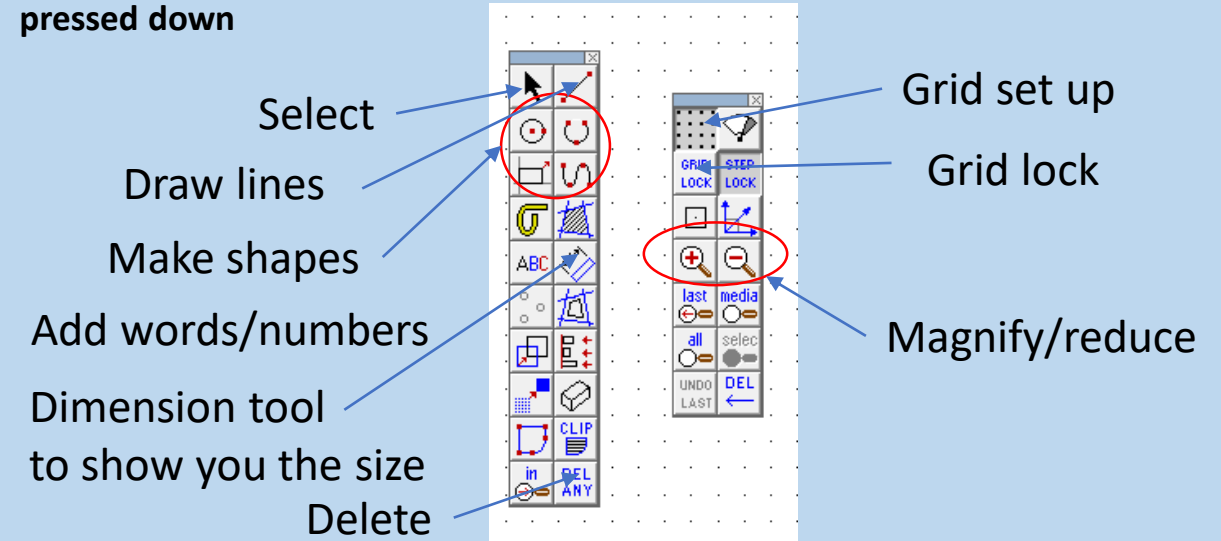


Above is an example of a 2D Design drawing, cut on our laser cutter (CAM) from MDF and assembled to make a scale model of furniture for a GCSE project last year.

Here is a mould drawn on 2D Design, cut on our laser cutter and poured with pewter to make a keyring.



These are 2 main menus used in 2D Design. You will be learning how to make shapes, colour in shapes and fonts, resize, modify, copy and paste. Many of the commands on the left hand menu can be expanded when the mouse is kept pressed down



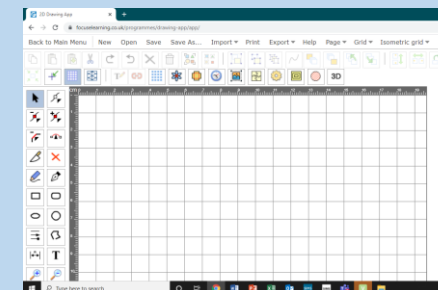
2D Design is on the main desktop computers in the computer rooms. If you want to practice 2D CAD at home you can go to our Academy D&T learning resource which can be found here:

<https://www.focuslearning.co.uk/u/36704/DDvsweeEdrxxpnvktobBFgcBvEycjwpio>

Some of the commands are the same, have a go. Practice makes perfect.

CAM equipment we have is a 3D printer, laser cutter and Stikka machine.

Career paths for those interested in CAD/CAM:
Architect, Graphic designer, illustrator, textile designer, fashion designer, engineer.



Dietary related health problems

Diabetes

What is it?

Diabetes lets your blood glucose levels run out of control. Insulin is a hormone that allows glucose to be absorbed by the body. If there is too much glucose in the blood, the pancreas produces insulin to reduce the blood glucose level. Type 2 diabetes is a disorder where blood glucose levels stay too high - the pancreas either can't produce enough insulin or the body resists it.

Causes

- Being over weight or obese
- Excessive sugar in the diet can leave to obesity, increasing the risk of type 2 diabetes - this is affecting more young people.

Health problems

- Poor eye sight, limb numbness, kidney failure and CHD.
- Tired and thirsty
- The body passes out glucose by passing urine more often

Obesity

What is it?

It is very common, it affects roughly 1 in 4 adults in the UK. Body Mass Index (BMI) is often used to check if someone is overweight or obese.

Causes

- An incorrect balance of energy - a person consumes more calories than they burn off.
- Eating lots of foods high in fat and sugar
- Having a sedentary lifestyle (little or no physical activity)

Health problems

- Increases your blood pressure and raises cholesterol levels - this puts you at higher risk of coronary heart disease
- Greater risk of developing type 2 diabetes
- Breathing difficulties, tiredness and low self-esteem are all common

Anaemia - can be caused by an Iron Deficiency

What is it?

Iron is needed to make red blood cells - these cells carry oxygen from the lungs and travel in your blood around your body. People with anaemia have a reduced amount of blood cells.

Causes

- Not eating enough iron-rich foods
- Women lose iron during their periods
- Pregnant women lose iron to their baby during pregnancy

Health problems

Tiredness, pale complexion, heart palpitations, headaches, abnormal fingernails

Coronary Heart Disease (CHD)

What is it?

Your cardiovascular system consists of your heart and blood vessels. CHD is when coronary arteries (which supply the heart with blood full of oxygen) are narrowed because they are filled with fatty deposits.

Causes

- Eating lots of saturated fats
- Being physically inactive - exercise keeps the heart and cardiovascular system healthy
- Smoking - this damages the lining of arteries
- High blood pressure

Health problems

- Chest pains (angina)
- Blood clots can form which suddenly block flow to the heart, the heart doesn't get enough oxygen which can cause a heart attack (which can be fatal)

Cakes - Function of Ingredients

Margarine

Nutrients: fat and fat soluble vitamins

Function: adds moisture, adds flavour, extends shelf life

Sugar

Nutrient: simple carbohydrate

Function: sweetens the cake, caramelises when cooked which adds colour, extends shelf life

Flour

Nutrients: starchy carbohydrate, B vitamins, iron

Function: Bulking ingredient, contains a raising agent to help the cake rise

Egg

Nutrients: Protein, fat, vitamins, minerals

Function: Binds the ingredients together, adds flavour, colour, helps the cake to rise.

Exam style questions

1. How does self raising flour help a cake to rise?
2. Which is the best type of flour to use in cake making and why?
3. What is the function of margarine in a cake?
4. The cake is dense in texture. Explain 2 factors that might have caused this.
5. How can you reduce the sugar content of a cake?
6. What ingredients could you use to sweeten the cake without adding any refined sugar?

Ingredients

75g margarine
1 carrot
100g sugar
1 large egg
100g plain flour
½ tsp. Mixed Spice



Equipment

Grater, measuring scales, mixing bowl, wooden spoon, sieve, sauce pan, jug, fork

Skills

Grating, melting, mixing, weighing baking

Carrot Cake

Method

1. Heat the oven to 180degrees.
2. Grate the carrot into the bowl. Weigh out the sugar and add to the carrot.
3. Melt the margarine on the hob in a sauce pan and add to the carrots and sugar. Mix well.
4. Sift in the flour, mixed spice and baking powder.
5. Beat the eggs in a jug, and then add to the mixture.
6. Mix until all the ingredients are combined.
7. Transfer the mixture to a small tin or muffin cases (makes about 6 large muffins).
8. Bake for 15-20 minutes.

You are welcome to make any cake or tray bake of your choice but it must include fruit.

Brownies

Ingredients

100g butter

110g dark chocolate (it MUST be dark)

Extra chocolate chunks of your choice to go into the mix

2 eggs

75g Sugar

50g muscovado sugar

75g plain flour

Equipment

Saucepan, metal bowl, spoon, jug, weighing scales, baking tin

Skills

Melting, using a bain-marie, mixing, baking

Method

1. Place margarine, muscovado sugar and chocolate in the bowl and place on top of sauce pan with water.
2. Leave until melted and stir well.
3. In a separate bowl, mix eggs and caster sugar well.
4. Stir in the chocolate mix.
5. Add the flour and mix until all the flour is combined.
6. Add mixture to a greased baking tray
7. Bake in the oven 30-35min until shiny and does not wobbly when shaken.

Build your own Kebab

Ingredient choices:

Protein

Chicken

Beef

Lamb

Pork

Haloumi

Tofu

Carbohydrates

Pasta

Couscous

Rice

Bulgar Wheat

Quinoa

Vegetables (pick 3)

Mushrooms

Cherry Tomatoes

Onion

Courgette

Pepper

Marinade of your choice (we will also provide a range of marinades).

Equipment

Chopping board, knife, baking tray, baking paper, saucepan.

Skills

Developing and adapting a recipe, chopping, roasting, seasoning, boiling.

Method

1. Preparing the protein and the vegetables and marinating. These will be put onto skewers and roasted and served with your choice of carbohydrate.

You are welcome to adapt this recipe. You can also prepare a salad of your choice or bring in ingredients to add to your carbohydrate side. Be creative!



Year 9 Knowledge organiser: Explore India



Topics covered

- ✓ India facts/what we know
- ✓ India physical geography
- ✓ India human geography
- ✓ Climate and Monsoon
- ✓ Tourism in India
- ✓ India's changing population
- ✓ Development within India
- ✓ Welcome to Dharavi
- ✓ India and its environment
- ✓ Future India
- ✓ India Report

Key Ideas:

1. I can describe the location of India and its unique character.
2. I can describe the physical landscape variety of India
3. I describe how cities of India have grown and their impacts
4. I can explain how development is changing India and its environment

Skills

- ❑ To research amazing facts using ICT
- ❑ To use mapping to investigate features
- ❑ To understand different cultures and ways of living
- ❑ To draw/label line graphs
- ❑ To write an extended written account
- ❑ To use ICT to research information

Places and Environments

- ❖ Ganges River
- ❖ Kashmir
- ❖ New Delhi
- ❖ Mumbai
- ❖ Goa
- ❖ Ghats
- ❖ Brahmaputra
- ❖ Kerala
- ❖ Thar Desert

Key Terms Used in this Unit

- States
- Colonialism
- Monsoon
- Hinduism
- Independence
- Bollywood
- Population
- Investment
- Aid
- Slums
- Disputes
- Resources
- Poverty
- Pollution
- Economic growth
- Standard of Living
- Exports
- Technology
- Space Race

Kitchen cupboard 'globalisation'

In today's world we are all very much connected to far away places (nothing highlighted this more than the Covid epidemic).

Despite the restrictions on travel, the transport of goods remains a top priority.

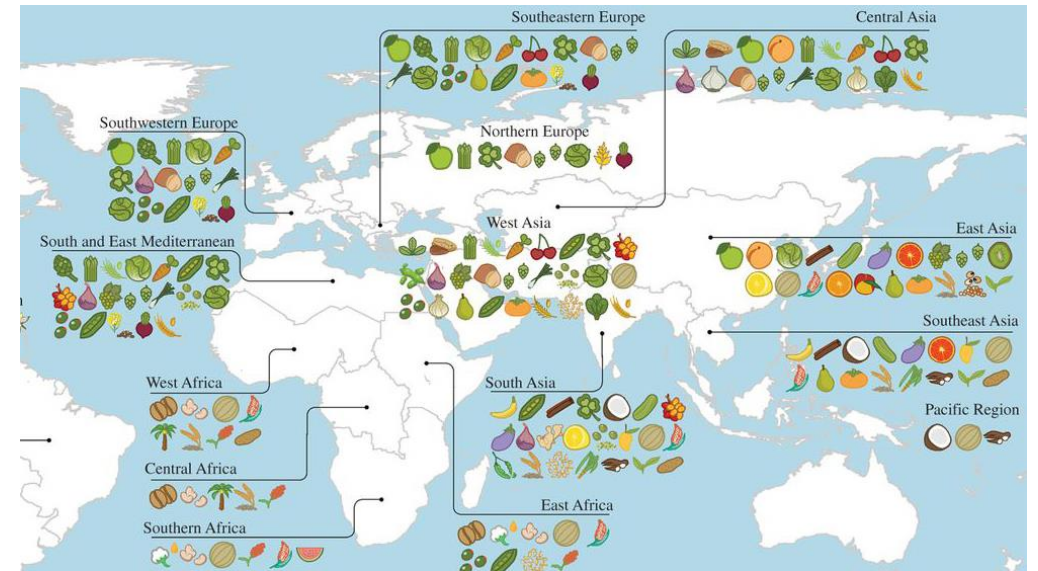
Today many of our supermarkets, whether there is a global pandemic or not, will contain foods from all over the world.

Look in your food cupboards for the following:

Fruits and vegetables, rice, pasta, breads, sauces, herbs and spices. You may even discover oils and wines. Breakfast cereals may contain wheat or corn. Alcohol, barley and wine, grapes.

Where did these items come from? You could guess as to which parts of the world they were grown in or you could check the labels yourself.

Are there any places that we do not rely upon for food and drinks?
Which parts of the world are our supermarkets most reliant on?



Famous Film Composers!

Hans Zimmer:

- Born in **Germany**.
- Moved to London as a teenager.
- Used to write **jingles** for adverts.
- Played keyboard in a band called **Buggles**.
- Composed **over 100** film scores including The Lion King, Pirates of the Caribbean and Inception.
- Famous for his use of **traditional orchestra instruments mixed with electronic sounds**.
- Has won **7 Academy awards & 7 Grammy awards**.
- Has also won **9 Golden Globe awards** for his film scores.



Listen to a number of their film soundtracks – can you hear similarities?
Can you hear the composer's musical signature?

John Williams:

- Born in **America**.
- Started playing music whilst in the **US army**
- Moved to New York and became a notable **jazz pianist**
- Composed **over 100** film scores including Jaws, Harry Potter and Star Wars.
- Famous for **personally conducting his scores** and for being a **strict and demanding conductor**.
- Has won **51 Academy awards & 24 Grammy awards**.
- Has also won **34 Golden Globe awards** for his film scores.



Danny Elfman:

- **American movie composer.**
- Has written music for lots of famous movies & TV shows including The Simpsons, Men in Black and Nightmare Before Christmas!
- Grew up in **LA**.
- Dropped out of high school to travel, went to France & Africa where he caught malaria.
- Was in a Rock band called **Oingo Boingo**.
- Now has **impaired hearing** because of the loud Rock music.
- Has won a **Grammy, an Emmy & had 4 Academy Award nominations**.



Year 9 Spring Term Knowledge Organiser

Time	0 - 15 seconds	15 – 30 seconds	30 – 45 seconds
Action & Music			
Time	45 – 60 seconds	1min – 1.15	1.15 – 1.40
Action & Music			

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

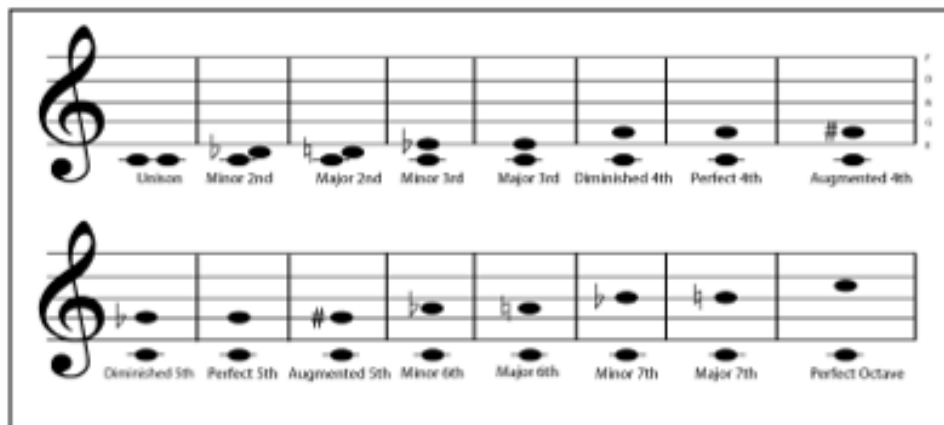
I IV I V

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



Additional Principles of training**Specificity****Progressive Overload****Adaptability****Reversibility****Variation****Individual Needs****Rest and Recovery****Methods of training**

Circuit training – This involves a number of different activities that can be sport-specific or tailored to help improve certain levels of fitness.

Continuous training – This is training at a steady pace, moderate intensity to develop aerobic endurance. At least 30 minutes of steady running is an example of continuous training.

Fartlek training – This is a form of continuous training but the intensity is changed by running at different speeds over different terrains.

Interval training – This method requires periods of exercise followed by rest and recovery periods.

Plyometric training – This training develops sport-specific explosive power and strength.

Flexibility training – The method to develop flexibility at a joint. This is conducted using stretching. The three stretching categories are Static, Ballistic and Proprioceptive Neuromuscular Facilitation (PNF)

Speed training – Speed training can take many forms and can be sport specific. The three types of sprints are Acceleration, Interval and Hollow sprints.

Weight training – Weight training is a form of interval training and involves using reps and sets of reps.

Things to consider

Think about the methods of training and consider which sporting activities would require each method. Consider, football, badminton, rugby, netball, gymnastics and athletics. **When would you require each method of training?**

Now consider the principles of training. **Can you explain how one of the methods of training could use the FITT or additional principles of training?**



Scan this QR code and select the BBC Bitesize link to revise and test yourself on the methods of training

Does our behaviour really matter? In JK Rowling's book: Harry Potter and the Goblet of Fire, Albus Dumbledore says **"We must all face the choice between what is right and what is easy."**

Lent offers Christians a time to reflect on their behaviour and the choices they have made for example if they have been selfish or if they have taken time to think of others. It is a time to prepare, and rethink. A time to seek reconciliation, a renewal of faith and a new direction. Lent enables Christians re-evaluate their conduct and relationships in all aspects of their life and to look at the direction life is leading them.

Jesus is tested in the wilderness: Matthew 4: 1-11 New Revised Standard Version

Jesus in the Desert: Macha Chmakoff



4 Then Jesus was led by the Spirit into the wilderness to be tempted^[a] by the devil. ² After fasting for forty days and forty nights, he was hungry. ³ The tempter came to him and said, 'If you are the Son of God, tell these stones to become bread.' ⁴ Jesus answered, 'It is written: "Man shall not live on bread alone, but on every word that comes from the mouth of God."^[b] ⁵ Then the devil took him to the holy city and set him on the highest point of the temple. ⁶ 'If you are the Son of God,' he said, 'throw yourself down.

For it is written: "'He will command his angels concerning you, and they will lift you up in their hands, so that you will not strike your foot against a stone."^[c]

⁷ Jesus answered him, 'It is also written: "Do not put the Lord your God to the test."^[d] ⁸ Again, the devil took him to a very high mountain and showed him all the kingdoms of the world and their splendour. ⁹ 'All this I will give you,' he said, 'if you will bow down and worship me.'¹⁰ Jesus said to him, 'Away from

me, Satan! For it is written: "Worship the Lord your God, and serve him only."^[e] ¹¹ Then the devil left him, and angels came and attended him.

Lent is a key Christian festival where people reflect on their lives. Jesus was tested in the wilderness. People often set themselves challenges ahead of Holy Week culminating in Easter Sunday. They try to be kinder or give something up.



The film Hail Caesar! follows a day in the life of Eddie Mannix, a Hollywood fixer for Capitol Pictures in the 1950s, who cleans up and solves problems for big names and stars in the industry. At times Eddie's life is filled with the dilemma of making the right choices and decisions:

<https://www.youtube.com/watch?v=UILLd-uBMk4>

Reflect/think about a time: In the clip the Eddie has gone to talk through things with a priest, his lifestyle choices and behaviour.



Why do you think Eddie felt the need to talk things through?

What impact had Eddie's choices had on him?

When Eddie talks about a decision he has to make, the Priest talks about the inner voice and listen to the voice until you hear what is right.

Have you ever had an experience like Eddie's?

EXPERIENCES that can help us ENCOUNTER:

How might choices and random acts of kindness and generosity help us grow?

Watch this video clip from the film the Fight Within and hear how a chance decision to act generously to a stranger, leads to an unexpected exploration about making decisions and choices.

<https://www.youtube.com/watch?v=fOzp6IplsNY>

What do you think prompted the man to buy and share pizza? What other things were shared other than pizza? Who benefitted from the encounter?

In the Christian tradition the word stone or rock has many symbolic meanings. The word stone and rock are used over 400 times in the bible and signify strength, steadiness, protection and durability. 'So I will call you Peter, which means "a rock." On this rock I will build my church, and death itself will not have any power over it.' (Matthew 16:18) Peter had followed Jesus but he had not always behaved well or made good choices in his life. However, Peter was the first to recognise Jesus as the Messiah. Jesus knew that Peter would go on to betray him but did not give up on Peter. He could see how in the future, he could trust Peter and how Peter would ensure that the message of salvation for God's people would spread across the world. Read the account (Matthew 19:13-18)

Draw a stone and cut it out or find a small stone from the garden wash and dry it and use an indelible Sharpie) or glitter glue pen. Think about all the good habits, actions and behaviours you want to develop or improve e.g. kindness, selflessness, faithful generosity etc. Then place your 'stone'/'rock' somewhere in your room where you will see it every morning and evening as a reminder of your intention.



Five Ways to Wellbeing

Activity Sheet

Use the challenges on this sheet to help your child feel better and find ways of managing their own mental wellbeing.

Why not cut them all out and encourage them to choose one or two per day to do. Once they have tried them all they can pick their favourites to do regularly.



Be active



Do a half an hour walk around the local area and write about what you saw when you get back including how it made you feel.



Set up an indoor obstacle course to get your heart rate up



Have a kitchen disco with your household – each pick your favourite songs and do your most energetic dancing together.

Connect



Write a letter to someone that you haven't seen for a long time. Ask how they are and tell them how you have been feeling. Draw pictures or take photos to print and go with it.

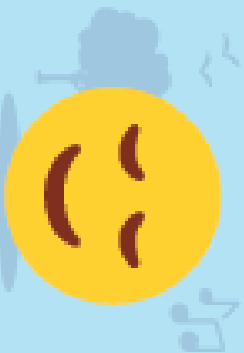


Make contact with a friend from school – ask a parent to help you set up a video call so that you can see each other and talk.

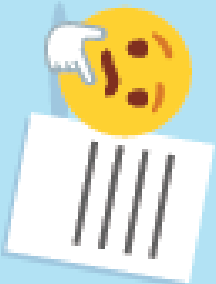


Connect with those you live with by spending time playing a board game together.

Take notice



Sit outside and listen to the birds sing, and notice what other sounds you can hear.



Write a list of the three things you look forward to doing the most when we are allowed to do them again.



Go for a walk in your local park and look at the trees around you noticing what colour the leaves are. Write about what you see and how it made you feel.

Learn



Choose something you are interested in and spend some time reading about it and learning interesting facts to tell people.



Choose a country you might like to visit one day and learn five words from the language

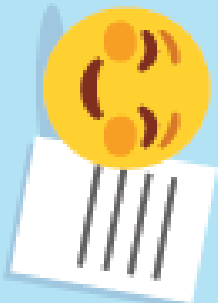


Learn to cook a meal with the person in the household that usually cooks. Help them with the preparation and the clearing up.

Give




Make a homemade card to send to a friend or family member that you can't see at the moment.



Write a list of the things you appreciate most about the people you live with and let them see it.



Help with some of the chores around the house whether it's doing the Hoovering or pairing the socks.

Religious Teachings	Other Teachings
<ul style="list-style-type: none"> Genesis (creation)- God created the world in 7 days God as transcendent, personal, benevolent and creator Christians believe they should be forgiving. The Bible teaches that it is important to settle conflicts. Christians believe that God is forgiving and that he helps them be forgiving to others Muslims believe Allah is merciful and forgives people Most Muslims believe they should forgive others Islam is a religion of peace <p style="text-align: right;"> The End of God?: A Horizon Guide to Science and Religion  </p>	<ul style="list-style-type: none"> Science (big bang)- In the 1920s the Big Bang theory was proposed as a possible scientific explanation for the creation of the universe. Atheism- No belief in God, afterlife or higher power Agnostic- Unsure about religious ideas, not quite sure if or what they believe God referred to as 'he'- is this sexist in the modern world

Key Words	Key Quotes	Key Themes/Concepts
Atheist - non believer	1. All life is sacred and belongs to God.	1. Evidence for and against miracles
Theist - believes in God	2. Do not judge, or you too will be judged'. (Matthew 7:1)	2. Questions over the gender of God
Agnostic - Not sure	3. "...an eye for an eye, a tooth for a tooth" (exodus 21:24)	3. How people express their beliefs (art and poetry)
Transcendent - beyond human	4. "Thou shalt not kill" (Exodus 20:13)	4. Religious teachings for and against capital punishment
Benevolent- all loving	5. Allah is 'forgiving and merciful.' (Surah 64:14)	5. Religious responses to evil and suffering
Personal - connected personally Science	6. O you who have believed, be persistently standing firm in justice, witnesses for Allah, even if it be against yourselves...' (Surah 4:135)	6. Religion and science
Miracles- unexplained	7. '...lash each one of them with a hundred lashes, and do not be taken by pity for them in the religion of Allah...' (Surah 24:2) - describing punishment for those who have sex outside of marriage.	7. The case study of Derek Bentley to apply knowledge and concepts of capital punishment
Retribution -just deserts	8. Surah (4:26-28) says that it is important to give someone a chance to change their behaviour for the better.	8. Arguments for and against the existence of God
Reparation - pay back		
Deterrent- prevention		
Reformation - change character		
Vindication - clearing guilt		
Protection - from harm		

KS3 Football

Rules and regulations of the game

Each game consists of **90 minutes** (45 minutes in each half) with **11 players on each team**.

The game is controlled by a referee, assistant referee and other officials to ensure the games are played fairly and within the rules.

The team who scores most goals at the end of the game wins.

Penalty - This happens when a direct foul is committed in the penalty area of either side of the pitch.

Direct Foul - This happens when a player makes illegal contact with an opposing player without winning the ball. A free kick is awarded and the opposition player must stand 10 yards away.

Indirect Foul - An indirect free kick is awarded for less serious fouls such as handball, offside, and the goalkeeper picking up a back pass. An opposing player must still be 10 yards away but the ball must touch another player before a shot can be had.

Offside - A player is in an offside position if, when the ball is played by a team-mate, they are nearer to the opposition's goal line than both the ball and the second last opponent. An indirect free kick is then awarded to the other team.

Players and Substitutes - A team can field only 11 players at any one time. Their squad can consist of 7 substitutes from which only 3 can be fielded. A team cannot substitute a player who has been shown a red card.

<http://www.thefa.com/football-rules-governance/lawsandrules>



Key positions

Goalkeeper - This person guards the goal and is able to use their hands to stop and catch shots and crosses.

Defender - This person helps to protect the goal by marking and tackling opposition as they approach. The main job is to protect the Goalkeeper.

Midfielder - This person works between defending and attacking. They often win the ball and try to create attacks. They play in the middle of the pitch.

Attacker - This person works on scoring goals for their team.



The image above shows the variety of positions, most common on the field of play.

Tactics

Tactics in football can vary from team to team and can be determined by the formations each team plays. **Common formations can include 4-4-2, 4-1-4-1, 4-2-3-1, 3-5-2 and 4-3-3.**

Each formation and tactic has a style of play. The following are used most frequently:

High-Press - This involves chasing the ball from the opposition higher up the pitch. This tactic works on the precedent that the higher up the pitch you win the ball, the short distance you have to go to get into a goal scoring position. The attackers defend first and the midfield aim to win the ball in the opposition half.

Tiki-Taka - This requires intricate passing and fluid movement between every player on the field, the key to its success is overloading the midfield area with technically skilful players who can retain possession of the football.

Counter-attack - A counter-attack starts when a team steals the ball and launch into an attack at speed. The tactic involves dropping deep, allowing the opposition to have the ball and come forward with it, committing players forward and leaving gaps in behind as they go.

<https://blog.pitchero.com/football-tactics-explained>

Playing between the lines is another tactic which teams try to use. This is the space between each area of the team. i.e. the defence and the midfield. Playing the ball in this area can make defending more difficult for a team.



Key Skills

Passing - There are many ways to pass a football. Using the instep of your foot, outside of the foot and top (laces) part of the foot.

- Place the non-kicking foot next to the ball
- Using flexion, lift the kicking foot back ensuring the part of the foot you aim to use has been angled correctly.
- Keep your eye on the ball
- Ensure your head and upper body are placed over the ball to provide better control and balance.

Dribbling - It is important to keep the ball under close control to outwit your opponent when dribbling.

- Keep the ball close to you to ensure better control.
- Use the inside and outside of both feet.
- Take quick, small steps.
- Dribble with your head up to see spaces and opponent.

Shooting - Just like passing, there are a number of ways to shoot.

- Observe the goalkeeper's position.
- Put your non-kicking foot alongside the ball
- Keep your head down and your eyes on the ball
- Keep your body over the ball.
- Make contact with the side of the foot for accuracy and top of the foot for power.

Control - Having the ball under control helps to prepare and perform your next move with in the game.

- Keep your eye on the ball to monitor the speed and direction of the balls movement.
- Move your body behind the ball to cushion it and slow the ball down

Definitions and Key terminology

Corner Kick: A kick taken from the corner of the field by an attacker. The corner kick is awarded when the ball has passed over the goal line after last touching a defensive player.

Cross: A pass played across the face of a goal.

Dribble: Keeping control of the ball while running.

Foul: Any illegal play.

Free Kick: A kick awarded to an opposition player when a player has committed a foul.

Give and Go: (also known as a 1-2) When a player passes the ball to a teammate, who immediately one-touch passes the ball back to the first player.

Goal Kick: A goal kick is awarded to the defending team when the ball is played over the goal line by the attacker.

Man to Man Marking: A defensive system where defenders are designated one attacking player to track continuously.

Offside: A player is in an offside position if he is nearer to his opponent's goal line than both the ball and the second-to-last opponent. This does not apply if the players is on their half of the field.

Penalty Spot: The marked spot 12 yards from the goal line from which a penalty kick is taken.

Penalty: A penalty kick is awarded when a foul has been committed inside the penalty area in front of the goal.

Tackle: To take the ball away from the opponent using the feet.

Through Pass: A pass played past defenders into free space to allow a teammate to run onto the ball.

Throw-In: The ball is thrown in after the ball has crossed the touch line. A player taking a throw in must have both feet on or behind the touch line and must use a two-handed throw made from behind the head.

Zonal Marking: A defensive system where defenders mark a designated area of the field of play instead of tracking players across the pitch.

KS3 Netball

Rules and regulations of the game

- 1. Obstruction** – a player attempting to intercept or defend the ball must be at least 3ft (0.9m) away from the player with the ball. This distance is measured from the landing foot of the player in possession of the ball.
- 2. Footwork** – the landing foot cannot be moved, other than to pivot on the spot, whilst the other foot can be moved in any direction. If a player lands on two feet simultaneously, you may take a step in any direction with one foot.
- 3. Contact** – contact occurs when a player's actions interfere with an opponent's play whether these are accidental or deliberate. Interference may occur through physical contact, placing hand(s) on the ball held by an opponent and while holding the ball, pushing it into an opponent.
- 4. Replayed ball** – a player may not replay the ball. Specifically you cannot; lose control of the ball and pick it up again, catch a rebound from a shot on goal if the ball has not touched the post or another player, toss the ball into the air and catch it again without it being touched by another player.
- 5. Offside** – a player with or without the ball cannot move into an area of the court that is not designated for their position.
- 6. Held ball** – when a player has possession of the ball for more than three seconds without passing it.

<https://www.englandnetball.co.uk/>
<https://www.englandnetball.co.uk/make-the-game/officiating/rules-updates/>

Key positions

- Goal shooter – to score goals and to work in and around the circle with the GA
- Goal attack – to feed and work with GS and to score goals
- Wing attack – to feed the circle players giving them shooting opportunities
- Centre – to take the centre pass and to link the defence and attack
- Wing defence – to look for interceptions and prevent the WA from feeding the circle
- Goal defence – to win the ball and reduce the effectiveness of the GA
- Goal keeper – to work the GD and to prevent the GA/GS from scoring goals



Tactics

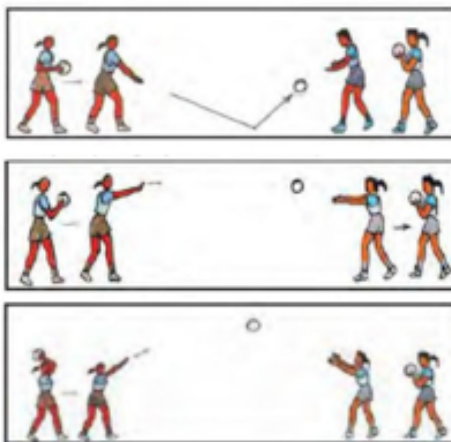
- Reading the play – good netball players have the ability to be able to read the play and immediately react to it and predict what will happen.
- Positioning – good netball players are able to position themselves between their player and the ball or in the goal area between the shooter and the ring. Good players are also able to position themselves so as not to crowd one area of the court, and have the awareness to move out of a crowded area and into space.
- Timing – timing is an essential part of netball and all good netball players have the ability to time their movements to near perfection. Good netballers also have the ability to time their pass of the ball so it is just in front of the player that they are passing to in order for the player to run onto the ball, and not have to stop and turn to get the pass.
- Communication – in a game of netball, communication is a key area, and good netballers have the ability to communicate with their team mates on and off the court in the most effective ways.
- Skill selection – skill selection is a major reason for good players being successful, this is due to the players having the decision making skills to know when to use what type of pass, who to pass to and where they need to be on court.

Introduction to tactics – <https://www.youtube.com/watch?v=WvRNenTQ9rk>
 Defensive tactics – <https://www.youtube.com/watch?v=4c-bMycWm2A>
 Attacking and passing ideas – <https://www.youtube.com/watch?v=P9qu84KmWv4>

Key Skills

- Bounce pass** Stage one; feet shoulder width apart in opposition, with knees bent. Place hands each side and slightly behind the ball, with the fingers comfortably spread. Hold the ball at waist level, with elbows tucked in. Stage two; step in the direction of the pass, through extending your legs, back and arms. The wrist and fingers should be forced through the ball releasing it off the first and second fingers of both hands. Follow through with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.
- Chest pass** Stage one; stand with feet shoulder width and on the balls of your feet, with back straight and knees slightly bent. Place hands on the sides of the ball with the thumbs directing behind the ball and fingers comfortably spread. Stage two; the ball should be held in front of the chest with the elbows tucked in. Step in the direction of the pass, by extending their legs, back and arms. Push the ball from the chest with both arms (not from one shoulder). Fingers are rotated behind the ball and the thumbs are turned down. Stage three; the back of the hands face one another with the thumbs straight down. Make sure the ball is released off the first and second fingers of both hands. Follow through to finish up with the arms fully extended, fingers pointing at the target and thumbs pointing to the floor.
- Shoulder pass** Stage one; player's feet should be shoulder width apart in opposition. Opposite foot forward to throwing arm. Stand on balls of feet with toes pointing toward target, and knees slightly bent. Hold the ball at head height, slightly behind your head. Elbow should be at a 90degree angle. Fingers spread behind the ball. Stage two; step in the direction of the pass by transferring your body weight from back foot to front foot. Pull the arm through with the elbow leading. To follow through, fully extend your arm and wrist. Point your fingers in the same direction as the pass, with palms facing down.

- Shooting** Stage one; stand with feet shoulder width apart on the balls of your feet, keep the body straight in a forward-facing position. Stage two; place non-shooting hand on the side of the ball and the shooting hand at the back of the ball. Fingers are slightly open, with the ball resting in the fingers, holding the ball high above the head. Elbows slightly flexed, lined in the direction of the post. Flex knees and elbows, not allowing the ball to drop behind your head. Stage three; extend the ankles, knees and elbows. Flex the wrists as the ball is released off the fingers. Straighten your legs by extending the knees at the same time as you release the ball. End the shot standing on tiptoes with your arms extended and fingers pointing towards the ring.
- Pivoting** Stage one; run towards the ball and jump by extending the legs and ankles. Keep your eyes firmly fixed on the ball. Bring your hands out in front of your body at chest height with fingers spread open and pointing up. Stage two; in the air catch the ball with thumbs an inch or two apart making a 'W' shape. Land on the ball of one foot on the group. Flex your knee and ankle as your foot hits the floor. Stage three; stand with knees slightly bent and your feet shoulder width apart. Bring the ball into your body to protect it. Pivot by rotating yourself on the ball of your landing foot. Keep your upper body straight and head up. Make sure the hip of your pivoting leg is pointing in the direction you are aiming to pass the ball in. You can move or step with the other foot any number of times. You are not allowed to lift the foot you are pivoting on before you release the ball.



Definitions and Key terminology

- Bounce pass**; a bounce pass is a short pass that enables the player to find a teammate in a crowded area. The height of the ball makes it difficult for the opposition to reach and intercept.
- Centre circle**; is the circle in the middle of the court. It is where the centre starts the game after a goal.
- Chest pass**; a chest pass is a very fast and flat pass. This enables a team to move quickly up a court in a precise and accurate fashion.
- Contact**; when a player's physical action interferes with their opponents ability to play whether accidental or deliberate.
- Dodging**; a quick change in direction aimed at losing your opponent to get the ball.
- Feeding**; when a player passes the ball into the goal circle from outside the ring.
- Shoulder pass**; a shoulder pass is a very dynamic, fast and long pass. This enables a team to switch positions on court very quickly to find a player in space or break defensive screens.
- Pivoting**; the pivoting action is a swivel movement that allows the player to move on a fixed axis to either pass or shoot.
- Rebound**; jumping to recover the ball in the goal area after a missed shot.
- Spatial awareness**; a player's ability to understand their place in a space without running into or crowding other players.

KS3 Handball

Rules and regulations of the game

Each match consists of **two periods of 30 minutes** each.
Each team consists of **7 players; a goalkeeper and 6 outfield players**.
There is semi-circle area around each goal area. There is also a dashed semi-circle line which lies 9 metres from goal, which is the free throw line.
Outfield players can touch the ball with any part of their body that is above the knee.
Once a player receives possession, they can pass, hold possession or shoot.
If a player holds possession, they **can dribble or take three steps** for up to **three seconds** without dribbling.
Only the goalkeeper is allowed to come into contact with the floor of the goal area.
Goalkeepers are allowed out of the goal area but must not retain possession if they are outside the goal area.
To win in handball you must score more than your opponent.
If the game is drawn then there must be a winner; then periods of overtime with a maximum of 2x 5 minute periods are played. If the scores are still level, a shoot-out is used to determine the result of the game.

<https://www.englishhandball.com/>



Key positions

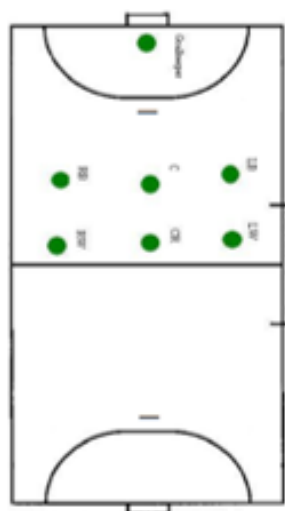
Goalie: This player defends the team goal against the opposition who are attempting to score goals. The goalkeeper is the player permitted to field inside the goal area and the only player who can use his legs to kick the ball.

Left and Right backs: When defending, these players will block the shots and pass to the centre. This players also attack and will usually shoot from longer distances.

Centre: Both an attacking and defensive player which is also called a 'playmaker'. They are positioned largely around the midcourt area and their role is to initiate the offensive play, shoot, or try to penetrate the opponent's defence.

Left and Right wingers: These players will be aiming to score the goals to win the game from difficult angles. Every player can act as an attacker during the game and these players will use pace to create openings to score.

Circle player/runner: The main player in attack who helps defend from the front and creates openings for teammates and gets into shooting positions.



Definitions and Key terminology

Block (blocking the ball): This relates to the body of a player interfering with the normal shot of the receiver.

Bounced Shot: This is a when a player is shooting at the goal with the ball hitting the floor on its way.

Corner Throw: The handball corner throw is given when the ball is played over the goal line (or either side of the goal) by a defending player.

Court Player: All outfield players are called court players. This does not include goalkeepers.

Court Referee: The court referee stays behind the attacking team. He watches for any defensive or offensive fouls or possession violations committed by the court players.

Dive Shot: It is a way of shooting by jumping above the floor towards the goal. It is done without touching the d-line.

Exclusion: Exclusions occur for assault. The excluded player's team has to play with one player less for the rest of the game.

Faking: This is a tactic used to trick the opponent with a hand or body movement e.g. fake pass, fake shot etc.

Goal Area: A D-shaped area six metres from the goal that is used only by the goalkeeper.

Man Marking: A defensive strategy where a defender marks a specific opposition player to guard in the game.

Rebound: The term referring the way the ball bounces backwards after hitting the bars of the goal post.

Zone Defence Systems: A handball zone defence system means a team marking the area of the pitch instead of marking an individual player.

Key Skills

www.bbc.co.uk/bitesize/guides/z32qmbn/revision/5

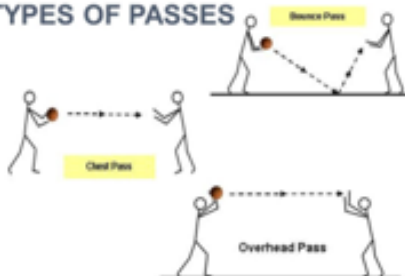
Catching – Stand shoulder width apart, facing the direction of the ball. Move towards the ball and move hands towards the ball and once caught, close fingers around the ball and flex your elbows to bring the ball into your chest.

Shoulder / Overhead pass – Stand shoulder width apart and sideways on. The throwing arm should be behind your head at a 90° angle and the non-throwing arm should be pointing towards your intended target. Finally, transfer your weight from your back foot to your front foot, rotating your hips towards the target. Follow through the pass with your throwing arm pointing towards the target.

Bounce pass – Hands should be in a W shape on the ball with your elbows out. Pass is made from chest and should be bounced just over ½ way between the passer and the retriever. As the ball is released, step forward to ensure more power is given.

Chest pass – Holding the ball at the chest, keep two hands behind the ball with elbows out. Push the ball in a horizontal motion and step forward as the ball is released.

TYPES OF PASSES



Vertical Jump Shot – This is a power and speed shot towards goal. Face the target and be on your toes. Extend your knees, transferring your body weight from low to high. Release the ball at its highest point of the jump and throw sharply downwards towards the goal.

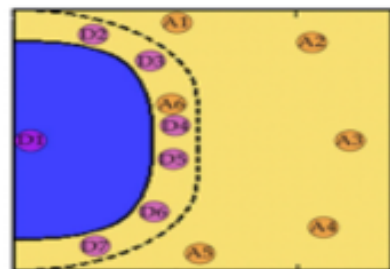
Dribbling – Be on your toes and stand shoulder width apart. Using your fingertips, push the ball downwards, extending the shoulder and elbow and flexing the wrist. Keep your head up and the ball a maximum of 1m in front of you. Bounce the ball at waist level and repeat the technical skill to maintain the bounce.



Tactics

The most common formations can be 6:0 (six players on the goal area line), 5:1 (5 players on the goal area line, one player in front of them), 4:2, 3:2:1 (open defence), or 3:3, 1:5 (open defence).

Zone Defence is a standard tactic to ensure a team protects their area and goal. When a team loses possession, the aim to retreat and form a barrier around the area to avoid conceding a goal. Each defender protects one area of the court.

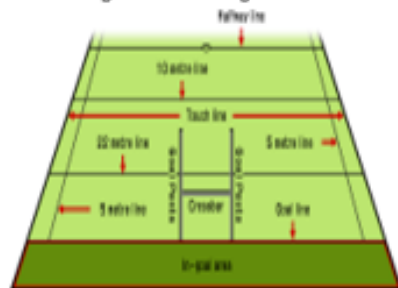


Sidestepping is a skill which can be both tactical and technical. It is an element of the attacker's basic movement. They will perform a side-step by continually moving sideways mainly across the width of the handball court dimensions to create a space for a pass or dribble.



KS3 Rugby

Rules and regulations of the game



Each game consists of **80 minutes** (40 minutes in each half) with **15 players on each team**. The aim of the game is simple - use the ball to score more points than the other team. You can run with the ball, kick it and pass it, but passing forwards is not allowed. Rugby union is a contact sport, so you can tackle an opponent in order to get the ball, as long as you stay within the rules.

There is a referee, aided by two touch judges (one on each side of the pitch), to decide how the rules should be applied during a game.

There are several ways to score points.

A try - five points are awarded for touching the ball down in your opponent's goal area.

A conversion - two points are added for a successful kick through the goalposts after a try.

A goal kick - three points are awarded for a penalty kick or drop goal through the posts.

Penalty - is given if there is an infringement of the rules

Offside - If a player is in front of a team-mate in possession of the ball, or in front of a team-mate who last played the ball, they will be offside if they:

Actively try to play the ball

Do not retreat within 10m of an opponent who is waiting for the ball

Move towards the opponents or the place where the ball lands without first coming back onside

The referee will award a penalty at the place where the offence took place.

Players and Substitutes - A team can field only 15 players at any one time. Their squad can consist of 8 substitutes/replacements- Some can come off the bench due to injuries, while others are substitutions are for tactical reasons. A team cannot substitute a player who has been shown a red card.

<https://www.englandrugby.com/governance/rules-and-regulations/regulations>

Key Skill

Passing - Hold the ball in front of your body in two hands with fingers spread on either side.

- To pass left-right hand for power (towards back of the ball) and left for aim (towards front of the ball). Keep power arm high (elbow up) for accuracy and distance.
- Fluid motion to release the ball with arms swinging like a pendulum in front of the body, first away from then towards the intended target. Follow through with the hands pointing towards the receiver at point of release.
- Players should nearly always look to carry the ball in two hands, ready to pass to supporting players either side of him/her.
- Receivers should always have their hands up which is the target for the passer.

Rucking - ruck is a phase of play where one or more players from each team, who are on their feet, in physical contact, close around the ball on the ground

- Get low by dropping the hips when approaching the ruck.
- Keep your head up and back straight, and look at the target.
- Drive into the target, forward and up.
- Shorten your stride as you approach the ruck
- Drop your hips to get low, don't bend your back.
- Keep your eyes on the target and drive beyond the ball.

Tackling - A rugby tackle is quick, simple, and safe if you keep your head up and lead with your shoulder. A good tackle has several components, and mastering them will prevent injuries and bring down opponents with ease:

- Start in an athletic position, on your toes to adjust to the attacker's movement.
- Lead with your shoulder, driving it into their thigh or stomach.
- Keep your head up, tucking it along the butt of the attacker.
- Wrap your arms around their thighs, squeezing in to take them off balance.
- Let your momentum carry your shoulder through them, using your arms to 'squeeze' them to the ground with you.

Maul - A maul occurs when three or more players, including the ball carrier and at least one other player from either side, are in contact together.

- What makes the maul different to the ruck is that the ball is not on the ground but in hand.
- Players joining the maul must have their heads or shoulders no lower than their hips and must have at least one arm bound to a team-mate.

Key positions

Front row - a long with the hooker, the loose-head and tight-head props make up what is known as the front row.

Second row - the second row forwards (also known as locks) are the engine room of the scrum and the target men in the lineout.

Flankers - Out of all the rugby positions, they are more often than not at the centre of the action - winning balls at the ruck and maul, collecting short passes from tackled players and making their own big tackles in open play

Number eight - Support play, tackling and ball-carrying are the No.8's areas of expertise, making his or her duties similar to the two flankers. Together the trio forms a unit called the back row.

Scrum half - Acting as the link between the forwards and the backs, the scrum-half is the key rugby positions when it comes to building attacks

Fly half - The heartbeat of the side and arguably the most influential player on the pitch. Almost every attack will go through the fly-half.

Centres - The inside centre is often the more creative in a centre pairing and should be able to pass and kick nearly as well as the fly-half. Meanwhile, the outside centre tends to be the faster of the two and the ability to offload the ball quickly to the wingers is also vital.

Wingers - laying out wide on the side of the pitch, the winger is a team's finisher in the attack.

Full back - Lining up behind the entire back line, the fullback is the closest thing that rugby has to a sweeper in defence.

The image shows the variety of positions, most common on the field of play.

<https://www.rugby.co.uk/rugby-positions-roles-beginners/>



Tactics

Developing tactics requires a thorough understanding of your team's strengths. These tactics will be in part forward dominated and power based, and also reliant on the creation of space and use of pace. As important, is an awareness of the team and individuals you're up against - and the tactics they are likely to employ.

Using power

Using the physical strength of the forwards, in scrums and rolling mauls, can result in significant territory gain. Forward players can 'pick and drive' (gather the ball and take it forward with the support of team mates) until the moment is right to release it to the backs.

Creating space

For all its many complexities, Rugby remains a simple game in essence. Points will be scored when a player is put into space and when an attacking team out-numbers those in defence. As such, Rugby's holy grail lies in the creation of space. There are many tactics geared towards this, but primarily it's about winning quick ball to move the passage of play away from a concentration of players whilst injecting pace and creativity in attack to make space for a player to score.

<https://passport.worldrugby.org/?page=beginners&p=18>

Definitions and Key terminology

Attack - move the ball forwards in order to score

Conversion - kick for goal after scoring a try, for two extra points

Drop goal - drop kick through the goalposts during normal play, worth three points

Drop kick - kick in which the ball is dropped to the ground before being struck with the foot

Forward pass - illegal pass thrown to a position ahead of the player who threw it

Foul - an infringement of the laws; illegal play

Try line - line at each end of the pitch on which the goalposts are erected

Knock-on - foul of knocking the ball forward, towards one's own goal

Line-out - formation of forwards into which the ball is thrown to restart play after the ball goes into touch

Maul - convergence of players around a ball carrier to push him and the ball forward

Obstruction - foul of obstructing a player by blocking, tripping, shirt-pulling, etc.

Pass - throw of the ball to a team-mate

Penalty kick - free kick awarded by the referee that can be used to kick for goal

Place kick - kick taken by placing the ball on the pitch, stepping back and then moving in and kicking it

Ruck - pack of linked players that forms over a ball to push the opposing team backward and gain control of the ball

Scrum - players from one team link arms, bend over and push forward against a similar group from the opposing side

Tackle - stop a player from running with the ball by wrapping arms around him and bringing him to ground

Touch - area outside the two touchlines

Touchline - one of two lines that form the long sides of the playing area

Try - act of taking the ball over the try line and grounding it to earn five points

Try line - line at each end of the pitch on which the goalposts are erected

Yellow card - card shown to a player being cautioned and sent off the pitch for ten minutes

KS3 Badminton

Rules of the game

1. The shuttlecock must be served diagonally.
2. The side that wins the rally is awarded the point.
3. If server wins point they continue to serve until a point is lost.
4. Serving is alternated between opponents when server loses a point.
5. First to 21 points wins, if 20-20, the side that gets 2 clear points wins, if 29 all first to 30 wins.
6. The shuttle must always be served diagonally and the serving side will depend on you own score. If your score is an odd number you serve from the left, if it is an even number you will serve from the right.
7. A point will be given to the opposing side if the net is touched by the racket or person.

Key positions

To always position yourself in the middle of the court after you make your shot (dominate the T)

In doubles you need to make a decision whether you are playing front and back or side to side. With front and back, when serving stay front and when receiving stay where the opposition has aimed the shuttlecock e.g. stay back if long serve or front for short serve.

<https://web.mst.edu/~ima/rules/Badmintonrules.html>

Rules of the game video - <https://www.youtube.com/watch?v=UyLi-TbcFc>

Key Skills

Serving - Stroke used to put the shuttlecock into play at the start of a rally either long or short.

Overhead clear - A shot hit deep to the opponents back boundary line. The high clear is a defensive shot.

Underarm clear - A shot hit deep to the opponents back boundary line. The high clear is a defensive shot.

Overhead smash - Hard-hit overhead shot that forces the shuttle sharply downward. Badminton's primary attacking stroke.

Drop shot - A shot hit softly and with finesse to fall rapidly and close to the net on the opponent's side.

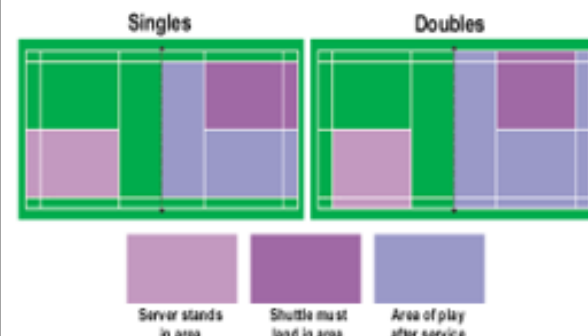
Positioning - be able to put you opponent to a certain area of the court to open the area to win with your next shot e.g. overhead clear to back of the court then use a drop shot at the front.



Court markings

Below shows where you must serve from and what parts of the court are in and out on serve.

It also shows what parts of the court are in and out during a rally (after serve) in singles and doubles.



<https://www.badmintonengland.co.uk/#>

Definitions and Key terminology

Fault - A violation of the playing rules, either in serving, receiving, or during play.

Let - A legitimate stoppage of play to allow a rally to be replayed.

Rally - Exchange of shots while the shuttle is in play.

Shuttlecock - Official name for the object that the players must hit.

Clear - A high and deep shot to the back of the court.

Love - The score at the start of the game or where a player has not scored a point.

Smash - A fast and hard shot from above the head to force the shuttle downwards to the floor.

Singles - Game involving 2 players in a 1v1 match

Doubles - Game involving 4 players with 2v2 on the court.

Links to other sports and transferable skills

Teamwork, Leadership, Resilience, Respect, Spatial awareness, Verbal communication, Coordination, Agility, Reaction time

Tactics

The basic strategy is to apply maximum movement pressure to your opponent.

The central base position - always take the central position after each shot

Hitting the corners - aim for corners on side of the court to get opponent out of position.

Hitting to the body - make it difficult for opponent to return an effective shot.

Building shots - don't try and win the point straight away, get your opponent out of position on the court to allow you to attempt a winning shot.

Winning shots - use when appropriate during a rally.

Using deception - to outwit your opponent so they don't know what shot you are going to make.

