



*‘Everyone has the **right** to be the best version of themselves that they can be. We all have the **responsibility** to make it happen’*

Year 8
Knowledge Organisers
(Autumn Term)

Knowledge Organisers - Instructions

Knowledge organisers are not about copying, they are about memorising the knowledge needed for each subject.


Each time you use your Knowledge Organisers in prep time and at home you should:

- ⇒ Check to see if your teacher has told you a specific part of the knowledge organiser to learn e.g. for a mini test in class.
- ⇒ Rule off six lines.
- ⇒ Select a subject knowledge organiser.
- ⇒ Select a section from your chosen knowledge organiser.
- ⇒ Read and re-read the text, using the look and cover technique.
- ⇒ Write the information learnt into the box using only four lines.
- ⇒ Using a RED pen, check each word, ticking it if correct. Then add any missing information in RED in lines 5 & 6.
- ⇒ Do not just copy out the knowledge organiser, you are aiming to memorise the information. This will mean repeating the process multiple times in one sitting and then testing yourself again a couple of weeks later.

Routine Homework	<u>Homework Schedule & Instructions</u>					
	Year Group	Monday	Tuesday	Wednesday	Thursday	Friday
	Year 7, 8 & 9	Maths	English	Science	Humanities	Creative
	Year 10 & 11	Maths	English	Science	Option Subject	Option Subject
	Post 16	Option 1	Option 2	Option 3	Additional Revision	Additional Revision
Regular Homework	<p>Class teachers from the subjects above, foundation and option subjects will set REGULAR homework in addition to the ROUTINE HOMEWORK you are expected to complete each night. This homework will be set on Class Charts and checked regularly.</p> <p>Additional exam-based question homework will be set for Year 10, Year 11 and Post 16, this should be submitted in the next subject lesson as it will be pre-learning to the lesson.</p>					

All students must complete 'routine homework' for 20 minutes each night, this is the minimum expectations. You will be required to write a heading of HW in the column of your Ready to Learn books and continue to write out the knowledge from memory as you have been shown (covering up the knowledge in the knowledge organiser) and then self-checking, correcting any errors in Red pen – this is a continuation from your Prep Time Session.

It is your responsibility to ensure your parent/carer signs each page every week to check that homework has been completed and meets Academy expectations.

1	Why do you need to Know British Values? Understanding British values is an important way to enable you to embrace the key values that you need to be equipped for life in modern British society. There are 5 fundamental British Values. <u>Through understanding the British values of Democracy, the Rule of Law, Individual Liberty, Mutual Respect, and Acceptance for those with different faiths and beliefs</u> , you will develop self-knowledge, be better able to make the right choices and make contributions to the school and the wider community.								
Democracy									
2	Democracy	8	<div>Examples of Political Parties:</div> <div></div>						
3	In the United Kingdom we vote (age 18 +) for the people we want to run our councils and Government.								
4	We vote for Members of Parliament (MP's). Elections take place at least once every 5 years.								
5	In our democracy there are political parties. At the time of writing the political party who has the majority of MP's in Parliament is the Conservative Party. Labour are currently the opposition Party.	9	When elections take place for Members of Parliament, the public go to vote. Traditionally this happens on a Thursday, and people vote in a secret ballot. People only know who you vote for if you decide to tell them – it is rude to ask!						
6	The Leader of the Conservatives and our current Prime Minister is Theresa May. The Leader of the Opposition is Jeremy Corbyn.	10	Where can I see British Values at School? Democracy – School Council / Form Representatives / Student Executive. We hold mock elections and in PSHE you will learn more about politics. We participate in the MAT debating competition, held in the council chamber at the Town Hall.						
7	MP's debate in the Palace of Westminster, in the House of Commons. On the opposite side of the Building is the House of Lords. The House of Lords (unelected members) ratify law and policies put forward by parliament.								
The rule of law									
11	In the UK, we have laws which determine what is legal and illegal. You are expected to know the difference between right and wrong.	14	There are consequences for making the wrong choice or taking illegal actions. We all take responsibility for our actions.						
12	The rule of law is a principle that individuals and institutions are subject and accountable to, which is fairly applied and enforced.	15	Where can I see British Values at School? Rule of Law – Our Behaviour Systems and Behaviour Policy. We have agreed rules and expectations so that our school is a safe and happy place where all differences are reconciled peacefully. We have a PCSO that comes into school to educate you in the law.						
13	Those who commit crimes will ultimately be brought to justice through the legal system including Police officers, courts and lawyers. The rule of law acts as a deterrent, to deter people from criminal acts.								
Individual liberty									
16	In the UK you are free to have an opinion (unless it is extremist) and believe in what you want without discrimination.	18	Where can I see British Values at School? Mutual Respect – Our academy ethos, antibullying and assemblies. Boundaries are used to ensure you are safe.						
17	You have the freedom to make choices and decisions without being judged.								
Mutual respect for and tolerance of those with different faiths and beliefs and for those without faith.									
19	Mutual Respect and Tolerance are the proper regard for an individuals' dignity, which is reciprocated, and a fair, respectful and polite attitude is shown to those who may be different to ourselves.	21	We should all actively challenge students, staff or parents expressing opinions contrary to the values we hold in society and as a school and those that underpin the fabric of a democratic Britain. This is crucial to us to protect one another and to tackle 'extremist' views and prevent people from being radicalised.						
20	Differences in terms of faith, ethnicity, gender, sexuality, age, young carers and disability, are differences that should be respected, tolerated and celebrated.	22	Where can I see British Values at School? Acceptance of Faith – RE Lessons and Assemblies. We give you messages of tolerance and respect for others no matter what their ethnicity, beliefs, sexuality, gender or disability.						
Democracy		Rule of Law		Individual Liberty		Mutual Respect		Tolerance	

British Values Knowledge Organiser

'The Adventures of Sherlock Holmes': Knowledge Organiser

	Key words	Characters
Scandal in Bohemia – plot overview	enlighten – to provide someone with information and understanding. People come to Holmes so that they can be enlightened on a crime.	Sherlock Holmes – a fictional consulting detective created by Arthur Conan Doyle. He is known for his intelligence, introspection and dual nature. He is described as an 'observing machine' because of his ability to capture the essence of people with seemingly very little evidence.
<ul style="list-style-type: none"> The King of Bohemia plans to marry a Norwegian princess. However, he previously had a relationship with a woman called Irene Adler. Adler is threatening to ruin his engagement with a picture she has of herself and the king together. Holmes tricks Adler into revealing where she keeps the photograph, but she outsmarts Holmes and escapes with it. Adler decides not to use the picture against the king. She leaves a picture of herself in its place, which Holmes keeps as a reminder of her. 	deduction – the process of reaching a decision by looking at the facts that are known. Holmes is able to use his skills of deduction to solve crimes.	Dr Watson – Holmes' former flatmate, a doctor and his closest companion. The stories are told from his perspective, working as Holmes' assistant.
	scandal – a scandal is something that shocks people because they think it is morally wrong. The King of Bohemia fears that scandal of his relationship with Irene Adler being exposed.	Irene Adler – a famous American opera singer who had a relationship with the future King of Bohemia. To Holmes, she is 'the woman' who outsmarted him.
	periodical/serial – books, magazines or other entertainment that are released on a regular basis. <i>The Strand Magazine</i> was a periodical that published the Sherlock Holmes stories.	King of Bohemia – in the Victorian era, Bohemia was an area of central Europe; today it is a region of the Czech Republic. The King is engaged to a Scandinavian princess but five years previously was madly in love with Irene Adler. Because of his status, he was unable to marry her at the time, which he regrets. The King still respects Adler.
The Red-Headed League – plot overview	introspective – when you examine your own thoughts, ideas, and feelings. Sherlock Holmes can be introspective . This makes him a better detective.	
<ul style="list-style-type: none"> Jabez Wilson gets a job with the mysterious 'Red-Headed League' because of his 'flame' coloured hair. One day, he is mysteriously told that he is no longer needed by the league so visits Holmes to ask him to investigate. Holmes discovers that his story reveals a plot to steal from a bank vault which is successfully prevented. 	dual nature – Holmes has a dual nature: his quiet introspective side, and his manic detecting side.	James Ryder – head attendant of the hotel where the Blue Carbuncle goes missing. He works with his accomplice Catherine Cusack (the countess' maid) to steal the jewel and frame John Horner for the crime. He is racked with guilt and confesses when Holmes questions him.
	Context	
The Blue Carbuncle – plot overview	Sir Arthur Conan Doyle was the author of the Sherlock Holmes stories.	Jabez Wilson – a London pawnbroker who has distinctively red hair. His business is struggling so he takes the job working for The Red-Headed League. Wilson was tricked by his assistant Vincent Spaulding who worked alongside another criminal to use his shop to rob the bank next door.
<ul style="list-style-type: none"> A policeman named Peterson is left with a man's hat and Christmas goose. He takes the goose home to eat and discovers a blue carbuncle (a rare, and very valuable jewel) inside the goose! Holmes recognises the jewel as the one that was stolen from The Countess of Morcar. Using the hat as a clue, Holmes and Watson set off to discover how the blue carbuncle was stolen and how it ended up in a goose. 	Sherlock Holmes' fictional home was 221B Baker Street, which is now a museum of Doyle's life and work.	
	Doyle's short stories were published individually in <i>The Strand Magazine</i> periodical and then collected to form <i>The Adventures of Sherlock Holmes</i> short story collection in 1892.	Vincent Spaulding/John Clay – Jabez Wilson's assistant. This is actually a disguise for John Clay who attempts a bank robbery using Wilson's shop as an easy passage.
	Before he became a writer, Doyle studied medicine.	

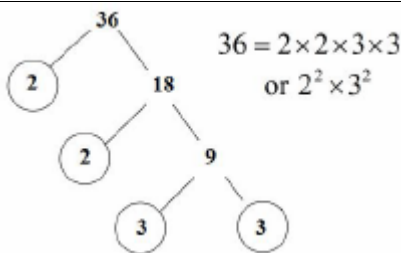
Topic: Accuracy

Topic/Skill	Definition/Tips	Example																																																												
1. Place Value Columns	<p>The value of where a digit is within a number.</p> <p>The names of the columns that determine the value of each digit.</p> <p>The ‘ones’ column is also known as the ‘units’ column.</p>	<table><tr><th colspan="12">Place Value</th></tr><tr><th colspan="2">Trillions</th><th colspan="2">Billions</th><th colspan="2">Millions</th><th colspan="2">Thousands</th><th colspan="2">Ones</th><th></th><th></th></tr><tr><td>Hundred trillions</td><td>Ten trillions</td><td>Hundred billions</td><td>Ten billions</td><td>Hundred millions</td><td>Ten millions</td><td>Hundred thousands</td><td>Ten thousands</td><td>Thousands</td><td>Hundreds</td><td>Tens</td><td>Ones</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td>5</td><td>2</td><td>7</td><td>8</td><td>1</td><td>9</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>4</td></tr></table>	Place Value												Trillions		Billions		Millions		Thousands		Ones				Hundred trillions	Ten trillions	Hundred billions	Ten billions	Hundred millions	Ten millions	Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones							5	2	7	8	1	9												4
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2. Rounding	<p>To make a number simpler but keep its value close to what it was.</p> <p>If the digit to the right of the rounding digit is less than 5, round down.</p> <p>If the digit to the right of the rounding digit is 5 or more, round up.</p>	<p>74 rounded to the nearest ten is 70, because 74 is closer to 70 than 80.</p> <p>152,879 rounded to the nearest thousand is 153,000.</p>																																																												
3. Decimal Place	<p>The position of a digit to the right of a decimal point.</p>	<p>In the number 0.372, the 7 is in the second decimal place.</p> <p>0.372 rounded to two decimal places is 0.37, because the 2 tells us to round down.</p> <p>Careful with money - don’t write £27.4, instead write £27.40</p>																																																												
4. Significant Figure	<p>The significant figures of a number are the digits which carry meaning (ie. are significant) to the size of the number.</p> <p>The first significant figure of a number cannot be zero.</p> <p>In a number with a decimal, trailing zeros are not significant.</p>	<p>In the number 0.00821, the first significant figure is the 8.</p> <p>In the number 2.740, the 0 is not a significant figure.</p> <p>19357 rounded to 3 significant figures is 19400. We need to include the two zeros at the end to keep the digits in the same place value columns.</p>																																																												
5. Error Interval	<p>A range of values that a number could have taken before being rounded or truncated.</p>	<p>0.6 has been rounded to 1 decimal place.</p> <p>The lower bound is 0.55</p> <p>The upper bound is 0.65</p>																																																												
6. Estimate	<p>To find something close to the correct answer.</p>	<p>An estimate for the height of a man is 1.8 metres.</p>																																																												
7. Approximation	<p>When using approximations to estimate the solution to a calculation, round each number in the calculation to 1 significant figure.</p> <p>≈ means ‘approximately equal to’</p>	<p>$\frac{348 + 692}{0.526} \approx \frac{300 + 700}{0.5} = 2000$</p> <p>‘Note that dividing by 0.5 is the same as multiplying by 2’</p>																																																												


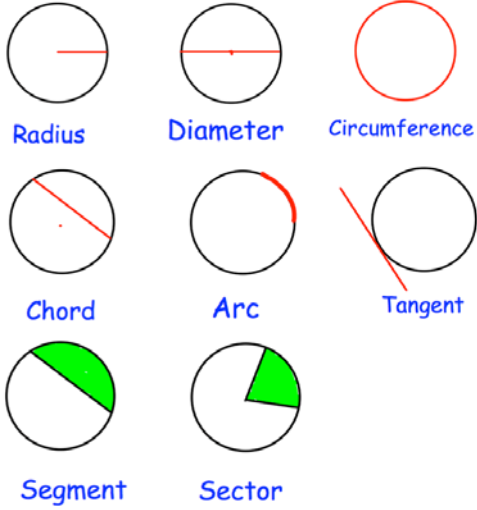
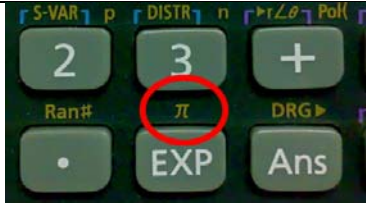
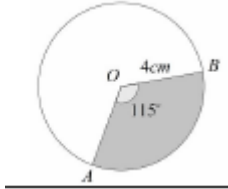
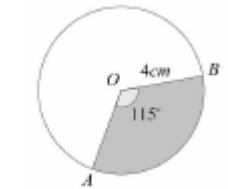
Basic Number and Decimals

Topic/Skill	Definition/Tips	Example
1. Integer	A whole number that can be positive, negative or zero.	$-3, 0, 92$
2. Decimal	A number with a decimal point in it. Can be positive or negative.	$3.7, 0.94, -24.07$
3. Negative Number	A number that is less than zero . Can be decimals.	$-8, -2.5$
4. Addition	To find the total , or sum , of two or more numbers. 'add', 'plus', 'sum'	$3 + 2 + 7 = 12$
5. Subtraction	To find the difference between two numbers. To find out how many are left when some are taken away. 'minus', 'take away', 'subtract'	$10 - 3 = 7$
6. Multiplication	Can be thought of as repeated addition . 'multiply', 'times', 'product'	$3 \times 6 = 6 + 6 + 6 = 18$
7. Division	Splitting into equal parts or groups. The process of calculating the number of times one number is contained within another one . 'divide', 'share'	$20 \div 4 = 5$ $\frac{20}{4} = 5$
8. Remainder	The amount ' left over ' after dividing one integer by another.	The remainder of $20 \div 6$ is 2, because 6 divides into 20 exactly 3 times, with 2 left over.
9. BIDMAS	An acronym for the order you should do calculations in. BIDMAS stands for ' Brackets, Indices, Division, Multiplication, Addition and Subtraction '. Indices are also known as 'powers' or 'orders'. With strings of division and multiplication, or strings of addition and subtraction, and no brackets, work from left to right.	$6 + 3 \times 5 = 21, \text{not } 45$ $5^2 = 25$, where the 2 is the index/power. $12 \div 4 \div 2 = 1.5, \text{not } 6$
10. Recurring Decimal	A decimal number that has digits that repeat forever . The part that repeats is usually shown by placing a dot above the digit that repeats, or dots over the first and last digit of the repeating pattern.	$\frac{1}{3} = 0.333 \dots = 0.\dot{3}$ $\frac{1}{7} = 0.142857142857 \dots = 0.\dot{1}4285\dot{7}$ $\frac{77}{600} = 0.128333 \dots = 0.128\dot{3}$

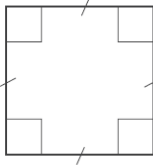
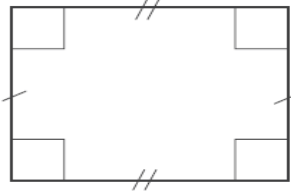
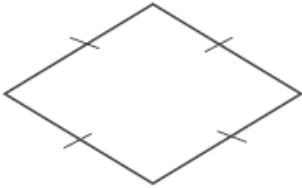
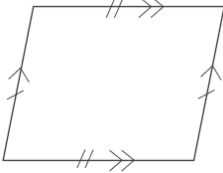
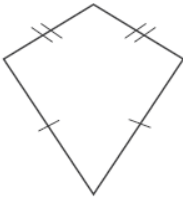
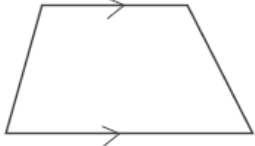
Topic: Factors and Multiples

Topic/Skill	Definition/Tips	Example
1. Multiple	The result of multiplying a number by an integer. The times tables of a number.	The first five multiples of 7 are: 7, 14, 21, 28, 35
2. Factor	A number that divides exactly into another number without a remainder. It is useful to write factors in pairs	The factors of 18 are: 1, 2, 3, 6, 9, 18 The factor pairs of 18 are: 1, 18 2, 9 3, 6
3. Lowest Common Multiple (LCM)	The smallest number that is in the times tables of each of the numbers given.	The LCM of 3, 4 and 5 is 60 because it is the smallest number in the 3, 4 and 5 times tables.
4. Highest Common Factor (HCF)	The biggest number that divides exactly into two or more numbers.	The HCF of 6 and 9 is 3 because it is the biggest number that divides into 6 and 9 exactly.
5. Prime Number	A number with exactly two factors . A number that can only be divided by itself and one. The number 1 is not prime , as it only has one factor, not two.	The first ten prime numbers are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
6. Prime Factor	A factor which is a prime number.	The prime factors of 18 are: 2, 3
7. Product of Prime Factors	Finding out which prime numbers multiply together to make the original number. Use a prime factor tree . Also known as 'prime factorisation'.	 $36 = 2 \times 2 \times 3 \times 3$ $\text{or } 2^2 \times 3^2$

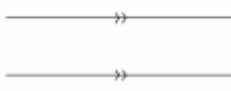
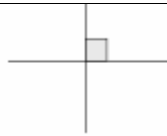
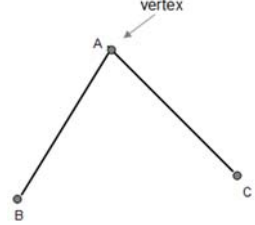
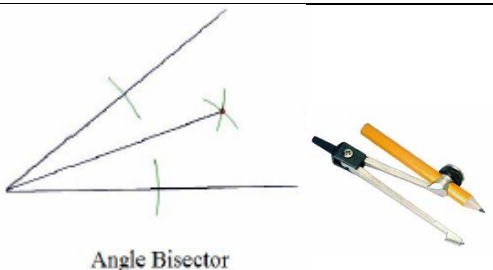
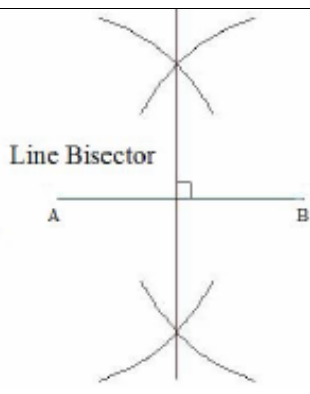
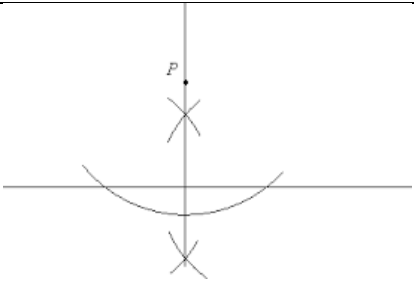
Topic: Circumference and Area

Topic/Skill	Definition/Tips	Example
1. Circle	A circle is the locus of all points equidistant from a central point.	
2. Parts of a Circle	<p>Radius – the distance from the centre of a circle to the edge</p> <p>Diameter – the total distance across the width of a circle through the centre.</p> <p>Circumference – the total distance around the outside of a circle</p> <p>Chord – a straight line whose end points lie on a circle</p> <p>Tangent – a straight line which touches a circle at exactly one point</p> <p>Arc – a part of the circumference of a circle</p> <p>Sector – the region of a circle enclosed by two radii and their intercepted arc</p> <p>Segment – the region bounded by a chord and the arc created by the chord</p>	<p style="text-align: center; color: green;">Parts of a Circle</p> 
3. Area of a Circle	$A = \pi r^2$ which means 'pi x radius squared'.	If the radius was 5cm, then: $A = \pi \times 5^2 = 78.5cm^2$
4. Circumference of a Circle	$C = \pi d$ which means 'pi x diameter'	If the radius was 5cm, then: $C = \pi \times 10 = 31.4cm$
5. π ('pi')	Pi is the circumference of a circle divided by the diameter. $\pi \approx 3.14$	
6. Arc Length of a Sector	The arc length is part of the circumference. Take the angle given as a fraction over 360° and multiply by the circumference .	<p>Arc Length = $\frac{115}{360} \times \pi \times 8 = 8.03cm$</p> 
7. Area of a Sector	The area of a sector is part of the total area. Take the angle given as a fraction over 360° and multiply by the area .	<p>Area = $\frac{115}{360} \times \pi \times 4^2 = 16.1cm^2$</p> 

Topic: Visualising and Constructing

Topic/Skill	Definition/Tips	Example
1. Square	<ul style="list-style-type: none"> • Four equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other at right angles • Four lines of symmetry • Rotational symmetry of order four 	
2. Rectangle	<ul style="list-style-type: none"> • Two pairs of equal sides • Four right angles • Opposite sides parallel • Diagonals bisect each other, not at right angles • Two lines of symmetry • Rotational symmetry of order two 	
3. Rhombus	<ul style="list-style-type: none"> • Four equal sides • Diagonally opposite angles are equal • Opposite sides parallel • Diagonals bisect each other at right angles • Two lines of symmetry • Rotational symmetry of order two 	
4. Parallelogram	<ul style="list-style-type: none"> • Two pairs of equal sides • Diagonally opposite angles are equal • Opposite sides parallel • Diagonals bisect each other, not at right angles • No lines of symmetry • Rotational symmetry of order two 	
5. Kite	<ul style="list-style-type: none"> • Two pairs of adjacent sides of equal length • One pair of diagonally opposite angles are equal (where different length sides meet) • Diagonals intersect at right angles, but do not bisect • One line of symmetry • No rotational symmetry 	
6. Trapezium	<ul style="list-style-type: none"> • One pair of parallel sides • No lines of symmetry • No rotational symmetry <p>Special Case: Isosceles Trapeziums have one line of symmetry.</p>	

Topic: Visualising and Constructing

Topic/Skill	Definition/Tips	Example
1. Parallel	Parallel lines never meet.	
2. Perpendicular	Perpendicular lines are at right angles. There is a 90° angle between them.	
3. Vertex	A corner or a point where two lines meet.	
4. Angle Bisector	Angle Bisector: Cuts the angle in half. <ol style="list-style-type: none"> 1. Place the sharp end of a pair of compasses on the vertex. 2. Draw an arc, marking a point on each line. 3. Without changing the compass put the compass on each point and mark a centre point where two arcs cross over. 4. Use a ruler to draw a line through the vertex and centre point. 	 <p style="text-align: center;">Angle Bisector</p>
5. Perpendicular Bisector	Perpendicular Bisector: Cuts a line in half and at right angles. <ol style="list-style-type: none"> 1. Put the sharp point of a pair of compasses on A. 2. Open the compass over half way on the line. 3. Draw an arc above and below the line. 4. Without changing the compass, repeat from point B. 5. Draw a straight line through the two intersecting arcs. 	 <p style="text-align: center;">Line Bisector</p>
6. Perpendicular from an External Point	<p>The perpendicular distance from a point to a line is the shortest distance to that line.</p> <ol style="list-style-type: none"> 1. Put the sharp point of a pair of compasses on the point. 2. Draw an arc that crosses the line twice. 3. Place the sharp point of the compass on one of these points, open over half way and draw an arc above and below the line. 4. Repeat from the other point on the line. 	

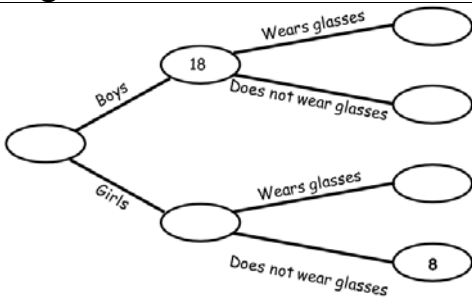
Topic: Visualising and Constructing

	5. Draw a straight line through the two intersecting arcs.	
7. Perpendicular from a Point on a Line	<p>Given line PQ and point R on the line:</p> <ol style="list-style-type: none"> 1. Put the sharp point of a pair of compasses on point R. 2. Draw two arcs either side of the point of equal width (giving points S and T) 3. Place the compass on point S, open over halfway and draw an arc above the line. 4. Repeat from the other arc on the line (point T). 5. Draw a straight line from the intersecting arcs to the original point on the line. 	
8. Constructing Triangles (Side, Side, Side)	<ol style="list-style-type: none"> 1. Draw the base of the triangle using a ruler. 2. Open a pair of compasses to the width of one side of the triangle. 3. Place the point on one end of the line and draw an arc. 4. Repeat for the other side of the triangle at the other end of the line. 5. Using a ruler, draw lines connecting the ends of the base of the triangle to the point where the arcs intersect. 	
9. Constructing Triangles (Side, Angle, Side)	<ol style="list-style-type: none"> 1. Draw the base of the triangle using a ruler. 2. Measure the angle required using a protractor and mark this angle. 3. Remove the protractor and draw a line of the exact length required in line with the angle mark drawn. 4. Connect the end of this line to the other end of the base of the triangle. 	
10. Constructing Triangles (Angle, Side, Angle)	<ol style="list-style-type: none"> 1. Draw the base of the triangle using a ruler. 2. Measure one of the angles required using a protractor and mark this angle. 3. Draw a straight line through this point from the same point on the base of the triangle. 4. Repeat this for the other angle on the other end of the base of the triangle. 	

**Topic: Basic Probability
and Standard Form**

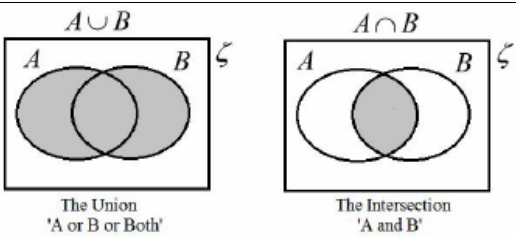
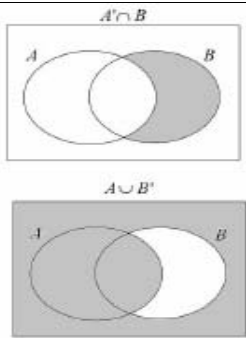
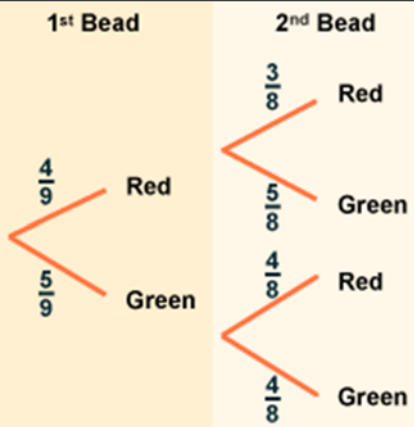
Topic/Skill	Definition/Tips	Example
1. Probability	<p>The likelihood/chance of something happening.</p> <p>Is expressed as a number between 0 (impossible) and 1 (certain).</p> <p>Can be expressed as a fraction, decimal, percentage or in words (likely, unlikely, even chance etc.)</p>	
2. Probability Notation	P(A) refers to the probability that event A will occur .	P(Red Queen) refers to the probability of picking a Red Queen from a pack of cards.
3. Theoretical Probability	$\frac{\text{Number of Favourable Outcomes}}{\text{Total Number of Possible Outcomes}}$	Probability of rolling a 4 on a fair 6-sided die = $\frac{1}{6}$.
4. Relative Frequency	$\frac{\text{Number of Successful Trials}}{\text{Total Number of Trials}}$	<p>A coin is flipped 50 times and lands on Tails 29 times.</p> <p>The relative frequency of getting Tails = $\frac{29}{50}$.</p>
5. Expected Outcomes	To find the number of expected outcomes, multiply the probability by the number of trials .	<p>The probability that a football team wins is 0.2 How many games would you expect them to win out of 40?</p> <p align="center">$0.2 \times 40 = 8 \text{ games}$</p>
6. Exhaustive	<p>Outcomes are exhaustive if they cover the entire range of possible outcomes.</p> <p>The probabilities of an exhaustive set of outcomes adds up to 1.</p>	When rolling a six-sided die, the outcomes 1, 2, 3, 4, 5 and 6 are exhaustive, because they cover all the possible outcomes.
7. Mutually Exclusive	<p>Events are mutually exclusive if they cannot happen at the same time.</p> <p>The probabilities of an exhaustive set of mutually exclusive events adds up to 1.</p>	<p>Examples of mutually exclusive events:</p> <ul style="list-style-type: none"> - Turning left and right - Heads and Tails on a coin <p>Examples of non mutually exclusive events:</p>

Topic: Standard Form

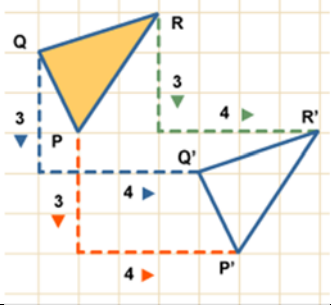
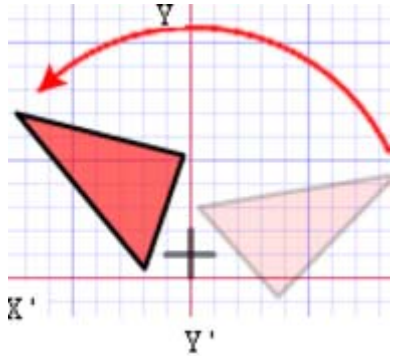
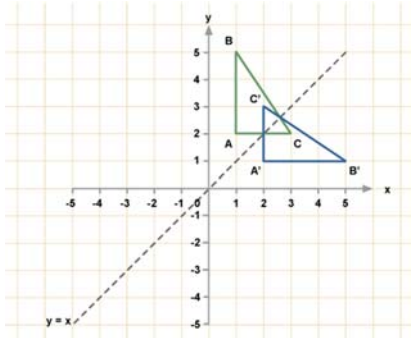
		- King and Hearts from a deck of cards, because you can pick the King of Hearts																																																	
8. Frequency Tree	<p>A diagram showing how information is categorised into various categories.</p> <p>The numbers at the ends of branches tells us how often something happened (frequency).</p> <p>The lines connected the numbers are called branches.</p>																																																		
9. Sample Space	The set of all possible outcomes of an experiment.	<table border="1" data-bbox="1093 712 1319 902"><tr><td>+</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr><tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr></table>	+	1	2	3	4	5	6	1	2	3	4	5	6	7	2	3	4	5	6	7	8	3	4	5	6	7	8	9	4	5	6	7	8	9	10	5	6	7	8	9	10	11	6	7	8	9	10	11	12
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6	7	8	9	10	11	12																																													
10. Sample	<p>A sample is a small selection of items from a population.</p> <p>A sample is biased if individuals or groups from the population are not represented in the sample.</p>	A sample could be selecting 10 students from a year group at school.																																																	
11. Sample Size	The larger a sample size, the closer those probabilities will be to the true probability.	A sample size of 100 gives a more reliable result than a sample size of 10.																																																	
Topic/Skill	Definition/Tips	Example																																																	
1. Standard Form	$A \times 10^b$ <p>where $1 \leq A < 10$, $b = \text{integer}$</p>	$8400 = 8.4 \times 10^3$ $0.00036 = 3.6 \times 10^{-4}$																																																	
2. Multiplying or Dividing with Standard Form	Multiply: Multiply the numbers and add the powers . Divide: Divide the numbers and subtract the powers .	$(1.2 \times 10^3) \times (4 \times 10^6) = 8.8 \times 10^9$ $(4.5 \times 10^5) \div (3 \times 10^2) = 1.5 \times 10^3$																																																	
3. Adding or Subtracting with Standard Form	Convert in to ordinary numbers, calculate and then convert back in to standard form	$2.7 \times 10^4 + 4.6 \times 10^3 = 27000 + 4600 = 31600 = 3.16 \times 10^4$																																																	

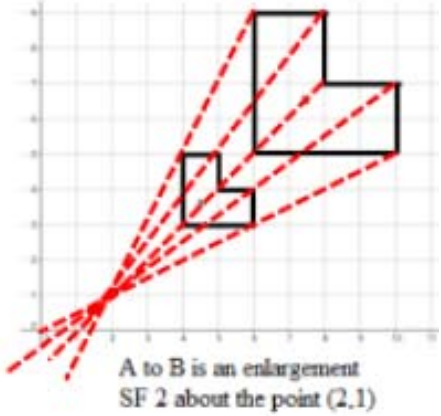
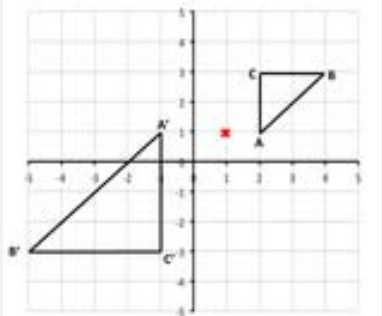
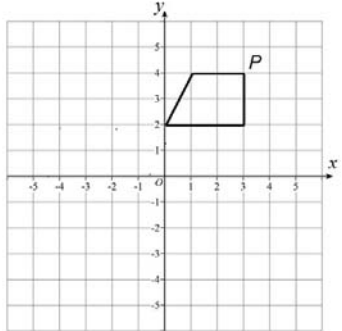
Topic: Probability (Trees and Venns)

Topic/Skill	Definition/Tips	Example
1. Tree Diagrams	<p>Tree diagrams show all the possible outcomes of an event and calculate their probabilities.</p> <p>All branches must add up to 1 when adding downwards. This is because the probability of something not happening is 1 minus the probability that it does happen.</p> <p>Multiply going across a tree diagram.</p> <p>Add going down a tree diagram.</p>	
2. Independent Events	The outcome of a previous event does not influence/affect the outcome of a second event.	An example of independent events could be <u>replacing</u> a counter in a bag after picking it.
3. Dependent Events	The outcome of a previous event does influence/affect the outcome of a second event.	An example of dependent events could be not replacing a counter in a bag after picking it. 'Without replacement'
4. Probability Notation	<p>P(A) refers to the probability that event A will occur.</p> <p>P(A') refers to the probability that event A will <u>not</u> occur.</p> <p>P(A ∪ B) refers to the probability that event A <u>or</u> B <u>or</u> both will occur.</p> <p>P(A ∩ B) refers to the probability that <u>both</u> events A and B will occur.</p>	<p>P(Red Queen) refers to the probability of picking a Red Queen from a pack of cards.</p> <p>P(Blue')</p> <p>P(Blue') refers to the probability that you do not pick Blue.</p> <p>P(Blonde ∪ Right Handed) refers to the probability that you pick someone who is Blonde or Right Handed or both.</p> <p>P(Blonde ∩ Right Handed) refers to the probability that you pick someone who is both Blonde and Right Handed.</p>
5. Venn Diagrams	<p>A Venn Diagram shows the relationship between a group of different things and how they overlap.</p> <p>You may be asked to shade Venn Diagrams as shown below and to the right.</p>	

		
6. Venn Diagram Notation	<p> \in means 'element of a set' (a value in the set) $\{ \}$ means the collection of values in the set. ξ means the 'universal set' (all the values to consider in the question) </p> <p> A' means 'not in set A' (called complement) $A \cup B$ means 'A or B or both' (called Union) $A \cap B$ means 'A and B (called Intersection) </p>	<p>Set A is the even numbers less than 10. $A = \{2, 4, 6, 8\}$</p> <p>Set B is the prime numbers less than 10. $B = \{2, 3, 5, 7\}$</p> <p> $A \cup B = \{2, 3, 4, 5, 6, 7, 8\}$ $A \cap B = \{2\}$ </p>
7. AND rule for Probability	<p>When two events, A and B, are independent:</p> $P(A \text{ and } B) = P(A) \times P(B)$	<p>What is the probability of rolling a 4 and flipping a Tails?</p> $P(4 \text{ and Tails}) = P(4) \times P(\text{Tails})$ $= \frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$
8. OR rule for Probability	<p>When two events, A and B, are mutually exclusive:</p> $P(A \text{ or } B) = P(A) + P(B)$	<p>What is the probability of rolling a 2 or rolling a 5?</p> $P(2 \text{ or } 5) = P(2) + P(5)$ $= \frac{1}{6} + \frac{1}{6} = \frac{2}{6} = \frac{1}{3}$
9. Conditional Probability	<p>The probability of an event A happening, given that event B has already happened.</p> <p>With conditional probability, check if the numbers on the second branches of a tree diagram changes. For example, if you have 4 red beads in a bag of 9 beads and pick a red bead on the first pick, then there will be 3 red beads left out of 8 beads on the second pick.</p>	

Topic: Shape Transformations

Topic/Skill	Definition/Tips	Example
1. Translation	Translate means to move a shape . The shape does not change size or orientation .	
2. Column Vector	In a column vector, the top number moves left (-) or right (+) and the bottom number moves up (+) or down (-)	$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ means '2 right, 3 up' $\begin{pmatrix} -1 \\ -5 \end{pmatrix}$ means '1 left, 5 down'
3. Rotation	The size does not change, but the shape is turned around a point . Use tracing paper.	Rotate Shape A 90° anti-clockwise about (0,1) 
4. Reflection	The size does not change, but the shape is ' flipped ' like in a mirror . Line $x = ?$ is a vertical line . Line $y = ?$ is a horizontal line . Line $y = x$ is a diagonal line .	Reflect shape C in the line $y = x$ 
5. Enlargement	The shape will get bigger or smaller . Multiply each side by the scale factor .	Scale Factor = 3 means '3 times larger = multiply by 3' Scale Factor = $\frac{1}{2}$ means 'half the size = divide by 2'

<p>6. Finding the Centre of Enlargement</p>	<p>Draw straight lines through corresponding corners of the two shapes. The centre of enlargement is the point where all the lines cross over.</p> <p>Be careful with negative enlargements as the corresponding corners will be the other way around.</p>	 <p>A to B is an enlargement SF 2 about the point (2,1)</p>
<p>7. Describing Transformations</p>	<p>Give the following information when describing each transformation:</p> <p>Look at the number of marks in the question for a hint of how many pieces of information are needed.</p> <p>If you are asked to describe a 'transformation', you need to say the name of the type of transformation as well as the other details.</p>	<ul style="list-style-type: none"> - Translation, Vector - Rotation, Direction, Angle, Centre - Reflection, Equation of mirror line - Enlargement, Scale factor, Centre of enlargement
<p>8. Negative Scale Factor Enlargements</p>	<p>Negative enlargements will look like they have been rotated.</p> <p>$SF = -2$ will be rotated, and also twice as big.</p>	<p>Enlarge ABC by scale factor -2, centre (1,1)</p> 
<p>9. Invariance</p>	<p>A point, line or shape is invariant if it does not change/move when a transformation is performed.</p> <p>An invariant point 'does not vary'.</p>	<p>If shape P is reflected in the y - axis, then exactly one vertex is invariant.</p> 

Topic: Basic Percentages

Topic/Skill	Definition/Tips	Example
1. Percentage	Number of parts per 100.	31% means $\frac{31}{100}$
2. Finding 10%	To find 10% , divide by 10	10% of £36 = $36 \div 10 = £3.60$
3. Finding 1%	To find 1% , divide by 100	1% of £8 = $8 \div 100 = £0.08$
4. Percentage Change	$\frac{\text{Difference}}{\text{Original}} \times 100\%$	A games console is bought for £200 and sold for £250. % change = $\frac{50}{200} \times 100 = 25\%$
5. Fractions to Decimals	Divide the numerator by the denominator using the bus stop method.	$\frac{3}{8} = 3 \div 8 = 0.375$
6. Decimals to Fractions	Write as a fraction over 10, 100 or 1000 and simplify.	$0.36 = \frac{36}{100} = \frac{9}{25}$
7. Percentages to Decimals	Divide by 100	$8\% = 8 \div 100 = 0.08$
8. Decimals to Percentages	Multiply by 100	$0.4 = 0.4 \times 100\% = 40\%$
9. Fractions to Percentages	Percentage is just a fraction out of 100. Make the denominator 100 using equivalent fractions. When the denominator doesn't go in to 100, use a calculator and multiply the fraction by 100.	$\frac{3}{25} = \frac{12}{100} = 12\%$ $\frac{9}{17} \times 100 = 52.9\%$
10. Percentages to Fractions	Percentage is just a fraction out of 100. Write the percentage over 100 and simplify.	$14\% = \frac{14}{100} = \frac{7}{50}$


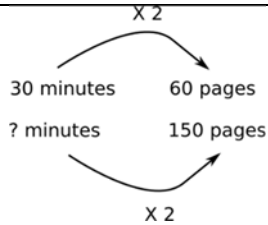
Topic: Calculating with Percentages

Topic/Skill	Definition/Tips	Example
1. Increase or Decrease by a Percentage	<p>Non-calculator: Find the percentage and add or subtract it from the original amount.</p> <p>Calculator: Find the percentage multiplier and multiply.</p>	<p><u>Increase 500 by 20% (Non Calc):</u> $10\% \text{ of } 500 = 50$ so $20\% \text{ of } 500 = 100$ $500 + 100 = 600$</p> <p><u>Decrease 800 by 17% (Calc):</u> $100\% - 17\% = 83\%$ $83\% \div 100 = 0.83$ $0.83 \times 800 = 664$</p>
2. Percentage Multiplier	The number you multiply a quantity by to increase or decrease it by a percentage .	<p>The multiplier for increasing by 12% is 1.12 The multiplier for decreasing by 12% is 0.88 The multiplier for increasing by 100% is 2.</p>
3. Reverse Percentage	<p>Find the correct percentage given in the question, then work backwards to find 100%</p> <p>Look out for words like 'before' or 'original'</p>	<p>A jumper was priced at £48.60 after a 10% reduction. Find its original price.</p> <p>$100\% - 10\% = 90\%$</p> <p>$90\% = £48.60$ $1\% = £0.54$ $100\% = £54$</p>
4. Simple Interest	Interest calculated as a percentage of the original amount.	<p>£1000 invested for 3 years at 10% simple interest. $10\% \text{ of } £1000 = £100$ Interest = $3 \times £100 = £300$</p>

Topic: Algebra

Topic/Skill	Definition/Tips	Example
1. Expression	A mathematical statement written using symbols, numbers or letters ,	$3x + 2$ or $5y^2$
2. Equation	A statement showing that two expressions are equal	$2y - 17 = 15$
3. Identity	<p>An equation that is true for all values of the variables</p> <p>An identity uses the symbol: \equiv</p>	$2x \equiv x + x$
4. Formula	Shows the relationship between two or more variables	Area of a rectangle = length x width or $A = L \times W$
5. Simplifying Expressions	<p>Collect 'like terms'.</p> <p>Be careful with negatives. x^2 and x are not like terms.</p>	$2x + 3y + 4x - 5y + 3 = 6x - 2y + 3$ $3x + 4 - x^2 + 2x - 1 = 5x - x^2 + 3$
6. x times x	The answer is x^2 not $2x$.	Squaring is multiplying by itself, not by 2.
7. $p \times p \times p$	The answer is p^3 not $3p$	If $p=2$, then $p^3 = 2 \times 2 \times 2 = 8$, not $2 \times 3 = 6$
8. $p + p + p$	The answer is $3p$ not p^3	If $p=2$, then $2+2+2=6$, not $2^3 = 8$
9. Expand	To expand a bracket, multiply each term in the bracket by the expression outside the bracket.	$3(m + 7) = 3m + 21$
10. Factorise	<p>The reverse of expanding.</p> <p>Factorising is writing an expression as a product of terms by 'taking out' a common factor.</p>	$6x - 15 = 3(2x - 5)$, where 3 is the common factor.

Topic: Ratio

Topic/Skill	Definition/Tips	Example
1. Ratio	Ratio compares the size of one part to another part . Written using the ':' symbol.	$3 : 1$ 
2. Proportion	Proportion compares the size of one part to the size of the whole . Usually written as a fraction.	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
3. Simplifying Ratios	Divide all parts of the ratio by a common factor .	$5 : 10 = 1 : 2$ (divide both by 5) $14 : 21 = 2 : 3$ (divide both by 7)
4. Ratios in the form $1 : n$ or $n : 1$	Divide both parts of the ratio by one of the numbers to make one part equal 1 .	$5 : 7 = 1 : \frac{7}{5}$ in the form $1 : n$ $5 : 7 = \frac{5}{7} : 1$ in the form $n : 1$
5. Sharing in a Ratio	1. Add the total parts of the ratio. 2. Divide the amount to be shared by this value to find the value of one part. 3. Multiply this value by each part of the ratio. Use only if you know the total .	Share £60 in the ratio $3 : 2 : 1$. $3 + 2 + 1 = 6$ $60 \div 6 = 10$ $3 \times 10 = 30, 2 \times 10 = 20, 1 \times 10 = 10$ £30 : £20 : £10
6. Proportional Reasoning	Comparing two things using multiplicative reasoning and applying this to a new situation. Identify one multiplicative link and use this to find missing quantities.	
7. Unitary Method	Finding the value of a single unit and then finding the necessary value by multiplying the single unit value.	3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes. 3 cakes = 450g So 1 cake = 150g (\div by 3) So 5 cakes = 750 g (\times by 5)
8. Ratio already shared	Find what one part of the ratio is worth using the unitary method .	Money was shared in the ratio 3:2:5 between Ann, Bob and Cat. Given that Bob had £16, found out the total amount of money shared. $\pounds 16 = 2$ parts So $\pounds 8 = 1$ part $3 + 2 + 5 = 10$ parts, so $8 \times 10 = \pounds 80$
9. Best Buys	Find the unit cost by dividing the price by the quantity . The lowest number is the best value.	8 cakes for £1.28 \rightarrow 16p each (\div by 8) 13 cakes for £2.05 \rightarrow 15.8p each (\div by 13) Pack of 13 cakes is best value.

Y8– Contact forces

Types of forces

1

A force is a push or pull that acts on an object because of the interaction with another object. There are two types of forces:

- contact forces – the objects are physically touching for example friction, air resistance, tension and normal contact force.
- non-contact forces – the objects are physically separated for example gravitational force, electrostatic force and magnetic force.

Friction

Friction grips objects while they are on a surface. Smoother surfaces have less friction than rough surfaces.

You can reduce friction by adding oil/grease to an object or surface. This is called lubrication.

Drag force

2

Objects moving through fluids experience something called a drag force; this slows down the object.

In water, the drag force is called water resistance.

In air, the drag force is called air resistance.

You can reduce drag forces by streamlining an object.

How friction/contact forces affect motion

3

When drag forces/friction are equal to the opposite force applied, they will either move at a constant speed or stay stationary.

When the drag forces/friction are greater than the opposite force applied, the object will decelerate.

When the drag forces/friction are less than the opposite force applied, the object will accelerate.

Y8– Contact forces

Changing shape

4

Forces can change the shape of an object– this is called **deformation**.

When forces squash an object they cause **compression**.

When forces stretch an object they cause **tension**.

Stretching

6

Many objects (e.g. Springs, bungee cords and lift cables) can stretch when you extend them. The amount they stretch is called their **extension**.

Stretching a spring

The length of a spring can be used to measure the size of a force.

When the force applied to the spring is removed the spring will go back to its original length, unless it has been stretched past its elastic limit.

If the elastic limit of the spring is exceeded the spring will not return to its original length when the force is removed.

Hooke's law

If the force applied to a spring is doubled then the extension of the spring will double. This is true for elastic objects that obey Hooke's law. A graph of force against extension will show a straight line through the origin, indicating a proportional, linear relationship. As shown on the graph on the right.

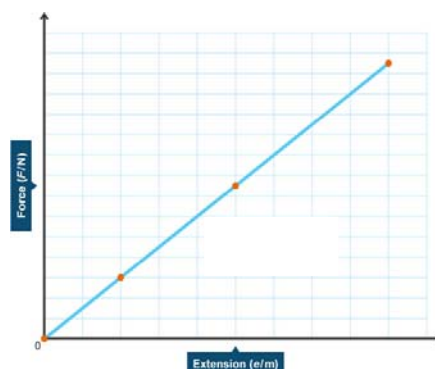
Reaction force

5

When you stand on the floor the floor pushes you up.

The floor is a solid – it is made up of particles arranged in a regular pattern and bonded strongly together. When you stand on the floor your weight pushes the particles together, this compresses the bonds between the particles in the solid which push back and support you.

This type of support force is termed a **REACTION** force.



Not all objects obey Hooke's law, as not all objects will behave like a spring when stretched. For example, elastic bands.

Y8– Contact forces

Moments

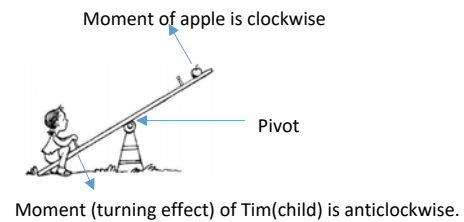
Moments are turning effects of forces

The central point, pin, or shaft on which something turns is called a pivot.

Turning forces act a certain distance from a pivot.

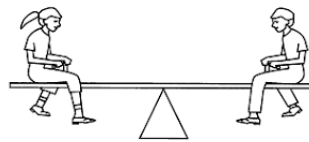
Turning forces can act anticlockwise or clockwise

$\text{moment(Nm)} = \text{distance from a pivot(m)} \times \text{force(N)}$



7

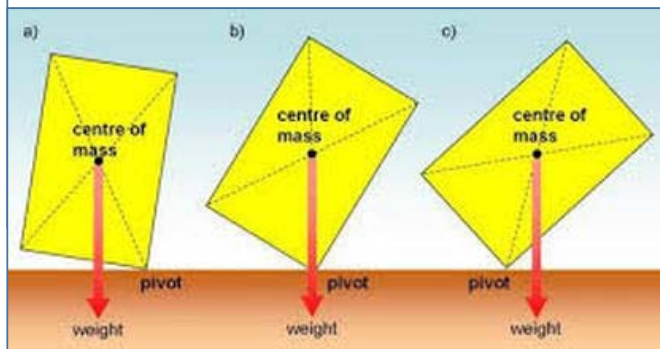
When the anticlockwise and clockwise moments are equal to each other. There is no movement and they are in equilibrium. In the diagram on the right, the see saw won't move because the kids weigh the same and are the same distance from the pivot (the triangle)



8

Falling over.

9



- A) The block tips left till it hits the ground
- B) The block balances and stays in that position
- C) The block tips right till it hits the ground.

Y8– Contact forces

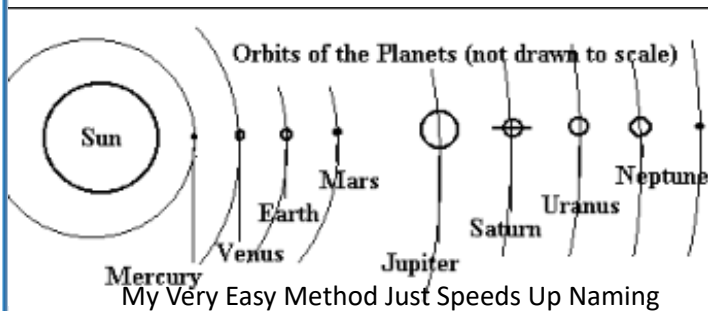
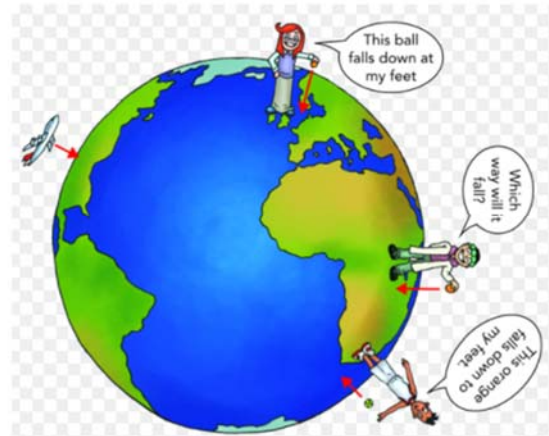
Keywords	Definition
Contact force	The objects have to be physically touching for the force to occur.
Non contact force	The objects are physically separated when the forces occur.
Friction	Gripping force.
Drag force	Force that slows objects down during motion in a fluid.
Air resistance	Drag force in air.
Water resistance	Drag force in water.
Lubrication	Adding grease/oil to something so friction has less of an effect.
Compression	When forces squash an object.
Deformation	Change in shape of an object.
Tension	Force that occurs when objects are stretched.
Extension	The amount an object stretches.
Reaction force	The force of particles in the solid pushing back and support objects that are on the floor.
Moments	Turning force.
Pivot	The point at which an object turns at.

All objects have a force that attracts them towards each other. This is called **gravity**. Even you attract other objects to you because of gravity, but you have too little mass for the force to be very strong. Gravitational force increases when:

- the masses are bigger
- the objects are closer

Gravity only becomes noticeable when there is a really massive object like a moon, planet or star. We are pulled down towards the ground because of gravity. The gravitational force pulls in the direction towards the centre of the Earth.

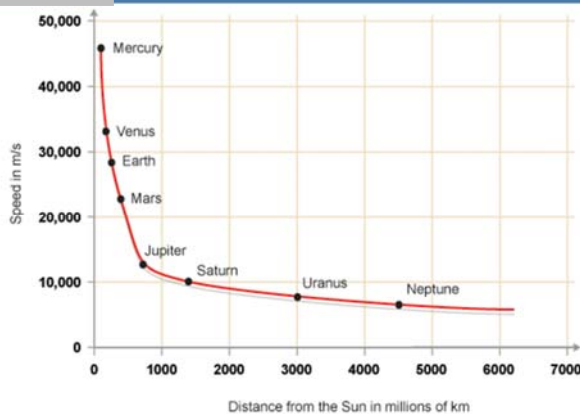
The region around an object where another feels the gravitational force is called the **gravitational field**



Gravity and the solar system

Gravitational forces between the Sun and planets keep the planets in orbit around the Sun. Without these forces, the planets would fly off into deep space.

The further away the planet the weaker the gravitational field of the sun



Orbit times and speeds

Planets that are further from the Sun:
move more slowly and

take more time to complete an orbit

For example, Mercury, the closest planet to the Sun, takes just 88 Earth days to complete an orbit. But Neptune, the furthest out, takes 164 Earth years to complete an orbit.

Effects of space travel on the human body

- a decline in mood, ability to think, morale, and sleep disorders
- The exposure to higher levels of radiation in space also means astronauts may be more likely to suffer from cancer later on in life.
- After five months in orbit above the Earth, an astronaut would typically lose as much as 40% of muscle and 12% of bone mass
- Without the pull of gravity on the fluids in the body space travellers can develop a puffy appearance and can develop vision problems

Mass and weight

Weight is a force caused by gravity. The weight of an object is the gravitational force between the object and the Earth. The more mass the object has the greater its weight will be.

Weight is a force, so it's measured in newtons. On the surface of the Earth an object with a mass of 1 kg has a weight of about 10 N.

Remember that mass is measured in kilograms, kg, and weight is measured in newtons, N.

They are connected by the formula:

$$\text{weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

Where the gravitational field strength of the Earth is 10 N/kg (ten newtons per kilogram).



The mass of an object stays the same wherever it is, but its weight can change. This happens if the object goes somewhere where gravity is stronger, or weaker, such as the Moon.

The Moon has less mass than the Earth, so its gravity is less than the Earth's gravity. This means that objects weigh less on the Moon than they do on the Earth.

The Moon's gravity is one sixth of the Earth's gravity. A 120 kg astronaut weighs 1200 N on Earth. On the Moon they would weigh only 200 N. The astronaut's mass is 120kg wherever they are.

<u>Keywords</u>	<u>Definition</u>
Weight	The force of gravity on an object (N).
Non-contact force	One that acts without direct contact
Mass	The amount of stuff in an object (kg).
Gravitational field strength, g	The force from gravity on 1 kg (N/kg)
Field	The area where other objects feel a gravitational force.

Y8– Periodic table

Periodic table

- The periodic table shows all the elements.
- It puts elements with similar properties into columns, the columns in the periodic table are called groups.

Groups

- Going down a group there are patterns in properties.
- E.g. in group 2 the melting point of calcium (Ca) is 1115°C, the melting point of Strontium (Sr) is 1050°C and the melting point of barium (Ba) is 1000°C; you can see the melting points of group 2 decrease down the group.

1

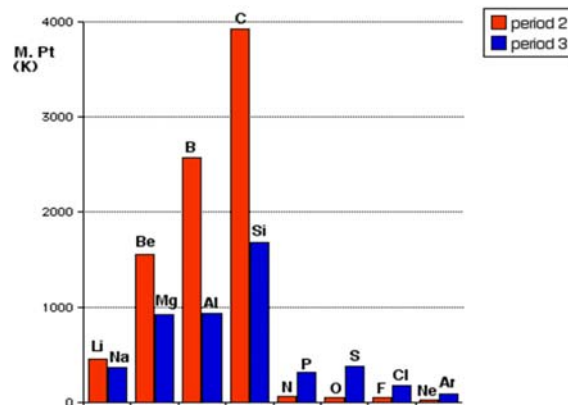
Metals and non metals

On the left side of the steps, there are metals.
On the right side of the steps, there are non metals

2

Periods

- Horizontal rows are called periods; there are also trends across periods.
- Across period 2 melting point increases for the first four elements but then the last four elements have a low melting point.
- Across period 3 the same effect can be seen.



3

Y8– Periodic table

Group 1– the alkali metals

- They are good conductors of heat and electricity.
- They are metals because they are on the left of the stepped line.
- They are shiny when freshly cut.
- Compared to other metals they have lower melting points.



4

Group 1– the alkali metals' physical and chemical trends

- Physical**– The boiling points and melting points decrease down the group.
- Chemical**– Very reactive and all of them react with water to produce metal hydroxides and hydrogen gas.
- Lithium + water → lithium hydroxide + hydrogen gas
- These reactions will cause the water to become alkaline so universal indicator turns purple when added.
- As you go down the group the metals get more reactive so the reactions become more violent.

5

Group 7– The halogens

- The halogens have low melting points.
- Iodine is a brittle solid at room temperature.
- Bromine is a liquid.
- Chlorine and fluorine are gases.
- The halogens are non metals.
- They do not conduct electricity

7

Where to find group 1 & group 7

6

Displacement reactions:

- Chlorine is more reactive than bromine so it displaces it in a compound:
Chlorine(green) + potassium bromide → potassium chloride + bromine(orange)
- Bromine is more reactive than iodine so it displaces it in a compound:
Bromine + potassium iodide → potassium bromide + iodine

8

Group 7– the halogens' physical and chemical trends

- Physical**– Melting points and boiling points increase down the group. Colours get darker as you go down the group.
- Chemical**– The halogens react with iron:
iron + chlorine → iron chloride
iron + bromine → iron bromide
iron + iodine → iron iodide
- The halogens get less reactive as you go down the group so chlorine will have the most vigorous reaction.

9

Y8– Periodic table

Group 0– The noble gases

- The noble gases come from the atmosphere.
- The noble gases are helium, neon, argon, krypton, xenon and radon.
- To obtain noble gases companies will use fractional distillation to separate them from the air.
- Helium is found among natural gas underground or under the sea. It is expensive to obtain helium from those mixtures.

Physical properties

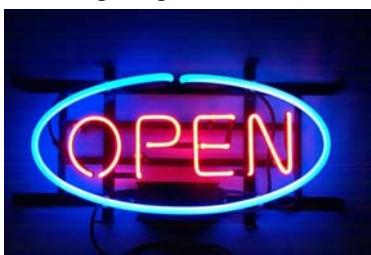
- The noble gases have low melting and low boiling points.
- The melting points boiling points increase down the group.
- They are all colourless gases at room temperature unless a high voltage passes through them then they start glowing.

Chemical properties

- The noble gases are unreactive; they take part in very few reactions.
- As you go down the group they become slightly more reactive.
- Helium and neon have not taken part in any reactions so far.

Noble gas uses

- They are used in lights because they glow.
- Helium has a lower density than air so it is used in air.
- Argon is a good insulator so it is used in the gap of double glazing windows



Where to find noble gases

Group 0: Noble Gases

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba		Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra																

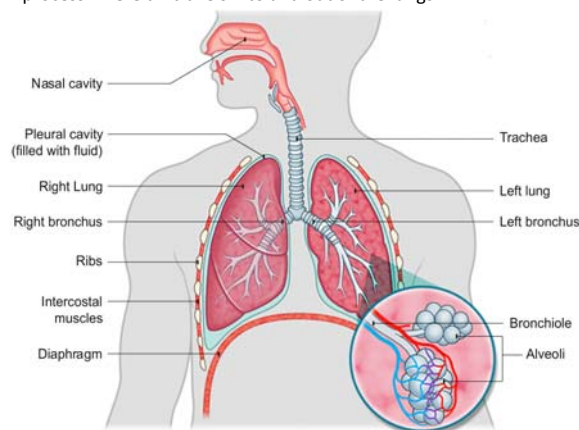
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Y8– Periodic table

<u>Keywords</u>	<u>Definitions</u>
Group	Columns of elements in the periodic table. They have similar properties.
Period	Rows of elements in the periodic table.
Halogens	Group 7 in the periodic table.
Alkali metals	Group 1 in the periodic table.
Noble gases	Group 0 in the periodic table.
Displacement reaction	Type of reaction where part of one reactant is replaced by another reactant.
Unreactive	Does not take part in many reactions.

YR 8– Breathing

We rarely think about breathing unless we're out of breath. The act of breathing is part of the respiratory system, a complex process where air travels into and out of the lungs.



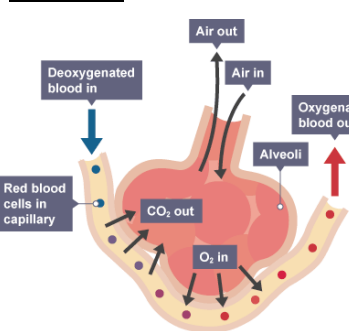
When you inhale:

- The intercostal muscles contract, expanding the ribcage.
- The diaphragm contracts, pulling downwards to increase the volume of the chest.
- Pressure inside the chest is lowered and air is sucked into the lungs.

When you exhale:

- The intercostal muscles relax, the ribcage drops inwards and downwards
- The diaphragm relaxes, moving back upwards, decreasing the volume of the chest.
- Pressure inside the chest increases and air is forced out.

Gas exchange



Gas exchange in the lungs happens in the alveoli. Some of the features of alveoli include:

- Thin walls (just one cell thick)
- Large surface area
- Moist surface
- Many blood capillaries.

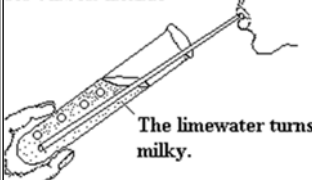
Capillaries surrounding the alveoli transport oxygenated and deoxygenated blood to and from the alveoli. Inhaled Oxygen diffuses from the alveoli into the red blood cells and carbon dioxide diffuses from the red blood cells into the alveoli to be exhaled.

Compared to atmospheric air, exhaled air contains: less oxygen; more carbon dioxide and slightly more nitrogen

Gas	Atmospheric air	Exhaled air	Change
Nitrogen, N ₂	78%	79%	+1%
Oxygen, O ₂	21%	16%	-5%
Carbon dioxide, CO ₂	0.04%	4%	+4%
Others (mostly argon, Ar)	1%	1%	0%

Testing for carbon dioxide

Limewater test for carbon dioxide



Limewater Test

Limewater turns milky in the presence of carbon dioxide, so it can be used to show the differences between inhaled (inspired) air and exhaled (expired) air. The limewater immediately turns milky on contact with exhaled air.

YR 8– Breathing

Effects on the air passages

Sticky mucus in the lungs traps pathogens. The mucus is normally swept out of the lungs by the cilia on the epithelial cells lining the trachea, bronchi and bronchioles.

However, cigarette smoke contains harmful chemicals that damage these cells, leading to a build-up of mucus and a smoker's cough. Smoke irritates the bronchi, causing bronchitis.

Effects on the alveoli

Smoke damages the walls of the alveoli. The alveoli walls break down and join together, forming larger air spaces than normal. This reduces the efficiency of gas exchange, so people with the lung disease emphysema (a type of COPD or chronic obstructive pulmonary disease) carry less oxygen in their blood and find even mild exercise difficult.

Carbon monoxide

Carbon monoxide, CO, combines with the haemoglobin in red blood cells. This reduces the ability of the blood to carry oxygen, putting strain on the circulatory system and increasing the risk of coronary heart disease and strokes.

Lung cancer

Carcinogens are substances that cause cancer. Tobacco smoke contains many carcinogens, including tar. Smoking increases the risk of lung cancer, and cancer of the mouth, throat and oesophagus.



Effects of exercise on breathing

During exercise there is an increase in physical activity and muscle cells respire more than they do when the body is at rest.

The heart rate increases during exercise. The rate and depth of breathing increases - this makes sure that more oxygen is absorbed into the blood, and more carbon dioxide is removed from it.

Benefits of regular exercise

- Quicker delivery of oxygen to working muscles
- Quicker removal of carbon dioxide

Alcohol

The alcohol in alcoholic drinks (such as wines, beers and spirits) is called ethanol. It is a depressant - it slows down signals in the nerves and brain.

Short-term effects of alcohol:

Sleepiness and impaired judgement, balance and muscle control. This leads to blurred vision and slurred speech. There is an increased flow of blood to the skin, which can cause reddening of the skin.

Long-term effects of alcohol:

Damage to the liver and brain. Alcohol damages the liver and, over time, this leads to cirrhosis.

Type of drug	Effect on body	Example
Depressant	Slows down nerve and brain activity	Alcohol, solvents, temazepam
Hallucinogen	Alters what we see and hear	LSD
Painkiller	Blocks nerve impulses	Aspirin, paracetamol
Performance enhancer	Improves muscle development	Anabolic steroids
Stimulant	Increases nerve and brain activity	Nicotine, caffeine, ecstasy

YR 8– Breathing

Keywords	Definition
Multi-cellular	Complex organisms made up of many different types of cells.
Tissues	Group of cells of one type, working together to perform a function.
Organs	Group of different tissues, working together to perform a function.
Organs systems	Group of organs, working together to perform a function.
Circulatory system	Organ system that transports substances around the body.
Respiratory system	The organ system that replaces oxygen and removes carbon dioxide from the blood.
Reproductive system	All the male and female organs involved in reproduction. The organ systems that produce sperm and eggs, also where the foetus develops.
Digestive system	Organ system that breaks down and then absorbs food molecules.
Muscular skeletal system	The organ system in which muscles and bones work together to cause movement and supports the body.
Immune system	The organ system that protects the body against infections.
Gas exchange	The transfer of gases between an organism and its environment.
Lungs	The organs in which gas exchange takes place.
Ribs	Bones which surround the lungs to form the ribcage and protect the lungs.
Respiratory system	Organ system which replaces oxygen and removes carbon dioxide from the blood.
Trachea	Tube which carries air from the mouth and the nose to the lungs.
Bronchioles	Small tube in the lung.
Bronchus	One of the two tubes which carry air into the lungs.
Alveolus	Small air sacs found at the end of each bronchiole where gas exchange takes place with the blood.
Breathing	The movement of air in and out of the lungs.
Diaphragm	The sheet of muscle found underneath the lung which is used in breathing.
Inhale	Breathing in, to take in oxygen.
Respiration	The process that transfers energy in plants and animals. In respiration, glucose reacts with oxygen to make carbon dioxide and water.

YR 8– Breathing

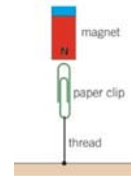
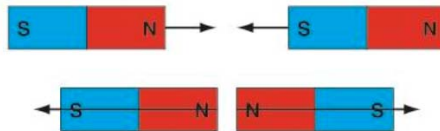
Keywords	Definition
Condense	The change of state from gas to a liquid.
Passive smoking	Breathing in other people's smoke.
Stimulant	A drug that speeds up the body's reactions by speeding up the nervous system.
Inhalation	Breathing in oxygen.
Exhalation	Breathing out carbon dioxide.
Ethanol	The drug found in alcoholic drinks.
Alcoholic	A person who is addicted to alcohol.
Depressant	A drug that slows down the body's reactions by slowing down the nervous system.
Unit of alcohol	10ml of pure ethanol.
Drug	Chemical substance that affects the way our body works.
Medicinal Drugs	Drugs that have a medical benefit to your health.
Recreational drug	Drug that is taken for enjoyment.
Addiction	A need to keep taking a drug in order to feel normal.
Withdrawal symptoms.	Unpleasant symptoms a person with a drug addiction suffers from when they stop taking the drug.

Y8 – Magnetism

1

Bar Magnets

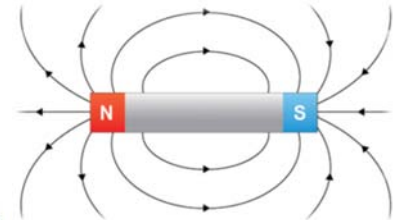
Bar magnets have two poles, a north pole (N) and a south pole (S), **opposite poles attract and like poles repel**.



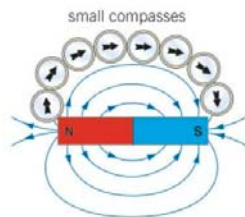
Magnets create magnetic fields. These cannot be seen. They fill the space around a magnet where the magnetic forces work, where they can attract or repel magnetic materials.

Although we cannot see magnetic fields, we can detect them using iron filings. The tiny pieces of iron line up in a magnetic field. We can draw simple magnetic field line diagrams to represent this. In the diagram, note that:

- field lines have arrows on them
- field lines come out of N and go into S
- field lines are more concentrated at the poles.



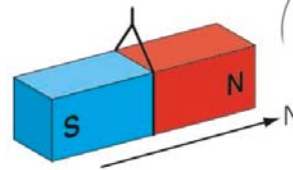
The **magnetic field is strongest at the poles**, where the field lines are most concentrated.



▲ The field around a bar magnet.



▲ Two magnets repelling.



▲ A magnet lines up with the Earth's magnetic field.

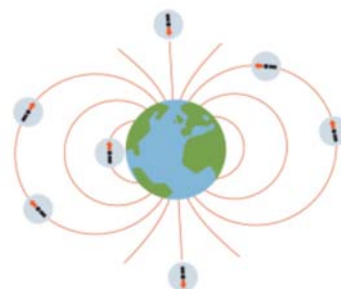
Y8 – Magnetism

2

The Earth's magnetic field

The Earth has a magnetic field because the core rotates, it acts like a giant bar magnet.

People have used compasses, which contain a small bar magnet, to navigate for thousands of years.



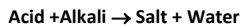
Y8 – Magnetism

<u>Key word</u>	<u>Definition</u>
Magnet	A material with a magnetic field around it in which a magnetic material experiences a force.
Magnetic poles	The ends of a magnetic field, called north-seeking and south-seeking poles.
Magnetic field	A region in which there is a force on a magnet or magnetic material.
Magnetic force	Non-contact force from a magnet on a magnetic material.
Magnetic field lines	Imaginary lines that show the direction of the force on a magnetic material.
Permanent magnet	An object that is magnetic all of the time.

Y8 – Acids and alkalis

Chemical Reactions

- In chemical reactions, what we start with is known as the reactants and what we make is known as the products.
- We can show reactants and products in a word equation (reactants on the left, products on the right).



Acids

- **Acids** are a family of chemicals, examples are lemon juice, vinegar and Coca Cola. There is also acid in our stomach.
- Acids contain H^+ ions.
- **Strong acids** like hydrochloric acid are very corrosive this means they destroy skin cells and cause burns
- **Weak acids** like vinegar are safe to eat but are still irritant to sensitive parts of the body.

Alkalis

- **Alkalis**, are a family of chemicals that have a soapy feel, they are also corrosive, examples of these are toothpaste, soap and oven cleaner.
 - Alkalis contain OH⁻ ions.
 - Alkalis **are** bases that dissolve in water. Therefore not all bases are alkalis. See the example below. Copper oxide is a base but not an alkali.
- Sodium hydroxide is a base and an alkali.

Safety

- When handling acids and alkalis in the lab we need to take many **safety precautions** for example wearing goggles.
- If an acid is dilute (lots of water has been added) it will be irritant and cause redness or blistering of the skin.
- If an acid is concentrated it will destroy skin cells.

Irritant



Corrosive

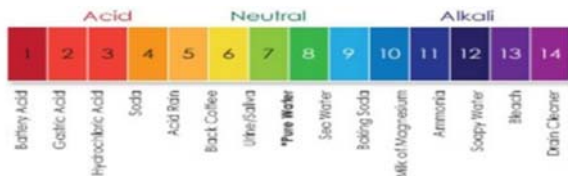


The pH Scale

- The pH scale measures how **strong an acid or alkali is**
- The pH scale runs from 0-14
- The pH scale measures the **concentration of H⁺ ions**, the lower the number the higher the concentration.
- Acids have a pH between 0 and 6, pH 1-3 are strong acids, 4-6 are weak acids
- Alkalis have a pH between 8 and 14, 8-10 weak alkalis, 11-14 strong alkalis
- Anything with a **pH of 7 is neutral**, for example water.

Indicators

- **Indicators** are chemicals that show whether a substance is an **acid** or an **alkali**.
- There are many examples of indicators for example **litmus paper** and **universal indicator**.
- There are also natural indicators like **red cabbage**.

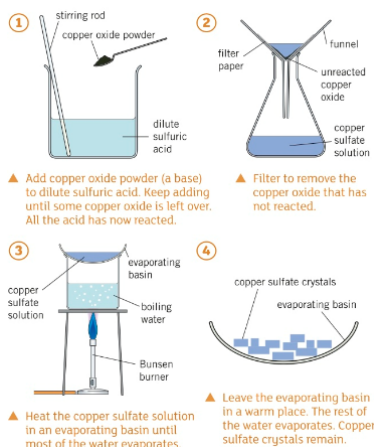


- When an acid reacts with an alkali a **neutralisation reaction** occurs, this means what you make has a pH of 7.
- When a neutralisation reaction happens the **products** are a salt and water. (See below for how to name a salt).
- There are many examples of neutralisation reactions, for example a wasp sting is alkali so we add vinegar (an acid) to it to neutralise it.
- Farmers also spread alkalis onto fields to **neutralise the acid in the soil**.
- Another example is indigestion when there is too much acid in our stomach, we neutralise this with alkali tablets.

Salts

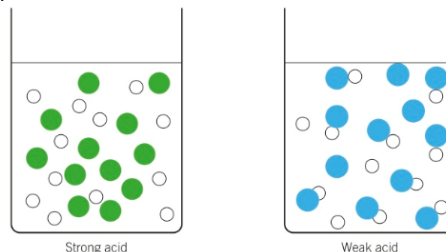
- When a neutralisation reaction happens salt and water are made.
- To name a salt you need to use the alkali to form the first part of the name and the acid to form the second part of the name.
- Hydrochloric acid makes “chlorides”
- Nitric acid makes “nitrates”
- Sulfuric acid makes “sulfates”

Making crystals of a salt



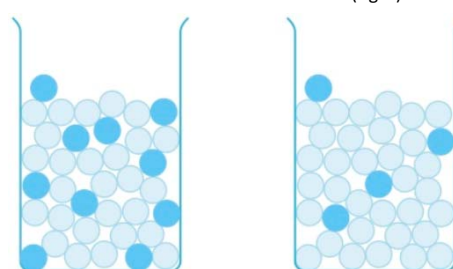
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Strong acid – all acid particles split up when dissolved in water.
Weak acid – some of acid particles split up when dissolved in water.



9

A concentrated solution (left) has more particles per unit volume than a dilute solution (right).



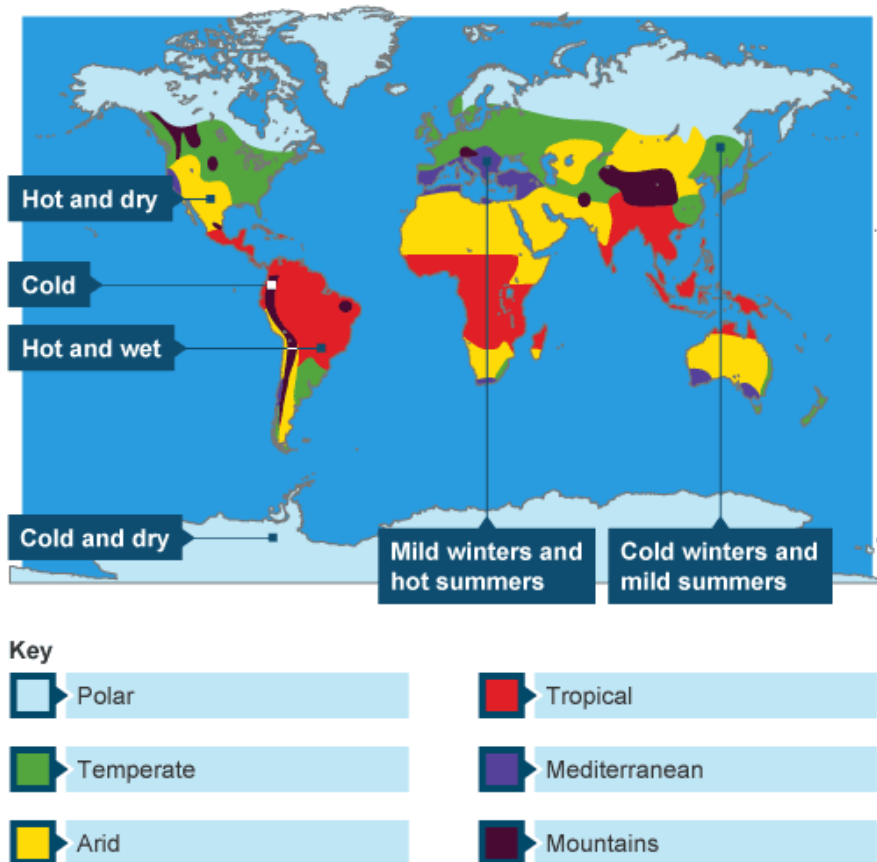
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Y8 – Acids and alkalis

Key word	Definition
Chemical reaction	A change in which atoms are rearranged to create new substances.
Reversible	A change in which it is possible to get back to the original substances. Examples include dissolving and changes of state.
Physical change	A change that is reversible, in which new substances are not made. Examples of physical changes include changes of state and dissolving.
Acid	An acid is a solution with a pH value less than 7.
Alkali	An alkali is a soluble base.
Corrosive	A substance is corrosive if it can burn your skin or eyes.
Irritant	A substance that makes your skin itch or swell up a little.
Concentrated	A solution is concentrated if it has a large number of solute particles per unit volume (litre or cubic metre).
Dilute	A solution is dilute if it has a small number of solute particles per unit volume (litre or cubic metre).
Indicator	Substances used to identify whether unknown solutions are acidic or alkaline. The colour of an indicator is different in acidic and alkaline solutions.
Litmus	An indicator. Blue litmus paper goes red on adding acid. Red litmus paper goes blue on adding alkali.
Universal indicator	An indicator that changes colour to show the pH of a solution. It is a mixture of dyes.
pH scale	The scale shows whether a substance is acidic, alkaline, or neutral. An acid has a pH between 0 and 7. An alkaline has a pH between 7 and 14. A solution of pH 7 is neutral.
Strong acid	An acid in which all of the acid particles split up when it dissolves in water.
Weak acid	An acid in which only some of the acid particles split up when it dissolves in water.
Concentration	A measure of the number of particles in a given volume.
Neutralisation	In a neutralisation reaction, an acid cancels out a base or a base cancels out an acid.
Base	A substance that neutralises an acid. Those that dissolve in water are called alkalis.
Salt	A salt is a compound in which the hydrogen atoms of an acid are replaced by atoms of a metal element.

Weather describes the day-to-day conditions of the atmosphere. Weather can change quickly - one day it can be dry and sunny and the next day it may rain.

Climate describes average weather conditions over longer periods and over large areas.








Microclimate

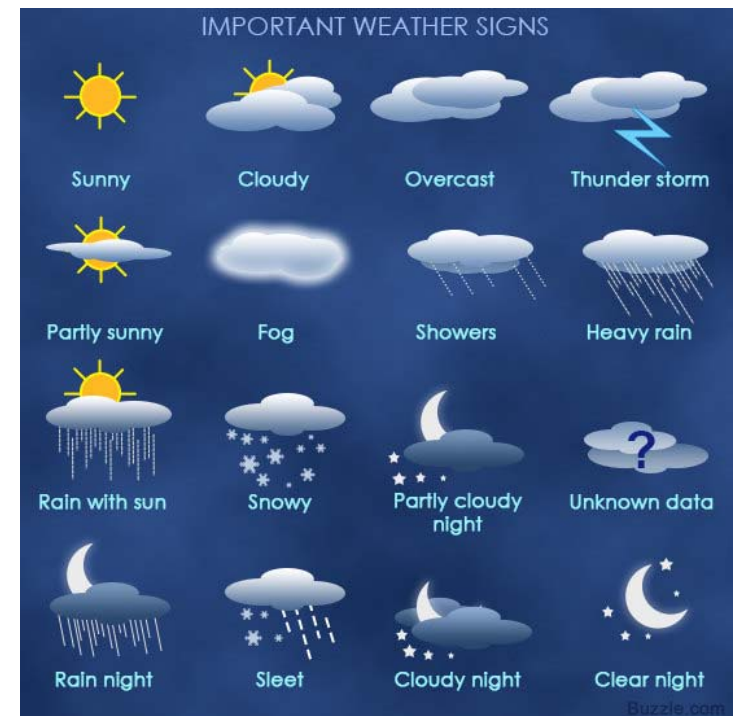
A microclimate is when the climate in a small area is different from the general surroundings.

Factors affecting microclimates:

1. Physical feature - Trees provide shade, water, such as a lake, have cooling effect.
2. Buildings - Buildings give off heat, temperatures around buildings will be higher, buildings change wind speeds and the wind direction.
3. Shelter - Trees, hedges, walls, buildings and hills provide shelter from the wind.
4. Surface - The colour of the ground surface affects warming; dark surfaces such as tarmac will become warmer.
5. Aspect - The direction in which a place is facing. In Britain South-facing places are usually warmer.

How do we measure weather?

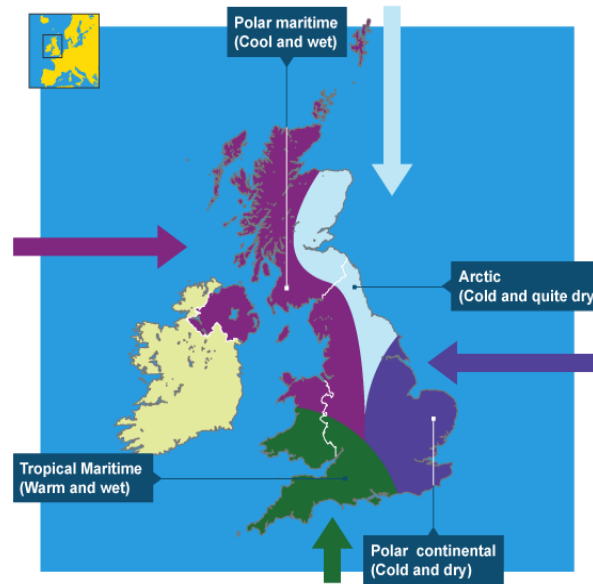
Anemometer	An instrument used to measure wind speed.	
Thermometer	An instrument used to measure temperature.	
Hygrometer	An instrument used to measure humidity - the amount of water vapor in the air.	
Wind Vane	An instrument used to show the direction of the wind.	
Barometer	An instrument used to measure atmospheric pressure - high and low pressure.	
Rain Gauge	An instrument used to measure rain.	



Weather and Climate

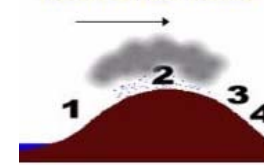
Reasons for temperature differences across Britain

1. Wind direction – This is where the air comes from; a North wind will be colder; a West wind will be wetter.
2. Ocean currents - In winter a warm ocean current coming across the Atlantic from the Caribbean, called the North Atlantic Drift, warms west of the UK.
3. Latitude – The further north or south from the equator, the cooler the temperatures will be because of the decreased intensity of the sun's rays. Therefore, the north of the UK is cooler than the south.
4. Altitude – The height above sea level will affect temperatures due to the lower air pressure and fewer air molecules. Temperatures decrease by about 1°C for every 100m in height.



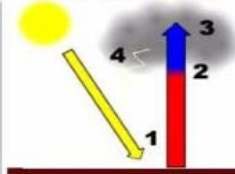
Types of Rainfall

Relief Rainfall



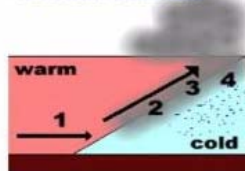
- Stage 1.** Warm wet air is forced to rise over high land.
Stage 2. As the air rises it cools and condenses. Clouds form and precipitation occurs.
Stage 3. The drier air descends and warms.
Stage 4. Any moisture in the air (e.g. cloud) evaporates.

Convectional Rainfall



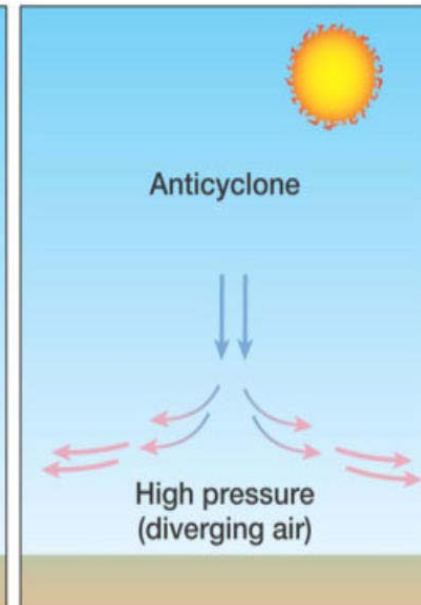
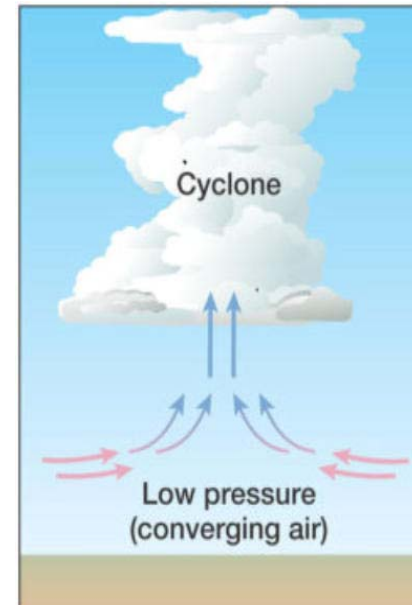
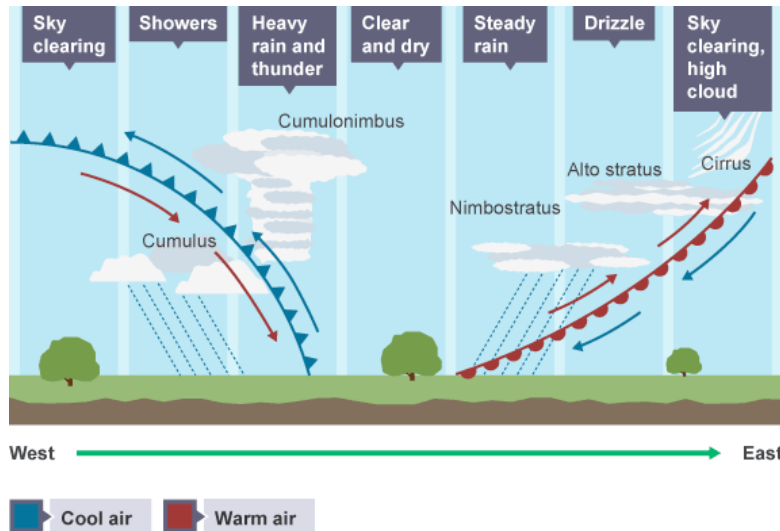
- Stage 1.** The sun heats the ground and warm air rises.
Stage 2. As the air rises it cools and condenses to form clouds.
Stage 3. Large cumulonimbus clouds are formed.
Stage 4. Heavy rain storms occur. These usually include thunder and lightening

frontal rainfall



- Stage 1.** An area of warm air meets and area of cold air.
Stage 2. The warm air is forced over the cold air
Stage 3. Where the air meets the warm air is cooled and water vapour condenses.
Stage 4. Clouds form and precipitation occurs

Depressions are areas of low **atmospheric pressure** which produce cloudy, rainy and windy weather. These low-pressure systems often begin in the Atlantic, moving eastwards towards the UK. They are responsible for the UK's changeable weather.



Anticyclones are the opposite of **depressions** - they are an area of **high atmospheric pressure** where the air is **sinking**.

Weather and Climate

Development is the process of change by which people reach an acceptable standard of living or quality of life.

Countries are classified into 3 categories:

Developed country – a country with a high standard of living e.g. UK, USA, Germany

Emerging country – a country that has some aspects of a developed country but does not meet the required standards to be an advanced country e.g. China, India

Developing country – a country with a low standard of living e.g. Kenya, Malawi, Niger

Measuring Development

Birth Rate - The number of live births per 1000 people per year

Death Rate - The number of deaths per 1000 people per year

Infant Mortality - The average number of deaths of children under 1 year of age per 1000 live births

Life Expectancy - The average number of years a person born in a country might be expected to live

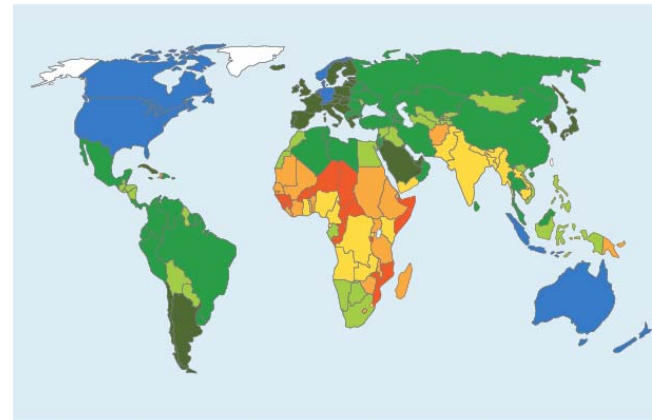
Adult Literacy - The percentage of people who can read and write

Gross National Income (GNI) per Capita – the total value of the goods and services produced by a country, including overseas in a year divided by the population

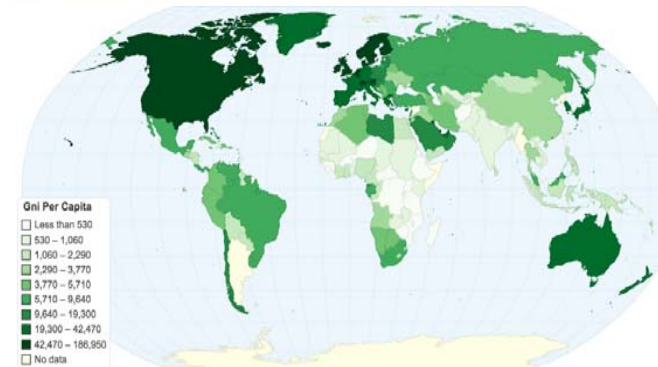
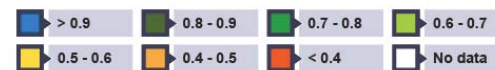
Gross Domestic Product (GDP) – the total value of good and services a country produces in a year

Access to internet - % of people with access to internet

Human Development Index (HDI) – a measure which combines life expectancy, GNI per capita and education level. Measured between 0 and 1 (1 being the most developed)



Human Development Index (HDI)



Gni Per Capita

Less than 530
530 - 1,060
1,060 - 2,290
2,290 - 3,770
3,770 - 5,710
5,710 - 9,640
9,640 - 19,300
19,300 - 42,470
42,470 - 186,950
No data

Factors affecting Development

Economic Factors:

1. The products countries sell – selling mainly primary products
2. Poor trade links
3. Businesses which are willing to invest in the country
4. International debt

Environmental Factors

1. The climate of a country – too hot or too cold
2. Natural disasters – tropical storms or earthquakes
3. Being landlocked
4. Availability of natural resources – lack of oil or coal

Social Factors

1. Lack of investment in education
2. Poor access to safe water
3. Lack of investment in healthcare
4. High dependency ratio

Political Factors

1. Conflict or civil war
2. A poor or corrupt government
3. Countries which used to be colonies for other countries

Development

Consequences of Uneven Development

Wealth:

Developed Countries have much higher levels of wealth than developing countries. For example the GNI in the UK is 40 times higher than Chad

Health care:

- Health care in developed countries is much more developed.
- This means life expectancy are much higher, for example in the UK life expectancy is around 81 years, but in Chad it is 51.
- Infant mortality is just 4 per 1000 in the UK, but

International Migration:

- If a country has a more developed country nearby, people may try to migrate into the more developed country. E.g. Mexico to the USA.

Reducing the Development Gap

Aid: Given from one country to another as money or resources. This can be given as Bilateral aid (government to government), or via NGO's. The aid can be used to develop schools improving literacy rates, buildings dams to provide clean water, supply farming equipment and training people how to farm to secure reliable food sources.

Debt relief: This is when a countries debt is cancelled or interest rates lowered. This means the country can spend taxes on improving schools and hospitals rather than servicing the debt. For example, Zambia's \$4billion debt was cancelled in 2005, this resulted in a free health care scheme starting in 2006.

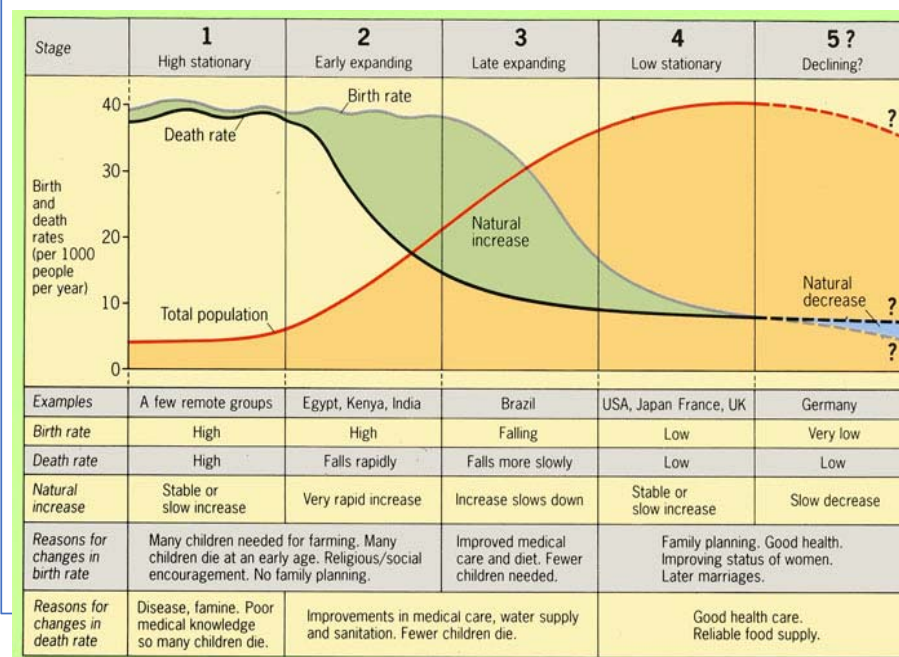
Fair trade: This involves farmers getting a fair price for their goods in LICs, for selling things such as coffee and bananas. Those buying the goods pay extra, this results in the country getting more taxes to develop infrastructure and the farmers having more money to buy medicines and send children to school.

Investment: Foreign Direct Investment (FDI) is when companies buy property and infrastructure elsewhere, or set up companies in oversea locations. It results in better infrastructure, increased trade and therefore increased wealth and development.

Tourism: Tourism can lead to an increased income for locals and the government, as tourist have huge amounts of disposable income. This can lead to an improvement in the infrastructure of a country and boost employment levels.

Demographic Transition Model shows differences in development related to population structures.

1. The DTM shows how changing **birth** and **death** rates impact **population growth**.
2. If the **birth rate** is higher than the **death rate** then the population will increase (natural increase).
3. The DTM shows that as a country moves through the stages their birth rates and death rates will change



Development

Topic: The English Civil War Knowledge Organiser-Year 8-Autumn Term 1 & 2


Charles Problems		
Money	Religion	Power
Charles had a lavish lifestyle and was running out of money, he was bankrupt. In order to get money, he raised taxes without consulting Parliament. This was called Ship Tax.	Charles married a Catholic in 1625. Henrietta Maria of France. Charles forced the Scottish Church to look more Catholic. He introduced a new prayer book in 1637 which the Puritans didn't like. Charles allied Protestant England with Catholic Spain.	Charles believed in Divine Right, he did not want Parliament telling him what to do. In 1640 Charles lost a war against the Scottish which made him look weak. In 1642 Charles took control of the army without Parliament's permission.

Key Events:

1625	Charles I became King and married Henrietta Maria; Parliament only granted him custom duties for one year
1629	Charles I dissolved Parliament and ruled without them; he raised
1640	A Scottish army invaded to stop Laud's reform to the Church in Scotland
1640	Charles was forced to recall Parliament as needed money to fight Scots
1641	Parliament demanded that Laud be impeached and his reforms overturned; that the Court of Star Chamber be shut down; that Ship Money be banned and Parliament had to be called at least every three years. Charles agreed to their demands. Grand Remonstrance: Parliament published a list of over 150 'misdeeds' of Charles, and made various demands including the right to choose the King's ministers
1641	Charles marched into the House of Commons with 400 soldiers to arrest his five leading MP's, but they had fled
1641	Parliament took control of the army; afraid Charles might use it against them
1642	Nineteen Propositions: Parliament issued list of new demands including control over the Church, who the royal family married and how they were educated. Charles rejected these on 18 th June
1642	22 nd August: Charles raised the royal standards at Nottingham Castle, starting the Civil War 23 rd October: Battle of Edgehill – a draw between Charles and Parliament
1643	20 th September: Battle of Newbury – a draw between Charles and Parliament
1644	2 nd July: Battle of Marston Moor – Charles defeated by Parliament
1645	February: New Model Army created by Thomas Fairfax and Oliver Cromwell 14 th June: Battle of Naseby, Charles devastatingly defeated by Parliament
1646	End of the First Civil War, when Charles surrendered to the Scots who handed him over to Parliament, in return for money
1648	Second Civil War, when Charles persuaded the Scots to invade England on his behalf; rebellions in support of Charles in Wales and Kent 19 th August: Battle of Preston – Decisive victory for Parliament
1648	Prides Purge: Colonel Pride removed from Parliament anyone who wanted to settle with Charles.
1649	Trial of Charles on charges of being a "tyrant, traitor, murderer and public enemy."
1649	Charles I executed in London

Key term	Definition
Civil War	A war between different groups within the same country.
Divine Right of Kings	A belief that the Monarch was chosen by God, that their power and authority was derived from God and they had to answer to no one except God.
Puritans	Strict Puritans who thought the Church of England had not gone far enough. In removing Catholic elements; they wanted a purified Church.
Ship money	A tax traditionally only be imposed on coastal towns in times of war, to pay for the navy; Charles imposed the tax during peace and across the country.
Court of Star Chamber	A special medieval, law court which sat in secret and needed no evidence of witness; Charles used it to prosecute opponents.
Cavaliers	The insulting nickname given to the Royalists, who fought for the King; it literally meant "horsemen" but also suggested arrogance.
Roundheads	The insulting nickname given to those who fought for Parliament had the nickname; many Puritans wore their hair very short/closely cropped.
New Model Army	Fulltime, highly disciplined, professional army set up by Thomas Fairfax and Oliver Cromwell; Puritan in make-up; vital in defending Charles.
Regicides	Literally "king killers"; name given to those who signed Charles' death warrant; Oliver Cromwell was third person to sign.

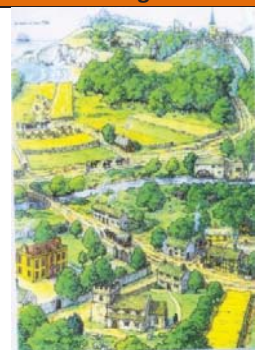
Topic: The Gunpowder Plot Knowledge Organiser-Year 8-Autumn Term 1

Background information				Key term	Definition
Who	A group of Catholics led including Guy Fawkes, Robert Catesby, Thomas Winter, Thomas Percy, and John Wright.			Catholics	Members of the Catholic Church. Believed that Priests could not marry. Church buildings are generally ornate.
What	Plotted to kill the King of England (James I) by blowing Parliament up			Christians	People who follow the Christian religion. Catholics and Protestants are different branches of Christianity.
Where	A cellar under the House of Lords, Parliament, Westminster, London			Conspirators	People who are plotting together
When	5th November 1605. This was State Opening day, when the King, Lords and Commons would all be present in the Lords Chamber to open parliament.	The plotters were caught and were found guilty. Several of them were executed including Guy Fawkes. However some historians have suggested that they may have been framed.		Gunpowder	A chemical that explodes if set light to inside a container .
		Framed	Guilty	Houses of Parliament	Buildings in London, where the government meets.
Why	Guy Fawkes was one of a small group of Catholics who felt that the government was treating Roman Catholics unfairly. They hoped that King James would change the laws, but he didn't. Catholics had to practice their religion in secret. There were even fines for people who didn't attend the Protestant church on Sunday or on holy days. James passed more laws against the Catholics when he became king. These Catholics wanted to get rid of this anti-Catholic king.	Evidence given under torture is notoriously unreliable – people will say anything to stop the pain	Guy Fawkes was a Dutch explosives expert – why would he have come to England if not to use explosives?	Monarch	A king or queen
		James I's Chief Minister, Robert Cecil, was notorious for his hatred of Catholics	Gunpowder was not normally kept in the cellar below Parliament – it must have been put there by someone!	Parliament	A group of people that can pass laws to govern the UK .
		All gunpowder was kept under guard in the Tower of London. However, the records for 1604 have gone missing	The conspirators confessed to the plot – albeit under torture	Plot	A secret plan to do something against the law, or harmful to others.
				Protestants	Members of the Protestant Church. They wanted to be able to read the Bible and hear services in their own language and not in Latin. Church buildings are generally plainer.
				Treason	The act of plotting or carrying out a crime against one's ruler or nation.

Topic: Industrial Revolution Knowledge Organiser – Year 8 – Autumn Term 2

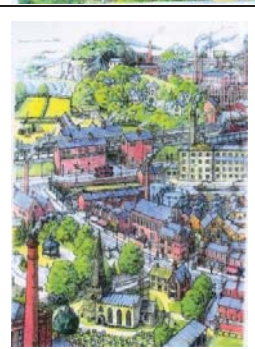
Key word	Definition ('It's a bit like...')
Revolution	Rapid change
Agricultural	Working on the land, farming
Industrial	Working in factories or having more of them
Demography	Looking at population data including birth and death rates
Population	The number of people living in a particular place
Rural	Countryside areas in which the population is spread thinly
Urban	Built-up areas in which people live close together. Towns or cities
Continuity	When things stay the same
Mass Production	The production of many products in one go e.g. textiles
Poverty	Lack of human needs e.g. clean water, food and shelter

Britain changed dramatically from 1750...



In 1750...

- Population = 5.8million in Britain
- Most important work was farming
- In 1750, only about 15% of the population lived in towns.
- Most children did not go to school – few could read or write
- It took 10-12 days to get from London to Edinburgh
- People did not know germs caused diseases and only simple operations were possible



By 1900...

- Population = 30 million in Britain alone
- Most important industries were coal, iron, steel and cloth
- By 1900, 85% of the population lived in towns.
- By 1900, London had 4.5 million inhabitants.
- School was compulsory for 5-12 boys and girls
- It took 45 hours to get from London to Edinburgh on the road and 9 hours by train
- Louis Pasteur found that germs cause disease. Antiseptics & antibiotics allowed advanced operations.

Cholera Epidemic – John Snow

Snow was an English physician who discovered that the water in his local area was making everyone ill. His work led to the discovery of cholera and improved fresh water for thousands

Edward Jenner – Smallpox Vaccination

Jenner discovered vaccination in 1796. He discovered that if you placed a small amount of disease in a human they were then able to fight it off in the future. This discovery saved millions of lives

Important inventions of the Industrial Revolution:

The Water frame 1769:	Spinning Jenny 1770:	Steam engine 1717:	The locomotive 1814:
<u>Richard Arkwright.</u> He invented a machine, powered by water, to spin cotton into yarn, or thread, quickly and easily.	<u>James Hargreaves,</u> invents a machine that spins more than one ball of yarn or thread at a time, making it faster to make cloth.	<u>Thomas Newcomen</u> & improved by <u>James Watt</u> meaning steam engines could replace water & horse power in a variety of industries	<u>Richard Trevithick.</u> He developed a new steam engine which could be used to move goods and passengers.

Living Conditions

Overcrowding: due to large numbers of people moving to the cities, there were not enough houses.

Disease: typhus, typhoid, tuberculosis and cholera all existed in the cities of England. Overcrowding, and poor quality water all helped spread disease.

Waste disposal: gutters were filled with litter and human waste. The sewers, flowed straight into rivers.

Poor quality housing: houses were built very close together. They did not have running water and people found it difficult to keep clean.

Lack of fresh water: people could get water from streams, wells and stand pipes, this water was polluted by human waste.

Working Conditions in factories

Long working hours: normal shifts were usually 12-14 hours a day, with extra time required during busy periods.

Low wages: a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, so employers preferred to employ women and children.

Cruel discipline: there was frequent "strapping" (hitting with a leather strap). Other punishments included hanging iron weights around children's necks, or nailing their ears to the table.

Accidents: forcing children to crawl into dangerous, unguarded machinery led to many accidents.

Life for the rich or upper classes

The rich had a different life during this time:

- Boys would attend school, while girls would be educated in the home by a governess
- Girls would learn to sew, play the piano and learn proper etiquette (Manners)
- Children were to 'be seen and not heard'
- Men would work whilst women stayed at home
- They lived large house with staff to help around the house



AUT 1: Year 8 Let Us Suffer No Longer: Knowledge Organiser

Christianity

Islam

Buddhism

Humanism

TOPIC AREA

KEYWORDS/KEY INFORMATION

Reflection/Thinking Points

EVIL & SUFFERING

Moral Evil: Suffering caused by humans
Natural Evil: suffering that is naturally caused

If God exists then evil cannot exist due to his nature – omniscient, omnipotent and omnibenevolent. But evil does exist, therefore God cannot exist otherwise he would not have all of these characteristics.

RELIGIOUS
RESPONSES TO
EVIL & SUFFERING

- **Suffering** is caused by;
1. **Greed** and **desire** over what we haven't got (rooster)
2. **Ignorance** or **stupidity** (pig)
3. **Hatred** or **destructive** urges (snake)

Do you think suffering is something we should all be trying to escape?
Try to look at both sides of the argument,

JESUS &
SUFFERING

Crucifixion: being nailed to a cross and left to die.
Resurrection: rising from the dead.
Sin: anything that goes against God.

Why did Pontius Pilate allow Jesus to be sentenced to death even though he thought he was innocent?

BUDDHISM AND
SUFFERING

Suffering-the state of undergoing pain, distress, or hardship.
Pain - highly unpleasant physical sensation caused by illness, injury or suffering. **Elderly**:- old or ageing.

How did the four sights change the life of Siddhartha?

BUDDHISM:THE
THREE MARKS OF
EXISTENCE

Anicca: everything changes.
Anatta: we don't have a permanent soul.
Dukkha :suffering.

Think of a time you really wanted something but never ended up getting it. How did this make you feel?

FORGIVENESS

Forgiveness – to show understanding to someone who has done something wrong.

Jesus said, "Father, forgive them, for they don't know what they are doing."
What does this tell you about Jesus' teaching on forgiveness?
Reflect on a time when forgiveness could have made a difference to your life.

GREATER JIHAD
FOR MUSLIMS

Greater Jihad the personal spiritual struggle or effort of every Muslim to follow the teachings of Allah (God) in their own lives e.g. overcoming things such as anger greed, pride and hatred; forgiving someone who has hurt them; working for social justice.

Think of two ways a Muslim can carry out greater jihad in the UK today.

RECONCILIATION

Reconciliation –restoring peace and friendship between individuals or groups.
In the **Sacrament of Reconciliation** we reunite ourselves (together again)with God.

What factors are necessary if we are to reconcile our differences with others or God?

AUT 2:Year 8 SEEKING JUSTICE : Knowledge Organiser

Christianity

Islam

Buddhism

Non-Religious Views

Section A:TOPIC AREA

Section B:KEYWORDS/KEY INFORMATION

Section C:Reflection/Thinking Points

Introduction To Justice

Justice- to treat people fairly

"Our belief in democracy, our values of tolerance, fairness and justice all compel us to act when others are denied the rights that we enjoy" **What do you think about this statement?**

Justice In Action

Miscarriage of Justice -a failure of a court or judicial system to attain the ends of justice, especially one which results in the conviction of an innocent person.

'It's better that 10 guilty men go free than one innocent man be wrongly convicted' **How true is this statement ?**

Jesus and Justice

Proclaim - announce officially or publicly.
Liberty - the state of not being imprisoned or enslaved.
Oppressed - subject to harsh and authoritarian treatment

"Do to others what you would have them do to you".
(Jesus) **Would all people agree with this quote?**

Martin Luther King and Justice

Prejudice is judging someone or a group of people before you meet them. **Discrimination** is treating one particular group of people less favourably than others.
Racism is when someone thinks different skin colour or religious beliefs make some people better than others.

"If you don't like something, change it. If you can't change it, change your attitude". Maya Angelou
Do you agree with this statement? Could other people learn from this in society?

Poverty and Justice

Poverty -the state of being extremely poor.
Human Rights -a right which is believed to belong to every person

There are no solutions to poverty, it will always exist.'
Would all people agree with this statement?

Mother Teresa

Belief -an acceptance that something exists or is true, especially one without proof.
Faith -strong belief in the doctrines of a religion, based on spiritual conviction rather than proof.

"If you judge people, you have no time to love them".

What do you think Mother Teresa meant by this quote?

Christian Aid

Christian Aid is the official relief and development agency of 41 British and Irish churches,[2] and works to support sustainable development, stop poverty, support civil society and provide disaster relief in South America, the Caribbean ,Africa and Asia (Including the Middle East).

Why should people donate money to charities like Christian Aid ?

Zakah

Zakah – Third pillar of Islam. Zakat is the compulsory giving of a set proportion of wealth to charity.

Take a few moments to think about how you can show more responsibility and involvement with the world in which we live.

Muslim Aid

Muslim Aid is a UK based Islamic charity whose primary goal is to provide humanitarian aid and assistance to the poorest and most vulnerable people around the world .

What do you think '**Serving Humanity**' suggests about Muslim Aid's work

J'habite	en Angleterre en Écosse en Irlande au pays de galles	1
J'ai On a	une semaine deux semaines	de vacances en janvier à Noël à Paques
Je suis Nous sommes	au bord de la mer à la montagne à la campagne en colo chez mes grands-parents	
Je vais On va Nous allons		
Je voyage	en car	
Je nage	dans la piscine	
Je fais	du sport	
Je mange	des hamburger-frites	

J'ai oublié J'ai perdu	mon passeport Mon porte-monnaie
J'ai cassé	mon portable
J'ai choisi	le poisson
J'ai vomi	
Je suis tombé(e)	sur la plage dans la piscine
Je suis resté(e)	au lit
On a raté	l'avion
On est arrivé	en retard
Je n'ai pas pris	de photos
Je ne suis pas sorti	

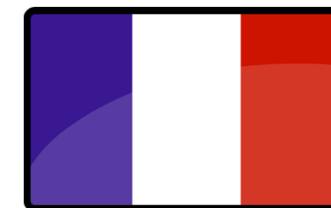
Y8- Autumn – Vive les vacances

J'ai	mangé	des glaces des frites de la pizza des fruits de mer	3
Tu as			
Il a Elle a On a	joué	au tennis	
	retrouvé	mes amis	
Nous avons Vous avez	écouté	de la musique	
	acheté	des baskets des souvenirs	
Ils ont Elles ont	regardé	des clips vidéos un film au cinéma	
	nagé	dans la mer dans la piscine	
	traîné	à la maison	
	visité	un parc d'attraction les monuments	
	voyagé	en avion/ en bateau/en bus/ en car/en train en voiture	
	bu**	un coca	
	pris**	des photos	
	vu **	un film les dauphins un spectacle	
	fait**	mes devoirs de la voile des sports nautiques une balade en bateau	

J'aime Je n'aime pas Je déteste J'adore	manger visiter jouer nager écouter aller regarder boire	parce que...	2
--	--	--------------	---

Je suis On est	allé(e)(s)	avec ma famille avec mes parents avec mes copains
		en Espagne en France en Grèce au Maroc aux États-Unis
4	resté(e)(s)	dans un hôtel dans un appartement dans un gîte dans une caravane dans un tente

C'est Ce n'est pas	assez très un peu trop complètement vraiment	sympa intéressant marrant fantastique génial super amusant	5
C'était Ce n'était pas		nul triste ennuyeux	
Quel désastre!			
Quelle horreur!			



D'abord	Firstly	7
ensuite	next	
puis	then	
après	after	
finalement	finally	

pendant	during	8
normalement	normally	
D'habitude	usually	
L'année dernière	Last year	
récemment	recently	

PAST
PRESENT

1	Que fais tu normalement en vacances?	What do you normally do on holiday?
	Normalement pendant les grandes vacances je vais en Espagne avec mes parents. J'ai deux semaines en été. Je voyage en avion et je vais au bord de la mer. J'aime nager et j'adore visiter des monuments.	Normally during the holidays I go to Spain with my parents. I have two weeks in summer. I travel by plane and I go to the seaside. I like to swim and I love to visit monuments.
2	Tu as passé des bonnes vacances?	Did you have a good holiday?
	Oui, pendant les vacances j'ai mangé au restaurant avec mes amis et j'ai mangé du fast-food. Aussi j'ai regardé des films chez moi. Finalement j'ai visité un parc d'attraction avec mes amis, c'était fantastique!	Yes, during the holidays I ate at a restaurant with my friends and I ate fast food. Also I watched films at mine. Finally I visited a theme park with my friends. It was fantastic!
3	Qu'est ce que tu as fait?	What did you do?
	En France, j'ai pris des photos et ensuite j'ai fait des sports nautiques, c'était très passionnant. Le soir nous avons vu un spectacle et j'ai bu du coca, c'était super!	In France, I took photos and next I did water sports, it was very exciting. In the evening we watched a show and I drank coke, it was super.
4	Tu es allé(e) où?	Where did you go?
	L'année dernière je suis allé(e) en France avec ma famille, c'était amusant. J'ai voyagé en avion. Je suis resté(e) dans un hôtel, c'était complètement génial.	Last year I went to France with my family, it was fun. I travelled by plane. I stayed in a hotel, it was completely great!
5	Parle moi d'un problème récent en vacances.	Speak to me about a recent problem on holiday.
	L'année dernière on est arrivés en retard car j'ai perdu mon passeport puis j'ai vomi!! Quelle désastre! C'était vraiment nul!	Last year we arrived late because I lost my passport and then I was sick! What a disaster! It was really rubbish.

1	Qu'est-ce que tu regardes sur la télé ? Tu la regardes quand et comment ?	What do you normally do on holiday?
	Normalement pendant les grandes vacances je vais en Espagne avec mes parents. J'ai deux semaines en été. Je voyage en avion et je vais au bord de la mer. J'aime nager et j'adore visiter des monuments.	Normally during the holidays I go to Spain with my parents. I have two weeks in summer. I travel by plane and I go to the seaside. I like to swim and I love to visit monuments.
2	Qui est ta célébrité préférée ? Pourquoi ?	Did you have a good holiday?
	Oui, pendant les vacances j'ai mangé au restaurant avec mes amis et j'ai mangé du fast-food. Aussi j'ai regardé des films chez moi. Finalement j'ai visité un parc d'attraction avec mes amis, c'était fantastique!	Yes, during the holidays I ate at a restaurant with my friends and I ate fast food. Also I watched films at mine. Finally I visited a theme park with my friends. It was fantastic!
3	Tu aimes le cinéma ?	What did you do?
	En France, j'ai pris des photos et ensuite j'ai fait des sports nautiques, c'était très passionnant. Le soir nous avons vu un spectacle et j'ai bu du coca, c'était super!	In France, I took photos and next I did water sports, it was very exciting. In the evening we watched a show and I drank coke, it was super.
4	Qu'est-ce que tu fais normalement le weekend ?	Where did you go?
	L'année dernière je suis allé(e) en France avec ma famille, c'était amusant. J'ai voyagé en avion. Je suis resté(e) dans un hôtel, c'était complètement génial.	Last year I went to France with my family, it was fun. I travelled by plane. I stayed in a hotel, it was completely great!
5	Qu'est-ce que tu as fait le weekend dernier ?	Speak to me about a recent problem on holiday.
	L'année dernière on est arrivés en retard car j'ai perdu mon passeport puis j'ai vomi!! Quelle désastre! C'était vraiment nul!	Last year we arrived late because I lost my passport and then I was sick! What a disaster! It was really rubbish.



1. Definition of Colour



Is one of the most dominant elements. It is created by light. There are three properties of color; Hue (name,) Value (shades and tints,) and Intensity (brightness.)

2. **Colour Blending** is a term used often in **art**, it is the technique of gently intermingling two or more **colours** or values to create a gradual transition or to soften lines. As an **artist**, it's important to practice **blending** in any medium you choose to work with.

3. **Colour Layering** is a term used often in **art**, it is the technique of gently layering two or more **colours** or values on top of each other to create depth and realism within an image. As an **artist**, it's important to practice **layering** in any medium you choose to work with.



4. Types of Colour Techniques

5

Colour theory



Primary Colours =
red, blue & yellow

You cannot make a primary colour.

Secondary Colours =
purple, orange & green

A secondary colour can be made by mixing two primary colours

Complimentary Colours =

Cold colours =

purple, blue & green

Orange & Blue

Red & Green

Yellow & Purple

Warm colours =

red, yellow & orange

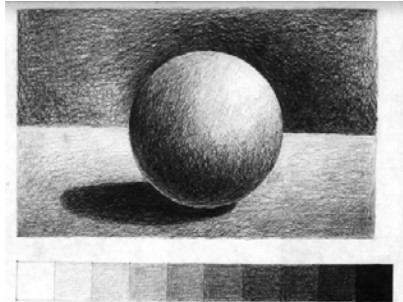
Tertiary Colors



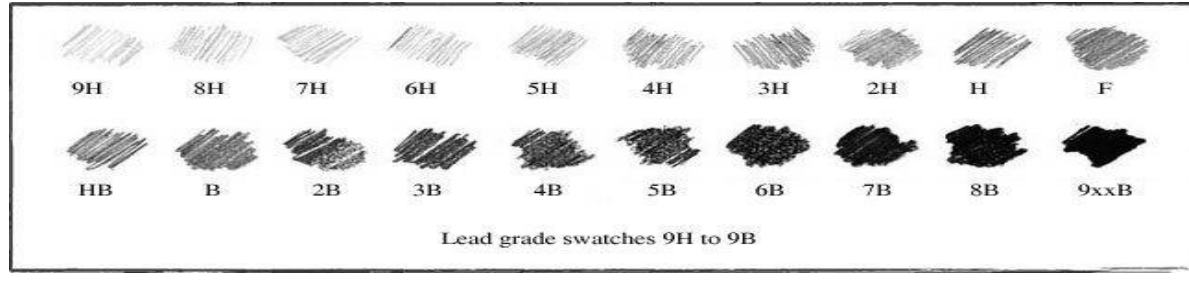
- Colors made by mixing a Primary Color with the Secondary Color that is next to it on the color wheel

Primary + Secondary = Tertiary Color

Blue-Green, Blue-Purple, Red-Purple, Red-Orange, Yellow-Orange, Yellow-Green

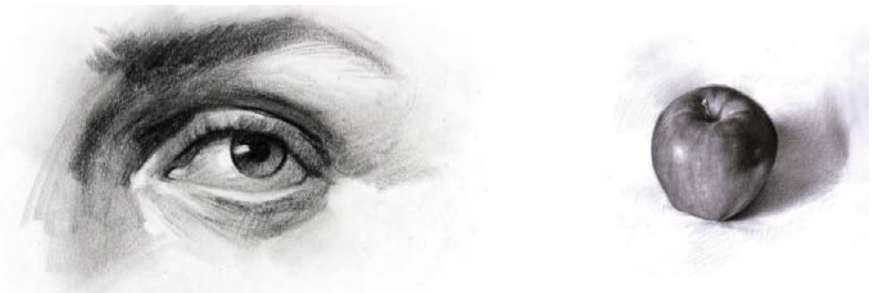
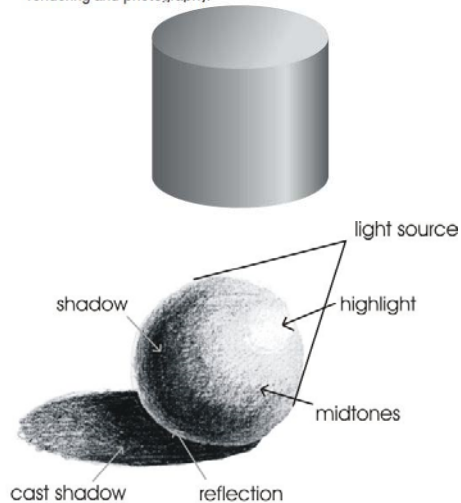


1. **Pencils** are like a number line, from 9B to 9H. B means soft, H means hard; the higher the number the harder/softer the pencil is. **Use H pencils** when **you** want lighter lines/shading, **use B** when **you** want darker lines/shading.



2. **Tone:** Definition

Tone may be used to describe the three-dimensional nature of form in terms of its shadows and highlights, created by a light source. It can be smooth and gradual or built by point or line (dot rendering and cross hatching), subtle or dramatic, depending on its intended use. Examples of application include drawing, and rendering and photography.

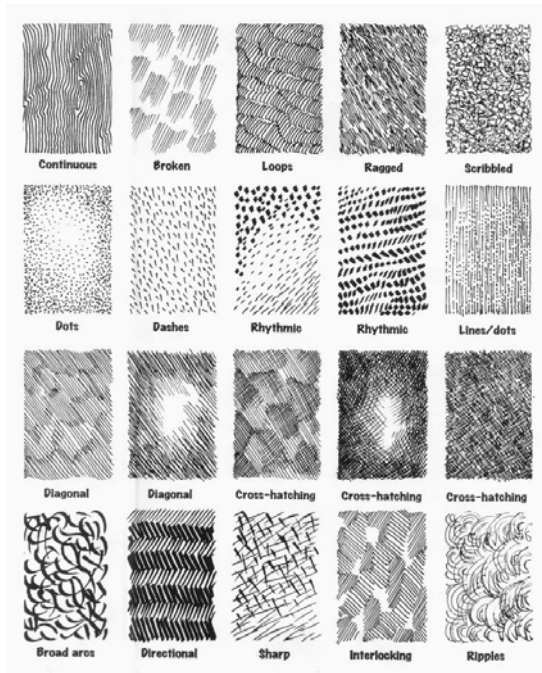


3. A **highlight tone** is any spot in a **drawing**, painting, or photograph where the area is brighter than the surrounding area.
Mid tones are the tones in between the highlight tones and the shadow tones.
A shadow tone is the dark side of an object within a drawing, painting or photograph, that is not facing the light and reveals the form and mass of an object.

LINE



2. **Mark making** refers to the use of line to create different patterns, **lines**, textures and shapes.

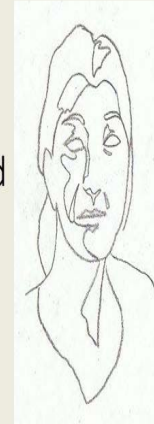


1. Definition of Line:

A Mark made by a pointed tool such as a brush, pen, or stick

3. Contour Line Drawing

contour lines - Lines that surround and define the edges of a subject, giving it shape and volume.



When you draw lines curving around the surface, or contour, of an object, you give that object **volume**. You make that object appear to be 3-D.

4. CONTINUOUS LINE DRAWING.

The **line** in a **continuous line drawing** is unbroken from the beginning to the end. The **drawing** implement stays in uninterrupted contact with the surface of the paper during the entire length of the **drawing**

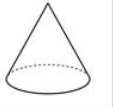

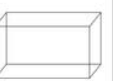

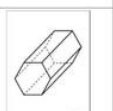
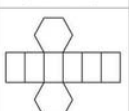

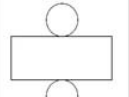
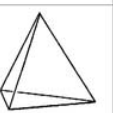
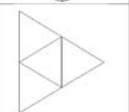


FORM



1. Definition of Form

Objects that are three-dimensional having length, width and height. They can be viewed from many sides. Forms take up space and volume.

Cone		
Cuboid		
Hexagonal Prism		
Cylinder		
Tetrahedron		

2. You can use net shapes to create forms.

You add 'tabs' to your nets to help construct your forms

You can use materials such as paper and cardboard to create 3D shapes



3. You can also use mediums such as clay, modroc, wire, plaster and wood to construct 3D forms



Plaster

a pasty composition (as of lime or gypsum, water, and sand) that hardens on drying



Wood

a porous and fibrous structural tissue found in the stems and roots of trees and other woody plants



Clay

A mixture of water, mud and rock



Modroc

A combination of plaster and bandage

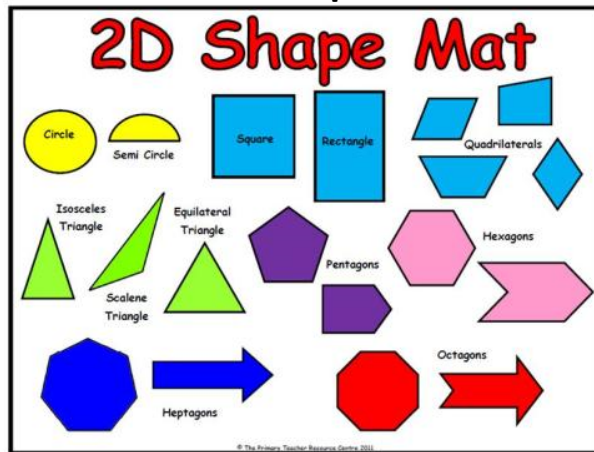


Wire

A wire is a single, usually cylindrical, flexible strand or rod of metal



2. Geometric Shapes



Geometric shapes are shapes made out of points and lines including the triangle, square, and circle. Other shapes are so complex that it takes math in order to create them. These shapes are the opposite of organic shapes. While geometric shapes are more precise, organic shapes are natural.

1.

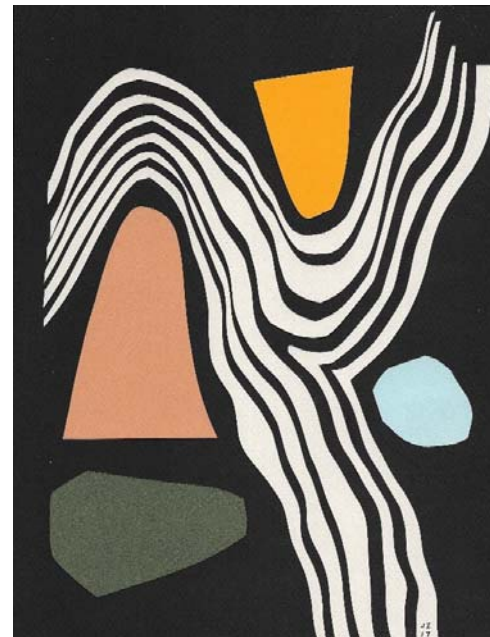
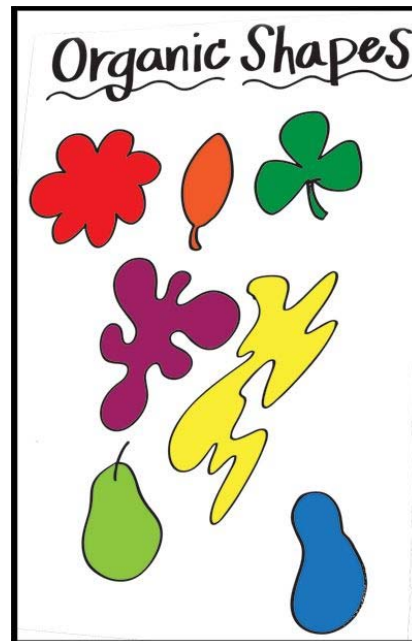


Definition of Shape

A flat, enclosed area that has two dimensions, length and width. Artists use both geometric and organic shapes.

3. Organic Shapes

In contrast, organic shapes are free-form, unpredictable and flowing in appearance. These shapes, as well as organic forms, visually suggest the natural world of animals, plants, sky and sea.



PATTERN

2. Different Types of Pattern

Cultural Patterns

Cultural patterns in countries such as Africa and Australia can have symbolic meanings, it can also determine different types of tribes.

Repeated Patterns

A design for decorating a surface composed of a number of elements (motifs) arranged in a regular or formal manner

Symmetrical Patterns

When two **patterns** are **symmetrical**, one becomes exactly like another when flipped or turned. A common example of symmetry is a reflection.

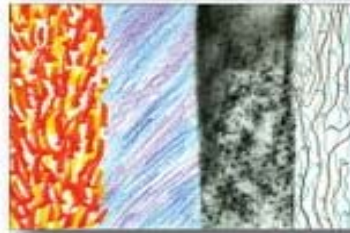
1. Definition of

Pattern:

Pattern is the repetition or alternation of one or more components to create a visual unit. Any visual element can be used to create a pattern. Repetition can be very powerful in creating a sense of order in a composition. Alternation can create more complex patterns than those created by repetition alone. Examples of application include architecture facades and interior decoration; textile and wallpaper design.

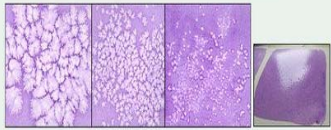


Texture



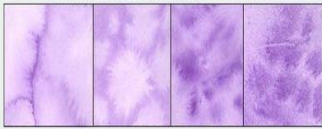
1. Definition of Texture

Describes the feel of an actual surface. The surface quality of an object; can be real or implied.



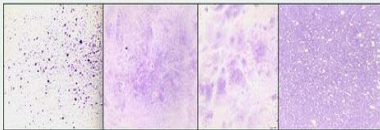
The Salt Trick

So I have put a wash of my background colour, now the thing you have to watch with this trick is how much water is on the paper, if you can move your painting and you can see the paint moving its too wet and this won't work. So you need to wait till the water has soaked into the paper a bit and it should have a wet sheen (if you were to hold it to a light source it would look like the end photo). So then we add the salt now the wetter the paper the bigger the spread, drier=smaller, and the third photo has Gum Arabic in the paint so you don't get the snowflake look but dots instead.



Water Drops

Again I've put a wash of my background colour and whilst it is still wet I have dropped clean water on it, this creates the first effect, the second was when the paper was a bit drier. The third picture is the same background colour but whilst its drying I dropped more of the same colour on to it, the last one is drier paper with the same effect.



Paint Splatter

So I'm using a tooth brush for these effects, the first is the brush loaded with paint flicked over dry paper obviously the more paint on the brush the bigger the blobs. The second is paint flicked over wet paper, the third is paint flicked over slightly drier paper. The last is masking fluid flicked over paper, waited until it was dry then painted over it and waited till that dried and then rubbed the masking fluid off.

Water Colour



Pen



2. You can use a range of mediums and techniques to either create a textured surface or to create the appearance of texture.

You can imprint objects and materials into surfaces such as clay and plaster to create textured surfaces.

You can add materials such as string, cardboard, wood and pva glue onto and into surfaces to create textures.

SPACE

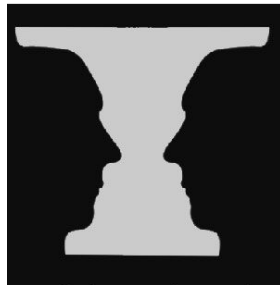
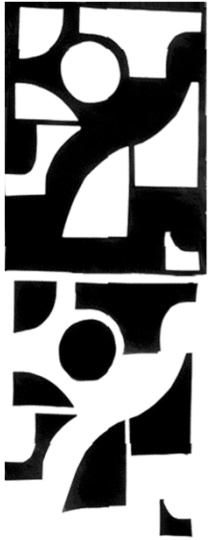


1.

Definition of Space

Is used to create the illusion of depth. Space can be two-dimensional, three-dimensional, negative and/or positive.

2. **Negative space**, in art, is the **space** around and between the subject(s) of an image. **Negative space** may be most evident when the **space** around a subject, not the subject itself, forms an interesting or artistically relevant shape, and such **space** occasionally is used to artistic effect as the "real" subject of an image



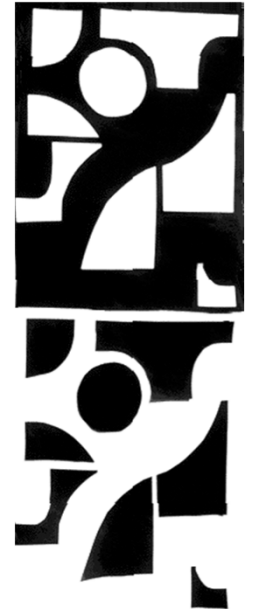
NEGATIVE



3. **Positive space** refers to the main focus of a picture, while negative **space** refers to the background. When used creatively and intelligently, **positive** and negative**space** together can tell a story using visual composition alone



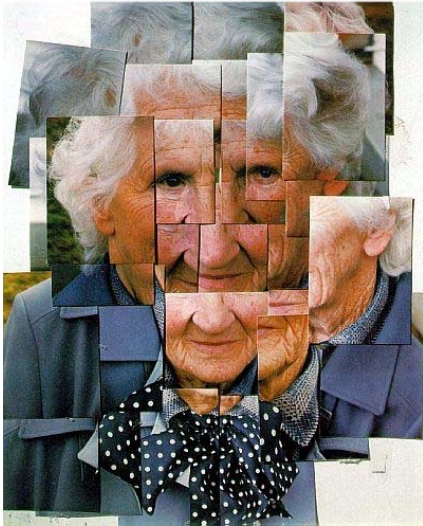
POSITIVE



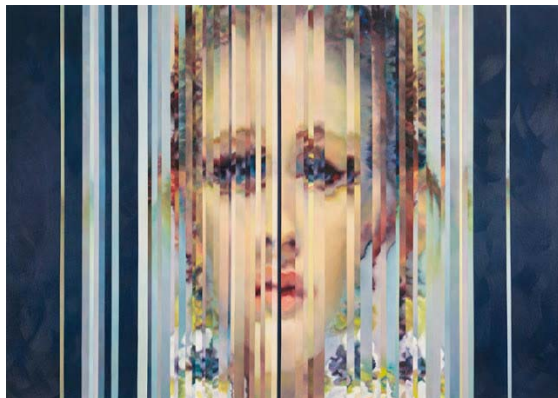
Year 8 Photography

Artist Research:

David Hockney & Amanda Clyne



Experimentation



Personal

Refinement

Refining your ideas
Mixing artist styles with your own
Using your research to make changes to techniques
Exploring different media and technique
Showing technical skill
Experimenting with techniques, research and materials

- Photoshop: using certain techniques and tools to create pieces of work in style of Hockney and Clyne.
- Photomontage/collage: printing several images and layering them to create desired effect.

- Collect images from a variety of sources
- Take your own photos
- Plan elaborate photoshoots and evaluate these
- Make notes on successes and failures
- Do independent research

Artist study sheet

- Research and key information
- Analyse their work and style
- Creative sketchbook presentations

Developing

Keywords:

- Layering
- Photomontage
- Collage
- Proportion
- Composition
- Overlap
- Multiple images
- Arrangement
- Close up
- Photoshop
- Annotation

Evaluate the successes and failures of the piece.

What has inspired you to create this piece? Why?

Explain the purpose or meaning of the artwork.

How has the artist used the technique, how will you use the technique?

What is the theme or subject of the artwork?

Describe the artwork.



Konstantin

Stanislavski

1863-1938

Actor – Director - Author

Context

Strived to achieve
naturalistic, believable
performances

Influential throughout the
western world of drama

Developed a '**System**' of
actor training.

'The System' was taken to the
US by Lee Strasberg

Began as an actor,
author of 'An Actor
Prepares'

Founded the Moscow Art
Theatre

Philosophies

He believed an actor should
have control over things we
might think are uncontrollable:
our emotions; and the most
powerful tool an actor has:
imagination.

*"In the creative process there is
the father, the author of the
play; the mother, the actor
pregnant with the part; and the
child, the role to be born"*

*There are no small parts, only
small actors*

*"All action in theatre must
have inner justification, be
logical, coherent and real"*

Stanislavski's

System

Magic If...

The actor simply asks 'What if...' they
were in the character's situation, bringing
something of themselves to the role

Given Circumstances

The facts around the character's situation
which influence their behaviour: the time,
place, others present

Emotion Memory

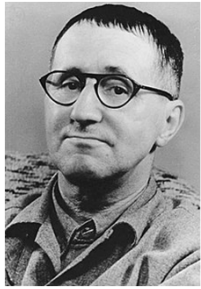
The actor makes use of an emotionally-
related experience of their own to
empathise with the role played

Objectives

The actor identifies the character's
motivation—what they want in the scene
or unit of action

Subtext

The meaning lying beneath the words
spoken



Bertolt

Brecht

1898-1956

Playwright-Director-Poet

Context

Pioneer of **Epic Theatre**

Fled Nazi Germany in
1933

Fond of using **comedy**,
song and **media** to
entertain and educate his
audiences

Used drama to ridicule
Nazi rule in Germany

Explored social and
political issues in his
theatre

Famous plays included The
Caucasian Chalk Circle,
Mother Courage and The
Resistable Rise of Arturo Ui.

Philosophies

*"(Drama) is not a mirror held
up to reality but a hammer with
which to shape it."*

He was against naturalistic
theatre, as he believed
audiences lost their ability to
think and judge in these
performances

Verfremdungseffekt was to
make the strange familiar. He
would want to distance the
audience from the emotion of
the story



Brecht's

Epic Theatre

Demonstrating the Role

Rather than performing believably and
appealing to the audience's emotions,
the actor's job is to show the function
of their character in the situation or
conflict

Third-Person Dialogue

Lines may be delivered as if by a reader
through phrases such as 'she cries' or
'he pleads', detaching the actor from
the character they play

Narration

The actor in or out of role gives the
audience the necessary pieces of
information to understand the
situation

Unnamed, Archetypal Characters

Characters are named for their function
in the scene, for example, 'Mother',
'Soldier 2'

Episodic Structure and Montage

Short scenes based around a shared
theme



Augusto

Boal

1931-2009

Writer-Director-Theorist

Context

Brazilian theatre director
at a time when the
country was under
dictatorship

Arrested, tortured and
exiled for his use of drama
and '**Theatre of the
Oppressed**' to empower
people

Also wrote '1001
Games for Actors &
Non-Actors'

Nominated for the
Nobel Peace Prize

Philosophies

Boal worked a lot with images. He
was interested in how different
people understood different
images – how we all interpret
things differently.

Spect-Actors

*"All human beings are actors
(they act!) and spectators
(they observe!)"*

After his own experiences with
oppression in his country, Boal
wanted to theatre to empower
people and give them a voice.

The audience is responsible for
challenging oppression, just as Boal
believed is true of the real world
outside the theatre.

Boal's

Theatre of the Oppressed

Image Theatre

Manipulation and
interpretation of still images to
analyse power relationships

Forum Theatre

Drama produced with the
audience as '**Spect-Actor**' -
they are able to intervene to
support protagonist in
overcoming oppression

Invisible Theatre

Drama performed with an
unaware audience presenting
social issues believably in
everyday context



YR8

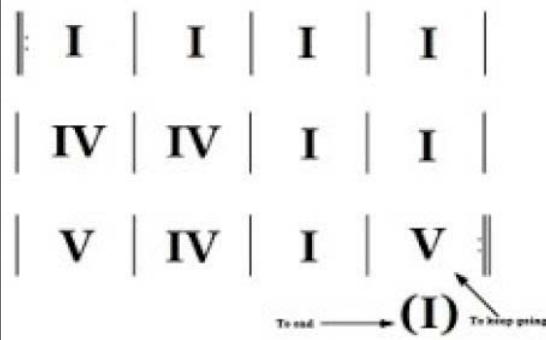
UNIT 1

12 BAR BLUES IN D

A

The 12 Bar Blues is a pattern based around 3 chords. In Yr7 we started to learn about blues music and played it in the key of C. Now we're going to play it in the key of D, add a melody and develop your improvisation skills.

Basic 12 bar Blues form



B

Key words

Improvisation	to make up as you play
Melody	the main part of a piece of music
Chord	a group of notes played together
Bass	the low pitched part or instrument in a piece
Structure	the plan of a piece
Acoustic	an instrument which doesn't need power to make a sound e.g. a saxophone
Key	tells you which key a piece is in e.g. - G major or A minor
Major	a key that sounds happy - e.g. C major
Minor	a key that sounds sad - e.g. G minor

C

What will you be doing?

You are going to develop a blues piece which will involve:

- Learning the blues in D
- Maintaining fluency and accuracy
- Learning a melody to play over the pattern
- Group work developing a structure
- Developing and notating a melody
- Using a pentatonic minor scale for improvisation
- Learning a Blues scale in the key of D
- Performing, improvising and composing
- Developing listening skills





A

This is the name given to a set of unpitched and pitched instruments from Indonesia in South East Asia. Two islands which are very famous for Gamelan are Bali and Java.

Indonesian people believe that their Gamelans are linked to their Gods and that every performance is for them.

They never step over the instruments, as they believe this breaks the link between the instrument and the Gods. They would never wear shoes whilst playing the instruments as showing the sole of your shoe is very rude in their culture.

Gamelan music uses repeating patterns (think ostinato!). These patterns are built up creating different layers and textures. Gongs are used to signify a change of tempo or pattern.



YR8

UNIT 2

GAMELAN

B

What will you be doing?

You will compose a piece using the musical features of Gamelan music which will involve:

Creating and play a simple ostinato

Group work to develop timing/accuracy

Expressive use of the elements of music

Understanding sequences and patterns

Tempo/dynamic changes

Adding more complex rhythms

Developing composing, performing and listening skills

Evaluating your own and other students' work

C

Key words

Ostinato

a repeated pattern

Texture

how many sounds

Dynamics

louds and quiets

Polyphonic

many sounds played at once

Scale

a sequence of notes that goes up and down from which melodies are made

Pelog

a 7 notes scale

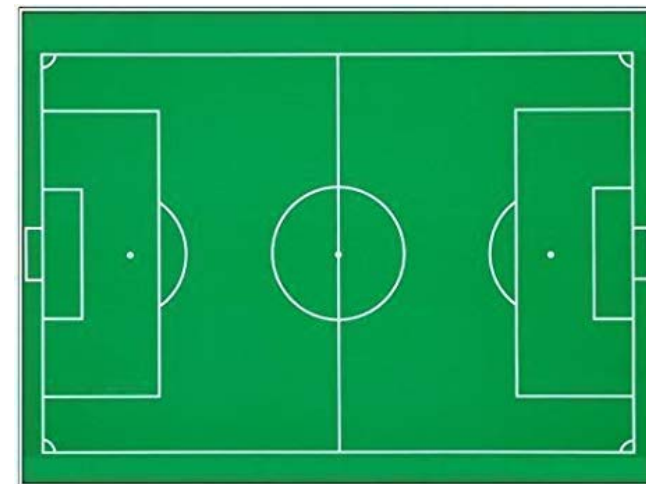
Slendro

a 5 note scale



KNOWLEDGE ORGANISER- FOOTBALL

Basic Rules	<ul style="list-style-type: none"> • A normal match consists of two periods, usually 45 mins each. At school you may play a variety of size teams – from 5 a side to 9 a side. • Each team consists of 11 players; a goalkeeper and 10 outfield players – consisting of defenders, midfielders and attackers. • Only the goalkeeper is allowed to contact the ball with their hands. • Outfield players can touch the ball with any part of their body except for their arms and hands. • Once a player receives possession, they can pass, dribble or shoot. • • The game is started by a kick off in the centre of the pitch, on the referee's whistle. • A referee and 2 linesmen will officiate the game. • If the ball is played outside of the pitch lines, then the possession is given to the opposing team either as a throw in, goal keepers kick (off the floor) or corner. • If a foul is committed a free kick or a penalty is issued (depending on the incident). • To score a goal, the ball must cross the opposition's goal line. • The team with the most goals at the end of the game will win the game.
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Basic Skills		
<p>Passing Non-kicking foot is closest to the ball. Kicking foot needs to be at a right angle to the ball. Body over the ball. Eyes focused upon the ball and arms are to be used for balance</p> <p>Receiving Trap the ball with the sole or side of your foot. Push the ball forward so that you can dribble, pass or shoot the ball.</p> <p>Dribbling Dribbling allows you to move the ball around the field without losing possession. Keep the ball close to your feet at all times, when running with it. Use the inside of your foot to control the ball when moving. Don't look down when running with the ball. Keep your head up.</p>	<p>Moving into space- moving into space to receive the ball is crucial in football so that your team can keep possession of the ball.</p> <p>Tactics – Vary passes that you make Vary the speed at which you dribble and control the ball with both feet. Play to your opponent's weaknesses (if they are always using their left foot, then play balls past them to the right) Move opponent around the pitch to tire them out.</p>	<p>Basic defending- knowing where to stand and how to defend in football is important.</p> <p>When possible, stand between your player and the goal so that you can meet the ball without having to chase it.</p> <p>Jockey your player – if they have possession of the ball, run with the player putting pressure on them but do not cause a foul. Always stay on your feet – if your opponent is going to reach the ball first, stay on your feet to make the tackle.</p>

KNOWLEDGE ORGANISER- FOOTBALL

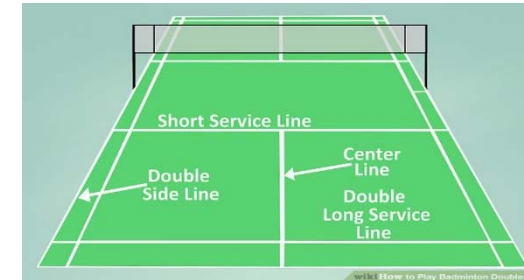
Shooting

Non kicking foot needs to be next to the ball and player needs to keep their body balanced with their head slightly over the top of the ball.
Contact the ball either with the side of the foot (placement of ball) top of the foot (to generate power)
Both legs need to be flexed but when striking the ball, kicking foot needs to be fully extended on the follow-through.
For accuracy, aim to shoot between the goalkeeper and the posts.


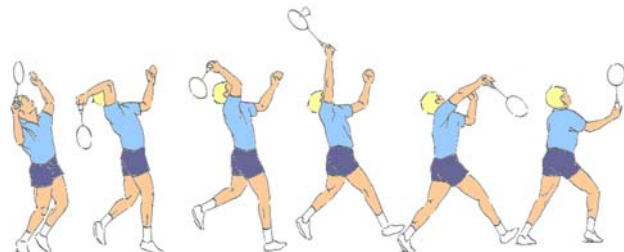
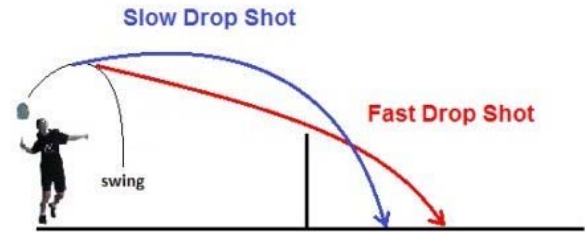
Key words

Pass- the action of passing the ball to a teammate	Receive- the action of controlling the ball from a teammate
Dribble- the action of moving the ball close to your feet	Shoot- the action of kicking the ball towards goal at varying heights
Space- an open space on the pitch where there are no opponents	Defend- the process of preventing the player with the ball from moving towards goal
Attack- the process of getting forward as a team and creating a scoring opportunity	Free-kick- a free-kick usually awarded because of a foul/violation

Rules	<ul style="list-style-type: none"> • Game starts with diagonal serve. • Serve must land across service line. • Play to 21- must win by 2 clear points. • Whoever wins the point serves next. • When score is odd the serve is from the left and when even serve from the right. • Court is long and thin for singles and short and wide for doubles. • You can't hit the net with your racket. • Serve must be below waist height.
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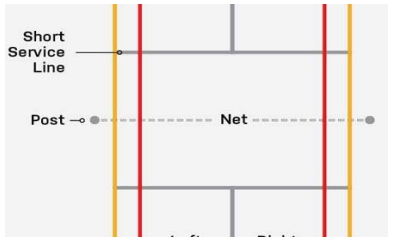
Intermediate Shots

<p>Long serve- The High Serve is an alternative to the low serve. This choice of serve can be used to Outwit an Opponent by pushing them to the back of the court and following this up with a drop shot.</p>	<p>Overhead clear- The Overhead Clear can be used in a game to push your opponent to the back of the court. To Outwit your Opponent by playing an overhead clear followed by a drop shot.</p>	<p>Drop shot- The Drop Shot is a delicate shot in the game of badminton used to move you opponent to the front of the court. Try the Drop Shot followed by an underarm clear to move your opponent around the court.</p>
<ol style="list-style-type: none"> 1) Stand side on to the net, 2-3 feet behind the service line. 2) Hold the base of the shuttle between the thumb and forefinger. 3) Point your none racket shoulder toward your target. 4) Hold the racket low down at your side, ready to hit the shuttle. 5) Drop the shuttle straight down. 6) Swing the racket, and hit the shuttle with an open racket face so the shuttle flies high and deep. 	<ol style="list-style-type: none"> 1) Forehand grip 2) Sideways stance to the net, weight on your back foot 3) Bend your elbow and take the racket back 4) Contact the shuttle as high as possible and in front of your body, straighten your elbow as you hit the shuttle 5) Follow through with your racket, weight is transferred to front foot 	<p>Same action as overhead clear but you tap the shuttle as you hit it, reducing the speed of your racket</p> 


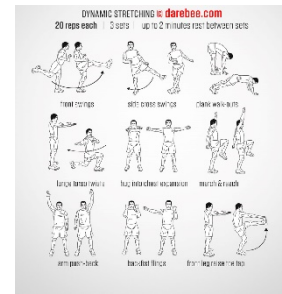
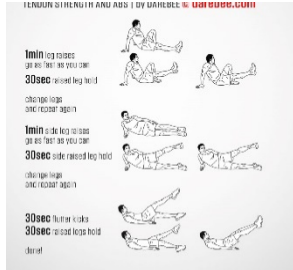
Key words

Long serve- a serve which is high and long to the back of the court. Useful for pushing the opponent to the back of the court.	Overhead clear- a shot which is played from above the head, where the shuttle reaches high and long to the back of the court.
Drop shot- a shot which is played from the middle/back of the court and lands short just over the net.	Long service line- the line at the back of the court which is the boundary for singles.
Short service line- the first horizontal line from the net which you must stand behind when serving and returning	Forehand- a stroke played with the palm of the hand facing in the direction of the stroke.
Backhand- a stroke played with the back of the hand facing in the direction of the stroke, with the arm across the body.	

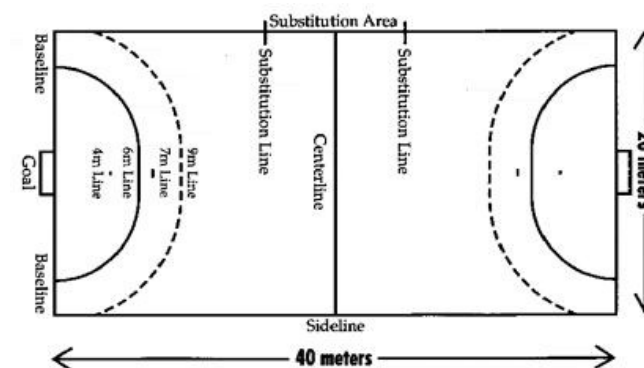
Leadership




Equipment Specialist- responsible for setting up and putting equipment away properly.	<ol style="list-style-type: none"> 1) Ensure each post is in correct place (edge of the centre of the court, facing inwards) 2) Ensure net is properly tied to posts, white ribbon at top. 3) Ensure net is folded away properly after use 4) Ensure posts are put away in cupboard neatly, facing alternate ways. 5) Ensure rackets and shuttles are out and put away neatly. 
Umpire- ensuring rules are followed and apply them	<ol style="list-style-type: none"> 1) Ensuring most of the rules of badminton are followed 2) Ensure fair play between players 3) Applying the rules of badminton e.g. calling shots 'out' if they land out.
Coach- Correctly identifying strengths and areas for improvement for another performer.	<ol style="list-style-type: none"> 1) Identify strengths of a performer 2) Identify weaknesses of a performer 3) Suggest ways the performer could improve <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>What went well:</p> <p>Even better if:</p> </div>

Fitness focus

Warm ups	Stretching	Cool down
<p>Pac-man: take in turns to chase your partner and try to 'tag' them. You can only step on the badminton court lines.</p> <p>Hares and hounds: Line up in a vertical line, one behind the other. When the leader shouts 'hares', you run to one side, and 'hounds' the other.</p>	<p>Static stretching:</p>  <p>Dynamic stretching:</p> 	<p>Stretching:</p>  <p>Light jogging or walking to return body temperature to resting rate and avoid injury.</p>

Basic Rules	<ul style="list-style-type: none"> • A match consists of two periods, usually 30 mins each. • Each team consists of 7 players; a goalkeeper and 6 outfield players. • 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.
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Intermediate Skills		
Blocking- the action of blocking the ball with your body to prevent the attacker from scoring. An essential part of defending.	Shooting- the act of throwing the ball at the goal to try and score- essential to be able to score.	One-handed catching- catching the ball with one hand. Important when catching on the move or if a ball is not passed accurately to both hands.
<p> Raise hands/arms up in the air Get as close to attacker as possible Place hands as close to the ball as possible Anticipate the shot Jump to block the shot if necessary </p> 	<p> Adopt a wide stance, one foot in front Place your weight on your back foot Throwing arm should be at 90 degrees and behind you when preparing to shoot Extend the arm out straight when shooting Use non-throwing arm as an aim Transfer weight from back to front </p> 	<p> Hold catching arm out high in front of you Relax the fingers and open the hand 'Cushion' the ball when the ball touches the hand Bring the ball into your chest to control it Grab the ball with both hands then pass/shoot </p> 


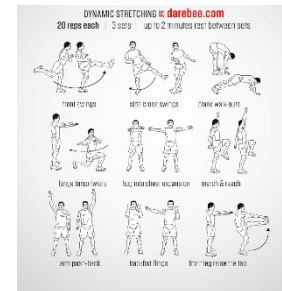
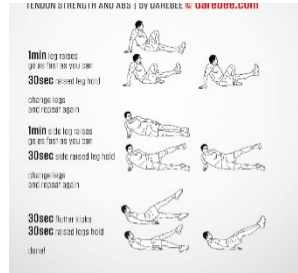
Key words

9m line- the dotted line furthest from the goal AKA the free-throw line	7m line- where penalties are taken from
6m line- the goalkeepers area line	Centre line- the line which divides the court into halves
Blocking- the act of blocking the ball to prevent the attacker from scoring	Shooting- the act of throwing the ball towards the goal to try and score

Leadership

Equipment Specialist- responsible for setting up and putting equipment away properly.	1) Ensure balls and bibs are out 2) Ensure any other equipment that is needed is out 3) Ensure goals are set up in the correct place 
Umpire- ensuring rules are followed and apply them	1) Ensuring the rules of handball are followed 2) Ensure fair play between players 3) Applying the rules of handball e.g. blowing the whistle when a foul has been committed.
Coach- Correctly identifying strengths and areas for improvement for another performer.	1) Identify strengths of a performer 2) Identify weaknesses of a performer 3) Suggest ways the performer could improve <div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>What went well:</p> <p>Even better if:</p> </div>

Fitness focus

Warm ups	Stretching	Cool down
Pac-man: take in turns to chase your partner and try to 'tag' them. You can only step on the handball court lines. Hares and hounds: Line up in a vertical line, one behind the other. When the leader shouts 'hares', you run to one side, and 'hounds' the other.	Static stretching:  Dynamic stretching: 	Stretching:  Light jogging or walking to return body temperature to resting rate and avoid injury.

A

FRONT CRAWL TECHNIQUE

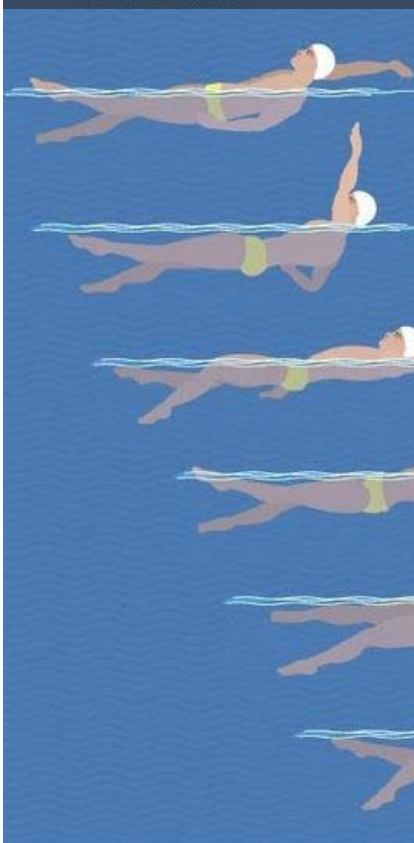
Keep your elbow slightly bent as you enter your hand into the water in front of you.

Look forward and down with the water level between your eyebrows and hairline.

Kick with a steady, small motion. Legs should be close together and ankles should be relaxed.

Keep your spine and head as still as possible and only move your head when you rotate to breathe.

Reach your hand forward first before pulling back.

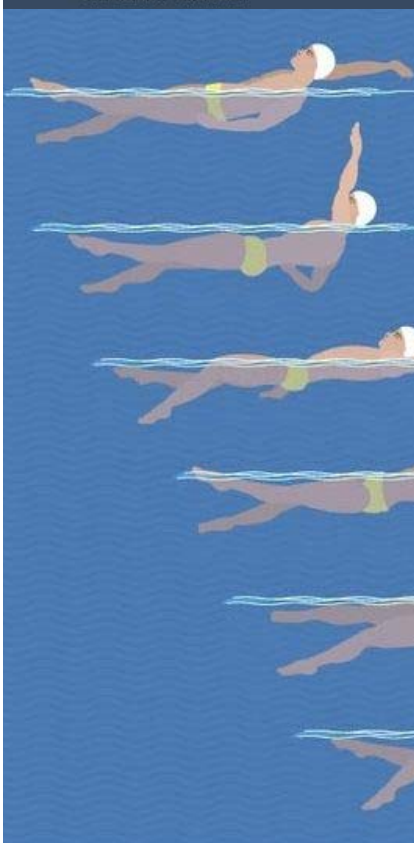


B

BACKSTROKE

Basic: While on back, move your arms in an overhand motion and flutter kick your legs.

Advanced: Head should be tilted back at an angle that would allow a cup to rest of the forehead. As your shoulder comes out of the water with each stroke, head should remain still. Hand rotates at the top of the stroke; the pinky finger is the first to enter the water.



C

Streamlined position



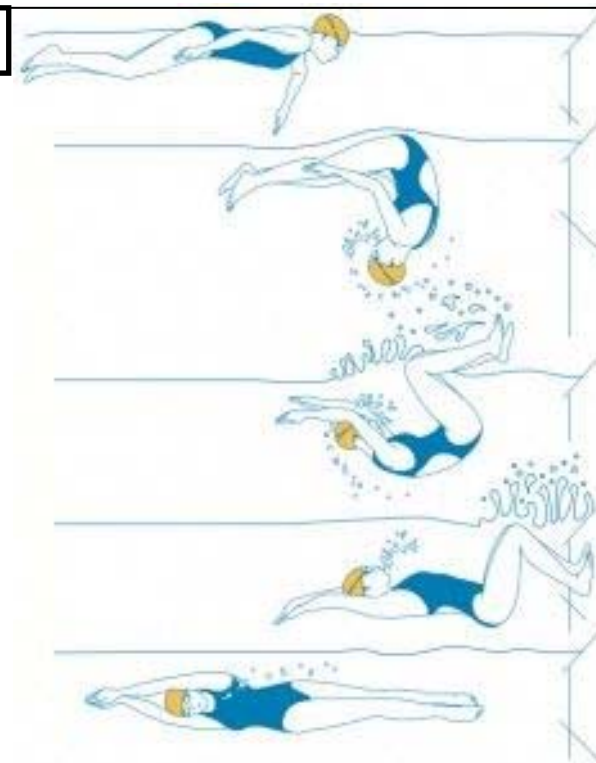
Small drag in streamlined position

Knowledge
Organiser:

Physical Education
Swimming

D

Tumble turn

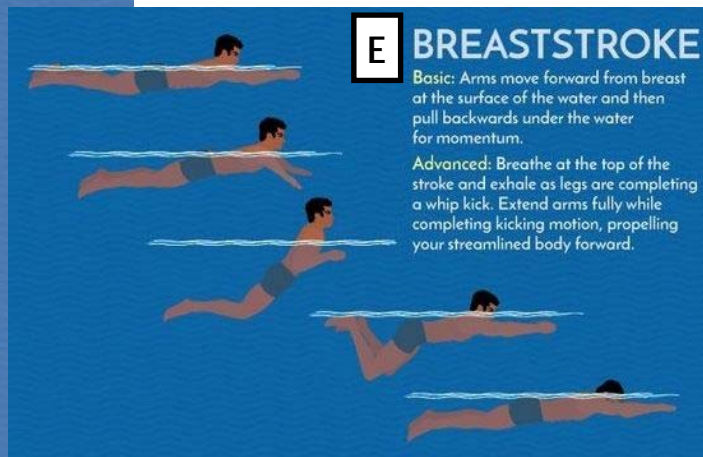


E

BREASTSTROKE

Basic: Arms move forward from breast at the surface of the water and then pull backwards under the water for momentum.

Advanced: Breathe at the top of the stroke and exhale as legs are completing a whip kick. Extend arms fully while completing kicking motion, propelling your streamlined body forward.

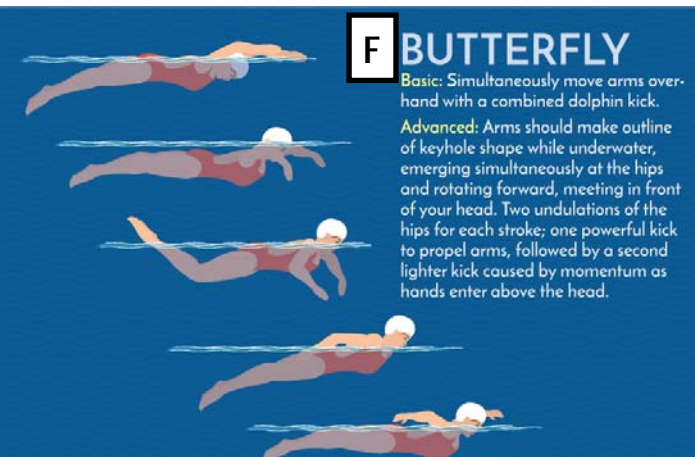


F

BUTTERFLY

Basic: Simultaneously move arms overhand with a combined dolphin kick.

Advanced: Arms should make outline of keyhole shape while underwater, emerging simultaneously at the hips and rotating forward, meeting in front of your head. Two undulations of the hips for each stroke; one powerful kick to propel arms, followed by a second lighter kick caused by momentum as hands enter above the head.



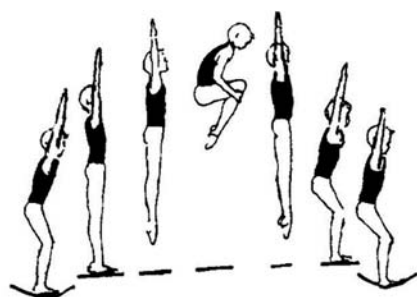
A - Shape Jumps:**Tuck**

Legs together, knees and hips bent to 90 degrees or less.

Hands grasp shins.

Ankles remain straight.

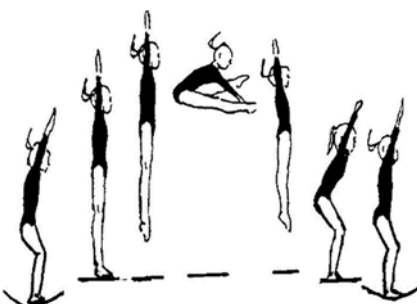
Toes pointed.

**Straddle**

Legs are apart, at least shoulder width but ideally 90 degrees.

Knees and ankles extended.

Toes pointed.

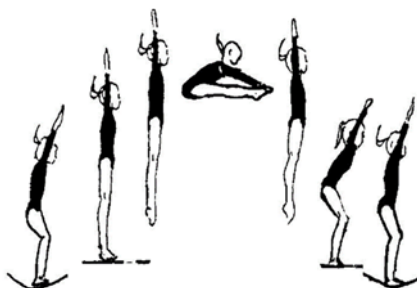
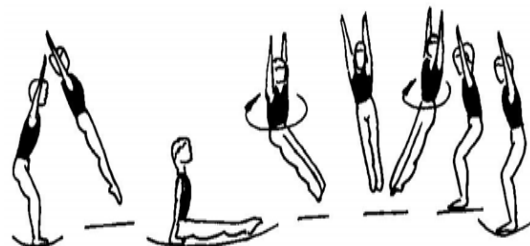
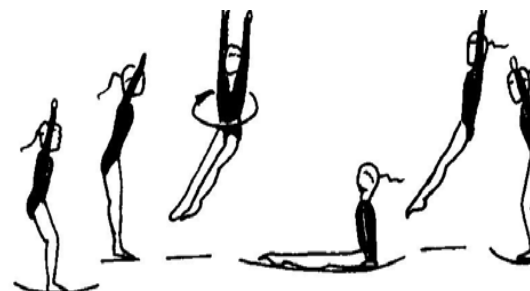
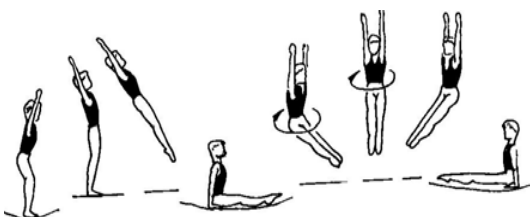
**Pike**

Legs remain straight at knees.

Legs lift up, bent at hips.

Ideally hands reach out to toes.

Toes pointed.

**B - Seat landing progressions:****Seat landing, ½ twist to feet****½ twist to seat to feet****Swivel hips****C - Twisting:**

Keep the body upright and straight during the twist.

Vision – focus on the front mat during take-off and then on the mat behind during flight for ½ twist. For full twist, the focus returns to the front mat during flight.

Keep the arms vertical and straight during flight.

**D - Fitness:**

Flexibility	the range of motion of your joints or the ability of your joints to move freely.
Power	the product of strength and speed, ie strength x speed

Knowledge Organiser – Control using Flowol

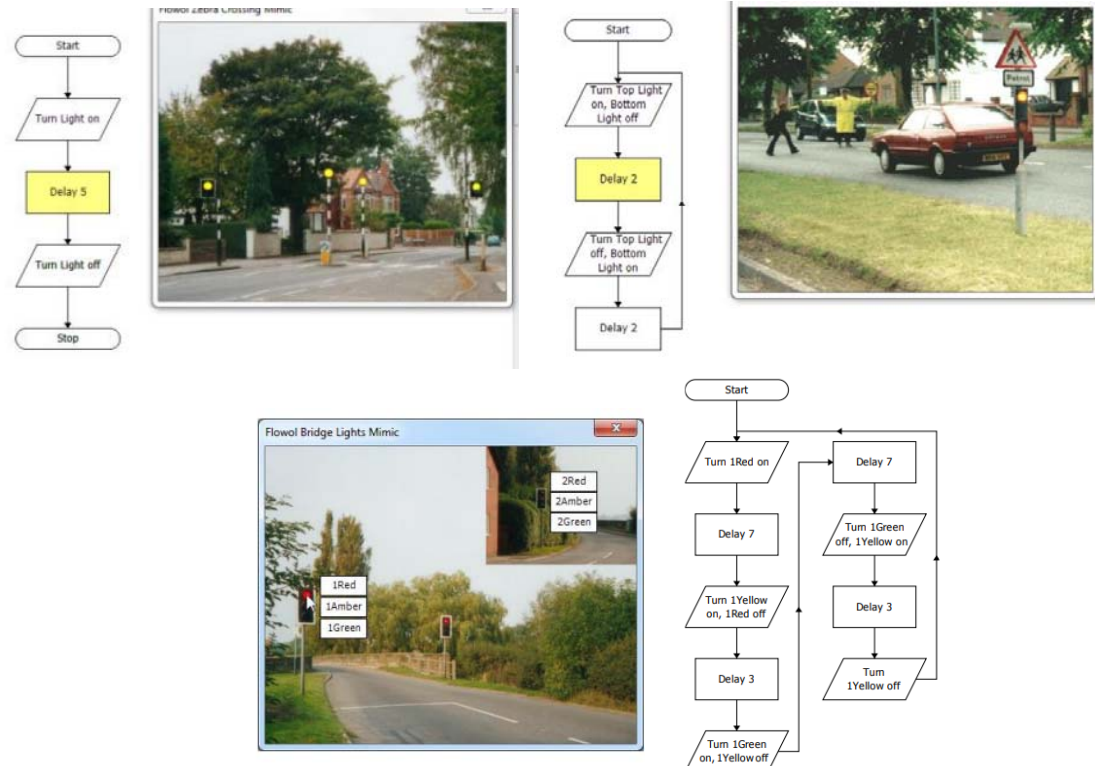
Key vocab	
Algorithm	A set of instructions to be followed to complete a given task or solve a problem.
Flowchart	A diagram that shows an algorithm or process, made up of boxes representing steps, decision, inputs and outputs.
Computational Thinking	The thought process of taking a problem, working out how it can be calculated by a computer, and finding a solution.
Program	A sequence of instructions used by a computer.
Sequence	The order which the computer will run code in, one line at a time.
Selection	A decision made by a computer, choosing what code should be run only when certain conditions are met.
Condition	Checking to see whether a statement or sum is true or false.
Iteration	When a section of code is repeated several times – also known as looping.
Input	Entering data or information into an algorithm.
Output	Displaying data or information as a result of an algorithm.
Variable	A value where data is stored and can be changed when used in a program.
Flow	How data moves through a program, explained using arrows in a flowchart.
Comparative Operators	Symbols used to compare one value to another (see below table for examples) and return a True/False.

Comparative Operators	
==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

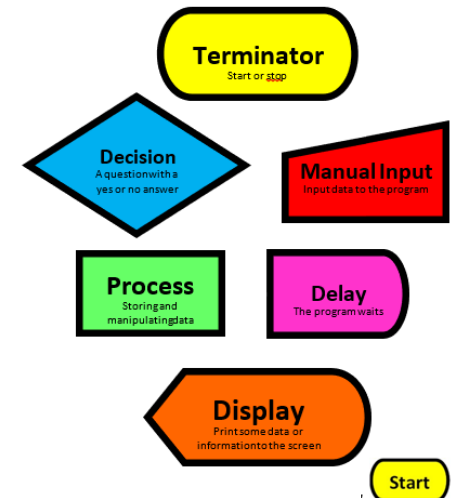
Useful link:

<http://www.flowol.com/flowol4/Flowol4Tutorial.pdf>

Solutions:

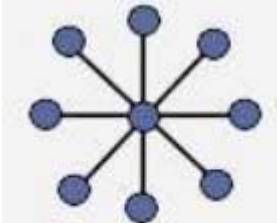
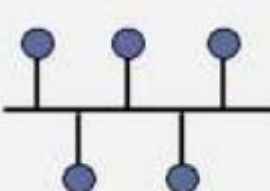
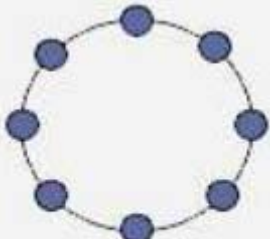
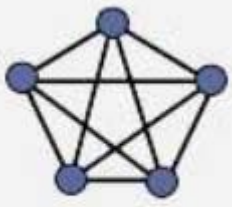


Flowchart Shapes



Knowledge Organiser – Network and Topologies

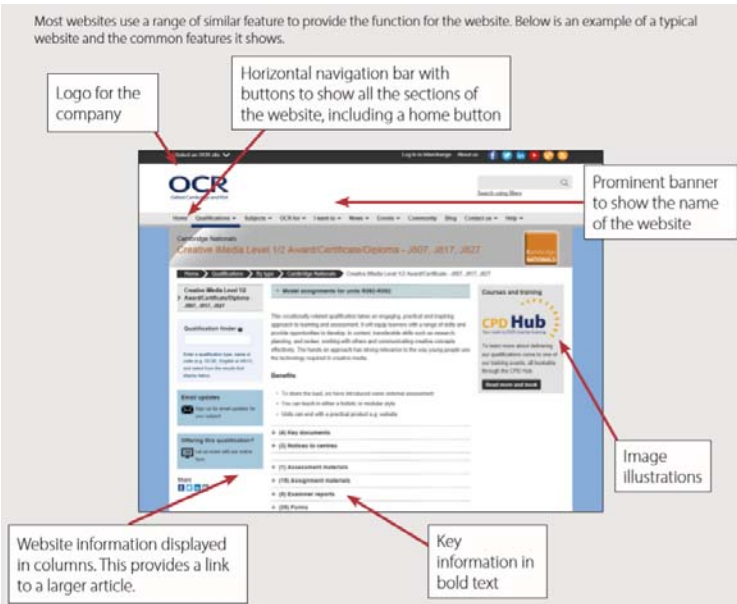
Key vocab		Protocols		
Local Area Network (LAN)	A network which only covers a single site.	IP address	Internet Protocol, a unique address used to identify a device on a network (uses 4 bytes - e.g. 192.168.1.255)	
Wide Area Network (WAN)	A network which connects networks in different geographical locations.	MAC address	Media Access Control, the physical address of a device, assigned by the manufacturer.	
Wireless Local Area Network (WLAN)	A LAN connected using wireless protocols.	Packet	Small, equal sized units of data used to transfer files over the internet.	
		Packet switching	The process of directing data packets on a network using routers and the IP protocol.	
Personal Area Network (PAN)	A network created between personal devices.	HTTP	Hyper Text Transfer Protocol	Used by web browsers to access websites and communicate with web servers.
Bandwidth	The amount of data that can be transferred on a network in a given time.		HTTP Secure	A more secure version of HTTP – encrypted all information sent and received.
Network Interface Controller (NIC)	An internal piece of hardware that allows a device to connect to a network.	FTP	File Transfer Protocol	Used to access, edit and move files between devices on a network (eg. accessing files on a server from a client computer).
Switch	Connects devices together on a LAN and directs frames of data to the correct device.	POP3	Post Office Protocol (version 3)	Used to retrieve emails from a server. The server holds the emails until you download it.
Router	A piece of hardware responsible for transmitting data between networks.		Internet Message Access Protocol	Used to retrieve emails, when the server holds it until you actually delete it.
Ethernet cable	Copper wires used on LANs.	SMTP	Simple Mail Transfer Protocol	Used to send emails. Also used to transfer emails between servers.
Fibre optic cable	A high performance cable that uses light to carry data.			
Wi-Fi	The standard used for wireless connections between devices.			
Topology	How the devices in a network are connected together.			

Topologies			
			
Star	Bus	Ring	Mesh

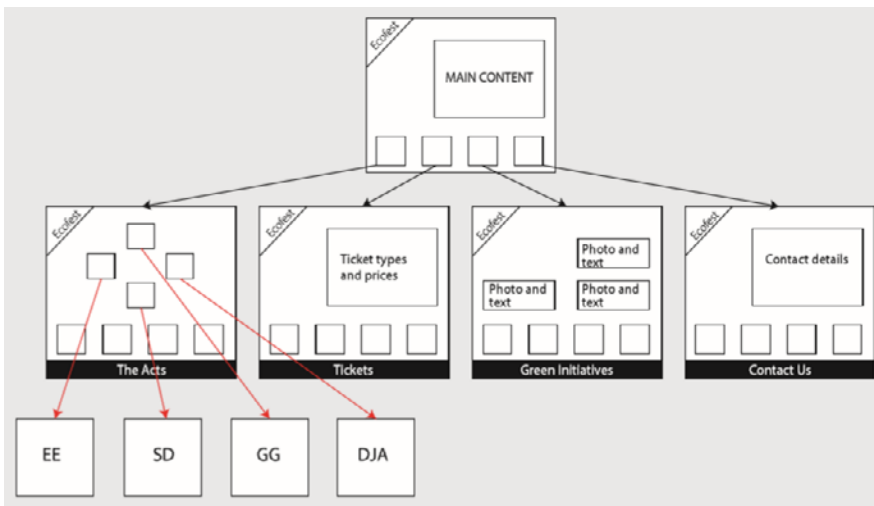
Knowledge Organisers – Creating a Website

Key term	Explanation
Embedded content	Content which is placed on a website but is hosted by another website such as a YouTube video or a Google Map. It is generally seen as external media. An example would be the YouTube video embedded on this page https://www.zumba.com/en-US
Navigation	The system by which one moves through the website from page to page. Navigation can be by navigation bar placed on each page or in a linear format. A good example is www.bbc.co.uk/news which is further sub divided by smaller categories.
Cascading Style Sheets (CSS)	This is a design element which helps the creator of a website control the look and of a webpage. This can then be rolled out across all pages to ensure consistency.
Alt Text	This is a piece of text which appears to explain the nature of an image. This is an accessibility feature.
Search engine optimisation	The method used to ensure that websites are easily located when searched for. SEO is needed to ensure that a website is successful and gets a number of 'hits'.
Hot spot	This is an invisible hyperlink which is placed on an image. It is an alternative to a text based hyperlink and could be placed on a logo to take the user to the website.
Hyperlink	A link which can take you to another website, page or resource. This is usually shown as being underlined on a website to indicate the hyperlink and the text is often a different colour.
Intellectual property	This refers to creations of the mind such as inventions as well as designs and more. This is protected through patents, copyright, etc.
Trademarks	This is a symbol or an image which represents a company or a product. It is legally registered as representing the company.
Copyright	This gives a legal right to someone to distribute and reproduce something for a fixed number of years.
Assets	These are the 'things' which will be used on your website such as images, videos, sounds, etc. They are component features which make up your website.
Site Map	A plan of how the user will be able to navigate around the final website.
Visualisation	A visual representation of a final product which is used to plan how it will look.

Website features



Website Planning – Navigation System



Webpage plans



Important Considerations

Purpose and Audience

Consider the audience. A website for a children's magazine would be different in content, ease of use and layout

Layout and Structure

The website should be consistent throughout so it is easy to navigate. The general layout should be simple and easy to follow. Nearly all pages should be accessible within two or three clicks

How will information be presented?

Text should contrast with the background so that it is easy to read. Ensure the website is visually appealing and does not contain too much information

Navigation and Graphics

User need to find their way to the correct pages quickly. Graphics can increase the file size of a webpage, but important to the content of the website.