YEAR 10 KNOWLEDGE ORGANISER

MICHAELMAS TERM

Name:

Family Group:

LEARNING - LOVING - LIVING

How to use my knowledge organiser

The timetable shows the **subjects** you should be studying and the days that you should be studying them. You should **complete your work in your exercise book**.

Each evening you should draw a straight line (using a ruler), under the previous day's work, and write the date, clearly at the top. You need to **bring your KO and exercise book with you to school EVERYDAY**.

The **KO** work that you have completed for the week will be checked in Family Group time **EVERY** Friday. If homework is not of an appropriate standard or amount will result in an after school detention. Knowledge tests will also be used frequently in lessons.

Subject Homework

Students will also be **given** additional subject homework to be completed throughout the week and/or can use FREE online revision tools such as www.senecalearning.com

It is also recommended that students regularly **READ** a variety of fiction and non fiction books that they choose for pleasure. This extra reading will help to develop and broaden their general knowledge.

In **ENGLISH** all students will be expected to complete 1-2 reading assignments each week by accessing www.CommonLit.org . Each assignment will take 20-30 minutes and students will be required to answer multiple choice questions to check their understanding of what they have read.

In **MATHS** students are expected to watch short explanation videos and complete activities on the online platform of https://mathswatch.co.uk. Students can log in using the details and password they use to log in to the school computers.

Homework timetable

You should spend *at least* **1 hour** per night on homework = 3 subjects x 20 minutes per subject

Year 10	Subject 1	Subject 2	Subject 3
Monday	Maths	Option A	Option C
Tuesday	English	Option B	Option C
Wednesday	Maths	Religious Education	English
Thursday	English	Science	Option A
Friday	Maths	Languages	Option B

RETRIEVAL ACTIVITY IDEAS

Knowledge organisers are for **learning and mastering** the knowledge in each subject. There are many different ways you can do this, however some **PROVEN** methods to try in your work book are:

4 Methods of Retrieval Practice

@ImpactWales

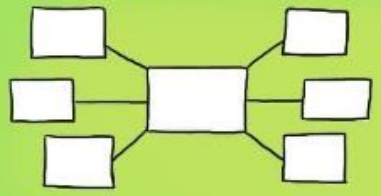
Before you start put away all your books & classroom materials.

Retrieval Practice Examples

- Exit Tickets
- Starter quizzes
- Multiple choice quizzes
- Short answer tests
- Free write
- Think, pair, share
- Ranking & sorting
- Challenge grids

BRAIN DUMP

Write, draw a picture, create a mind-map on everything you know about a topic.



Give yourself a time limit, say 3 minutes, then have a look at your books & add a few things you forgot.

QUIZZING

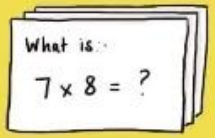
Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

- ☐ A comparison using 'like, as, than'.
- ☐ A comparison where one thing is another.
- ☐ A comparison with a human attribute.

FLASHCARDS

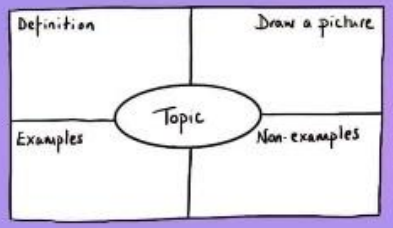
Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



You need to repeat the Q & A process for flashcards you fail on more frequently & less frequently for those you answer correctly

KNOWLEDGE ORGANISERS

Complete a knowledge organiser template for key information about a topic.

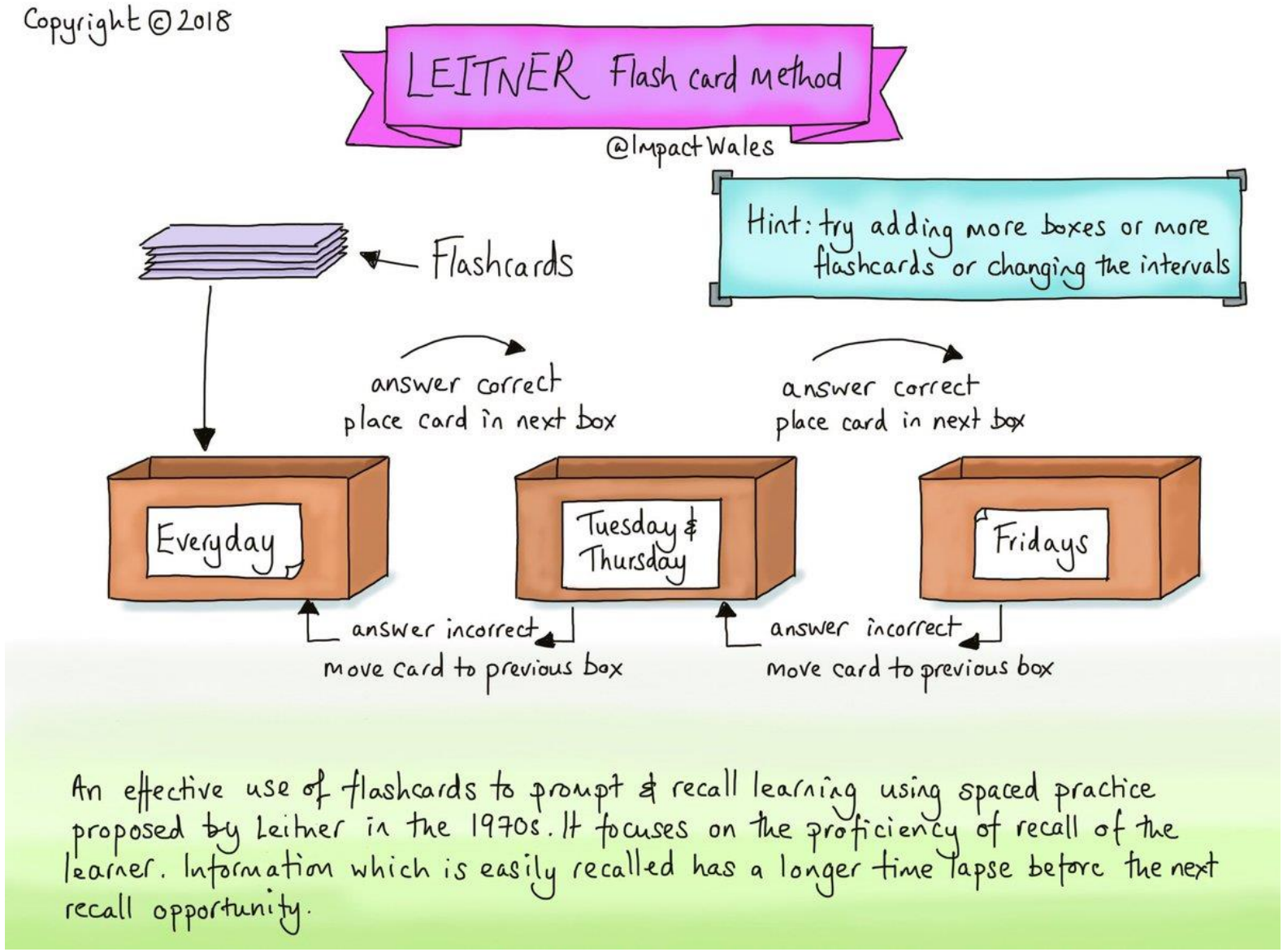


You can use knowledge organisers to learn new vocab & make links in between subjects or ideas.

After you have retrieved as much as you can go back to your books & check what you've missed. Next time focus on that missing information

USING FLASH CARDS SUCCESSFULLY

Once flash cards are created, you will need to use them correctly to have an impact. Follow the method below for the best knowledge retention



Act One Summary: Engagement celebration interrupted by Insp. Mr.B and Sheila reveal links to Eva.		
Who	**What**	**Notes**
Stage directions	Dinner jackets, large surburban house, port, champagne	Extreme opulence. Insular existence divorced from reality of poverty and lower class struggles
Birling	We're in for a time of steadily increasing prosperity	Birling is pontificating about the future, believing that he is infallible. Priestley uses dramatic irony to accentuate B's ignorance, arrogance and pomposity.
Birling	A hard-headed practical man of business	'hard-headed': B means that he is resilient and powerful. Audience a reminded of his stubborn and ignorant nature. B is an arch-capitalist
Birling	Sees his daughter's marriage as a business transaction	Callous, dehumanizing: subjugation of women even prevalent in upper classes
Birling	The titanic……unsinkable, absolutely unsinkable	Pomposity. Titanic is metaphor for arrogance of upper class
Birling	The way some of these cranks talk and write now, you'd think everybody has to look after everybody else, as if we were all mixed up together like bees in a hive-community and all that nonsense	B uses derogatory and dismissive language (cranks). B is dogmatic and supercilious. B has disdain for socialism (it would remove his hierarchical advantage!) B wants a stratified, atomized society.
Insp.	One person and one line of enquiry at a time	authoritative and in command
Birling	She'd had a lot to say-far too much-so she had to go of course.	authoritarian: lacks compassion. Eva wanted small pay rise. B is callous and ruthless. women have no voice in society
Birling	It's a free country I told them	Arrogance: not free! Free if rich and male. no welfare state, no universal suffrage until 1928!
Insp.	They might. But after all it's better to ask for the earth than to take it	criticizing B's (and upper class) greed.
Sheila	But these girls aren't cheap labour-they're people	disagrees with B: generation gap. Priestley is optimistic about future 'younger ones' are more compassionate. S is first to change.
Sheila	But I felt rotten about it at the time and now I feel a lot worse	repentant, remorseful, pentinent. S had Eva fired because S was jealous. S abused her power and influence. S lives insular life: no clue about the Eva's desperate plight
Sheila	It's the only time I've ever done anything like that, and I'll never, never do it again to anybody	'only time': was she emulating parents' callous behaviour? S represents promise of better future: compassionate/socialist

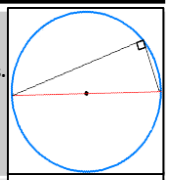
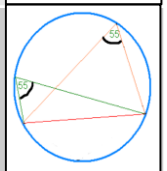
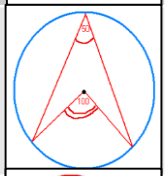
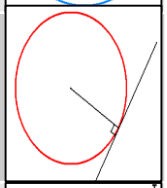
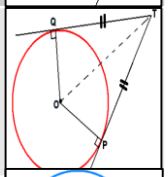
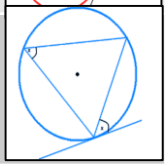
Act Two Summary: Gerald and Mrs.B reveal links to Eva		
Who	What	Notes
Insp.	You see, we have to share something. If there's nothing else, we'll have to share our guilt.	Birlings are immoral. They have contempt for collective responsibility.
Insp.	We often do on the younger ones. They're more impressionable	generation gap
Sheila	He's been steadily drinking too much for the past few years	dysfunctional relationship with B. Hedonistic life of privilege and entitlement. Wealth has corrupted him: hypocrisy! (B and Mrs.B think poor are degenerate and immoral!)
Gerald	She looked young and fresh and charming	G objectifying Eva. complimentary but he exploits her desperation
Gerald	I didn't install her there to make love to her	Denial suggests guilt: G's infidelity is evidence of his immorality. Sordid
Birling	Defends Gerald's infidelity	Cares more about merger? Genuinely thinks this is ok? Immoral!
Gerald	I didnt feel about her as she felt about me	Disparity between G and Eva: G exploits Eva and abuses his position of privilege and power
Gerald	I insisted on a parting gift of enough money-though it wasn't much-to see her through to the end of the year	Transactional relationship: money used to assuage guilt. hints at prostitution/dehumanisation
Insp.	She felt that there'd never be anything as good again for her-so she had to make it last longer.	Eva's desperation. Eva is exploited by G.
Insp.	(massively) Public Men, Mr.Birling, have responsibilities as well as privileges.	Insp. admonishes B. B was Lord Mayor but only for fame and prestige. Like Mrs.B (charity role is for power and fame not compassion.
Mrs.B	Girls of that class	Mrs.B stereotyping the poor as degenerate and immoral. Irony is that she is the immoral one!
Mrs.B	You know of course that my husband was Lord Mayor only two years ago	Attempting to intimidate Insp. superciliousness
Mrs.B	She impertinently made use of our name	'impertinently': supercilious and haughty! Irony: Mrs.B condemns father (Eric) hypocritical: won't punish her own son!
Mrs.B	She was claiming elaborate fine feelings and scruples that were simply absurd for a girl in her position.	Dehumanizing lower class. callous.
Birling	Cares only about reputation and 'inquest' not death of Eva	

Act 3 Summary: Inspector's final admonishment and exit. Aftermath: was it real? does it matter? Young are changed. Old refuse to accept responsibility.		
Who	**What**	**Notes**
Eric	I'm not very clear about it, but afterwards she told me that she didn't want me to go in but that-well, I was in that state when a chap easily turns nasty- and I threatened to make a row.	Threatened violence to get sex. alcoholic hedonistic life free from responsibilities.
Eric	Steals money from dad	Steals to help but stealing is wrong.
Eric	Castigates Mrs.B for killing Eva	Defiance: break from expected obedience to elders. E is incredulous at Mrs.B's callousness
Eric	You're not the kind of father a chap could go to when he's in trouble	Dysfunctional relationship with B. B focused on business, ignoring family
Insp.	But each of you helped to kill her. Remember that	Collective responsibility.
Insp.	There are millions and millions and millions of Eva Smiths and John Smiths still left with us, with their live, their hopes and fears, their suffering and chance of happiness, all intertwined with our lives, and what we think and say and do. We don't live alone. We are members of one body. We are responsible for each other. And I tell you that the time will soon come when, if men will not learn that lesson, then they will be taught it in fire and blood and anguish.	Marginalized are the majority (repetition of 'millions'). lower class life is precarious ('still). omnipresence of suffering. biblical rhetoric (tricolon at end), hinting at WW1. compare speech with B and Mrs.B's antithetical views.
Eric	The money's not the important thing. It's what happened to the girl and what we all did to her that matter. And I still feel the same about it, and that's why I don't feel like sitting down and having a nice cosy talk.	E is remorseful, like S. criminality is irrelevant: they have a moral duty to others
Eric	We did her in alright	Accepts responsibility.
Ending	is it a hoax? was Eva real? does this matter?	E and S have changed: remorse, responsibility, guilt. MrsB and B only care about reputation and scandal. Mrs.B and B mock E and S for being gullible. Ending=final phone call: inescapability and absolute necessity of change.

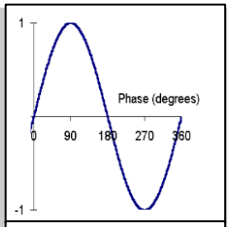
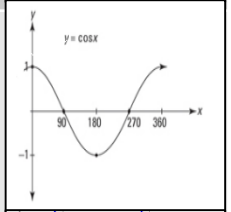
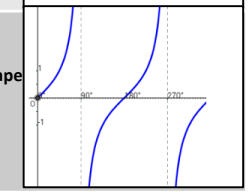
YEAR 10 HIGHER – MICHAELMAS TERM- MATHEMATICS – CIRCLE THEOREM AND INTERPRETING

LEARNING - LOVING - LIVING

Circle Theorems

Angles in a semi circle	**The angle formed from diameter to edge is 90 degrees.**	
Angles in a Cyclic Quadrilateral	**Opposite angles in a cyclic Quadrilateral add up to 180 degrees.**	
Angles in the same segment	**The angles from are chord are equal if they are In the same segment.**	
Angle at the centre and the circumference	**The angle at the centre is double the angle at the tip.**	
The angle between a tangent and the radius	**The angle from the radius to the tangent is 90 degrees.**	
Tangents that meet at a point	**The length of two tangents to a single point are equal in length.**	
Alternate segment theorem	**The angles in two alternate segments are equal.**	

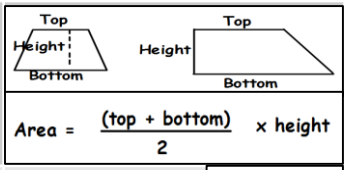
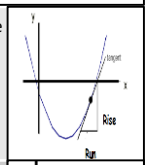
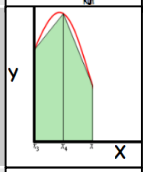
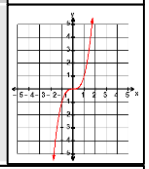
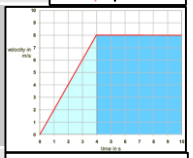
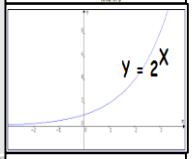
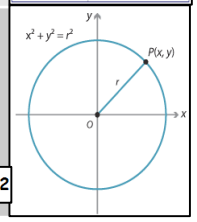
Trigonometric Functions

SIN Wave	**A wave like graph that repeats itself over a 360 degree cycle. Starts at zero and goes between +1 and -1**	
COS Wave	**A wave like graph that repeats itself over a 360 degree cycle. Starts at +1 and goes between +1 and -1**	
TAN Graph	**A repeating backwards S shape graph. Goes between -/+ Infinity.**	

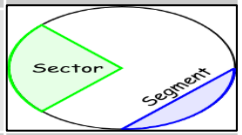
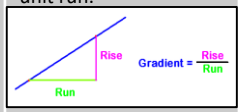
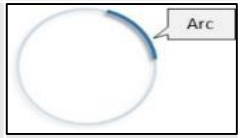
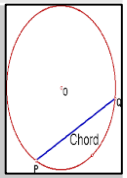
MathsWatch References

183	Circle Theorems
184	Proof of Circle Theorems
197	Equation of a circle
208	Perpendicular lines
194	Exponential functions
161	Cubic and exponential graphs
140	Simultaneous equations involving graphs
195	Trigonometric graphs
216	Velocity Time graphs

Key Facts, & Formula

Trapezium Area	 Area = $\frac{(\text{top} + \text{bottom})}{2}$ x height	
Finding /estimating the gradient	Draw a tangent to curve then use rise divided by run	
Estimating the area under a curve	Split the area under the Curve into trapeziums. Find the area of each one and add them for the total Area.	
Cubic graph	Looks like a backwards S and extends to +/- Infinity as X increases/ Decreases.	
Area under a velocity time graph	Represent the distance travelled.	
Exponential graph	The X value is a power that varies, the base number is known.	
Equation of a circle	When the Centre is at the origin use $x^2 + y^2 = \text{radius}^2$	

Vocabulary

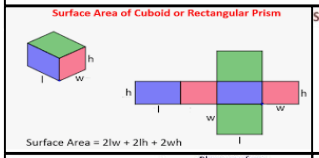
Tangent	A line that touches the edge of the circle at 90 degrees to the radius.
Sector/ Segment	
Gradient	The amount of rise per unit run. 
Exponential	A curve which has a continuously changing gradient due to the X variable being a power.
Perpendicular	Another way of saying at 90 dgrees to.
Arc	 Part of the edge or Circumference of a circle.
Chord	 A straight line from one edge to the other of a circle that does NOT go through the centre.

Important Ideas

Surface area

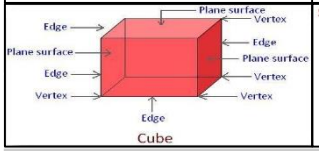
The surface area is simply the area of all of the outside surfaces of a three-dimensional object.

So the surface area of a cuboid is calculated from adding together the area of all six faces.



SUFACE AREA AND VOLUME OF CUBOID

- Total Surface Area: 2(lb+ bh +hl)
- Lateral Surface Area:2h(l + b)
- Volume: l x b x h



SUFACE AREA AND VOLUME OF FRUSTUM

- Volume: $1/3\pi h(r_1{}^2 + r_2{}^2 + r_1 r_2)$
- Curved Surface Area: $\pi l(r_1 + r_2)$
- Total Surface Area : $\pi l(r_1 + r_2) + \pi r_1{}^2 + \pi r_2{}^2$

Units of measurement of area / volume

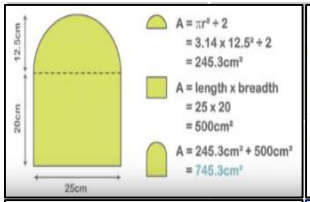
Units of measurement of area - mm^2, cm^2, m^2

Units of measurement of volume- mm^3, cm^3, m^3

Vocabulary

Area of 2D shape	**The 2D space a shape covers**
Semi-circle **Hemisphere**	Half a circle Half a sphere
Surface area of a prism	**The sum of the areas of all the faces**
Volume of a solid	The 3D space enclosed by its surface
Prism	A solid(3D) object with the same cross-section all the way trough.
Frustum of a Cone or Pyramid	A truncated cone or pyramid in which the plane cutting off the apex is parallel to the base

Q & A



The radius of the base and the height of a right circular cone are 7 cm and 24 cm respectively. Find the volume and total surface area of the cone.

Solution:

Radius of the base of a right circular cone is 7 cm.

Height of a right circular cone is 24 cm.

Volume of a right circular cone = $\frac{1}{3}\pi r^2 h = \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 24 = 1232\ cm^3$

Slant height of the cone = $\sqrt{24^2 + 7^2} = \sqrt{576 + 49} = \sqrt{625} = 25\ cm^3$

Total surface area of a right circular cone = $\pi r(r + l)$

$= \frac{22}{7} \times 7(7 + 25)$

$= \frac{22}{7} \times 7 \times 32$

$= 704\ cm^2$.

Two cubes each of volume 64 cm^3 are joined end-to-end. Find the total surface area of the resulting cuboid.

Solution:

Volume of the cube = 64 cm^3

$a^3 = 64$

$\Rightarrow a = 4\ cm$

Length of resulting cuboid = 4 + 4 = 8 cm.

breadth = 4 cm and height = 4 cm.

Total surface area of the cuboid = 2(lb + bh + hl)

= 2(8 x 4 + 4 x 4 + 4 x 8)

= 160 cm^2

The diameter of the base of a right circular cylinder is 28 cm and its height is 21 cm. Find its

(i) curved surface area

(ii) total surface area

(iii) volume

Solution:

Diameter of the base of a right circular cylinder is 28 cm

Radius of the base of a right circular cylinder (r) is 14 cm

Height of a right circular cylinder is 21 cm.

(i) Curved surface area of a right circular cylinder = $2\pi rh = 2 \times \frac{22}{7} \times 14 \times 21$

$= 1848\ cm^2$

(ii) Total surface area of a right circular cylinder = $2\pi r(r + h)$

$= 2 \times \frac{22}{7} \times 14(14 + 21)$

$= 2 \times \frac{22}{7} \times 14 \times 35$

$= 3080\ cm^2$

(iii) Volume of a right circular cylinder = $\pi r^2 h = \frac{22}{7} \times 14 \times 14 \times 21 = 12936\ cm^3$

Find the surface area of a cube whose volume is given:

(i) 216 cm^3 (ii) 1000 cm^3

Solution:

Let the edge of the cube= a cm

Then volume of the cube = a^3 cu. cm and surface area = $6a^2$ sq. cm.

(i) $a^3 = 216 \Rightarrow a = 6\ cm$

$\therefore$ Total surface area = $6a^2 = 6 \times (6)^2 = 216\ cm^2$

(ii) $a^3 = 1000 \Rightarrow a = 10\ cm$

Total S.A.= $6a^2 = 6(10)^2 = 600$ sq. cm

Find the volume and the surface area of a metallic sphere having diameter 8.4 cm.

Solution:

Diameter of a sphere is 8.4 cm

Radius of a sphere is 4.2 cm

Volume of a metallic sphere = $\frac{4}{3}\pi r^3 = \frac{4}{3} \times \frac{22}{7} \times 4.2 \times 4.2 \times 4.2 = 310.464\ cm^3$

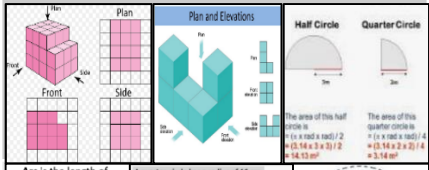
Surface area of a metallic sphere = $4\pi r^2 = 4 \times \frac{22}{7} \times 4.2 \times 4.2 = 221.76\ cm^2$.

MathsWatch References

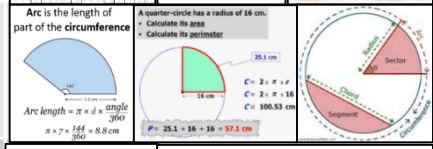
51	Plans and elevations
114a	Surface area of cuboids
114b	Surface area of triangular prisms
115	Volume of a cuboid
119	Volume of a prism
169	Spheres
171 **172**	Cones Frustums
200	Similarity-Area and Volume

Key Facts & Formulae

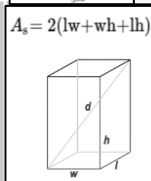
Use 2D representation of 3D shapes-plans and elevations



Area and perimeter of sectors of circles

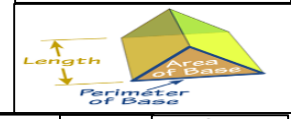


Surface area of a prism

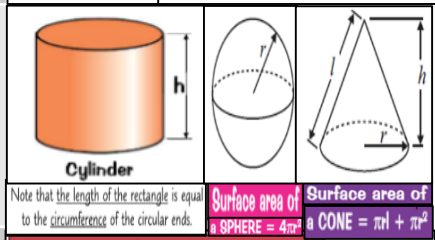


$A_s = 2(lw + wh + lh)$

A=2x(BaseArea) + (BasePerimeter) x Length



Surface area of a cylinder, sphere and a cone



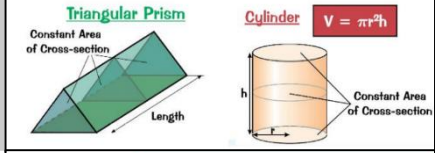
Note that the length of the rectangle is equal to the circumference of the circular ends.

Surface area of a SPHERE = $4\pi r^2$

Surface area of a CONE = $\pi rl + \pi r^2$

Volume of a prism-(includes cuboids)

VOLUME OF PRISM = CROSS-SECTIONAL AREA × LENGTH

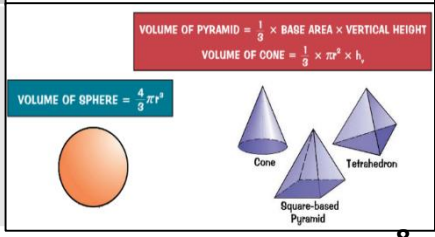


Volume of a sphere, cone and a pyramid

VOLUME OF PYRAMID = $\frac{1}{3}$ × BASE AREA × VERTICAL HEIGHT

VOLUME OF CONE = $\frac{1}{3} \times \pi r^2 \times h$

VOLUME OF SPHERE = $\frac{4}{3}\pi r^3$



YEAR 10 FOUNDATION – MICHAELMAS TERM - MATHEMATICS – FRACTIONS, RATIO AND PROPORTION, ALGEBRA

LEARNING - LOVING - LIVING

MathsWatch References	
26	Simplifying fractions
24	Equivalent fractions
70	Comparing fractions
42	Proportions
41	Value for money
38	Introducing ratio
106	Sharing into a given ratio
7	Introducing Algebra
33/34/35	Simplifying expressions
93	Expanding brackets
134	Simplifying expressions – brackets
137	Forming equations
136	Rearranging formulae
190	Subject of the formula
199	Direct and Inverse proportions
76	Reciprocals

Vocabulary	
Fraction	Part of a whole
Numerator	The top number in a fraction
Denominator	The bottom number in a fraction
Equivalent	Same value, different numbers to represent It.
Simplest form	When you can't divide any more with out getting decimals or when there are no more like terms to collect.
Collect like terms	Bringing the same letters, powers or types of number together by addition or subtraction.
Ratio	A way to represent the sharing into parts
Expand	Multiply out.
Factorise	Finding the thing which goes into all terms and putting it outside the bracket.
Term	A part of an expression or equation
Proportion	As one thing changes so does the other by the same multiplier.
Subject	The bit on its own that relates to the rest of the equation/formula.

Key Facts

Simplifying a fraction

Divide both the numerator and the denominator by the same number.

$\frac{3}{15} \xrightarrow{\div 3} \frac{1}{5}$

Simplifying a ratio

Divide both the left and right by the same number.

3 : 15 → (÷3) 1 : 5

Sharing an amount in a given ratio

Step 1: Add the parts
Step 2: Divide the total amount to share into the total parts
Step 3: Multiply each part by the amount each part is worth.

Share £30 into the ratio 2 : 3
2 + 3 = 5 parts
30 ÷ 5 = £6 per part
(x6) £12 : £18

Collecting like terms

Add or subtract same letters and powers of letters.

$5X - 3X = 2X$

$3Y^2 + Y^2 = 4Y^2$

Multiplying out brackets

Multiply EVERYTHING inside the bracket by the number outside.

$3(2A - 5) = 3 \times 2A - 3 \times 5 = 6A - 15$

Multiplying out double brackets

Step 1
Multiply the first term in the first bracket by both terms in the second bracket
Step 2: Multiply the second term in the first bracket by both terms in the second bracket.
Step 3: Simplify these 4 terms into 3 terms.

$(X + 5)(X + 4)$

$X^2 + 4X + 5X + 20$

$X^2 + 9X + 20$

Key Facts

Ratio proportion methods

Same multiplier for both sides of the ratio.

Dave and John share some sweets in the ratio 2 : 3
Dave gets 10 sweets.

	Dave	:	John	
x5	2	:	3	
	10	:	15	x5

Recipe proportion methods

Step1: Find the value of one item by division
Step 2: Multiply this amount up to find the value of the number required

To make 3 cakes you need 150g of flour.
How much flour do you need for 5 cakes?

	Cakes	:	Flour	
÷3	3	:	150g	÷3
x5	1	:	50g	
	5	:	250g	x5

Value for money proportion methods

Find the price per item/unit in order to compare deals

Deal 1: 2kg = £3 → (÷2) 1kg = £1.50
Deal 2: 5kg = £6 → (÷5) 1kg = £1.20

Deal 1 is better value for money as it is cheaper per 1kg

Reciprocal

Step 1: Turn the number into a fraction
Step 2: Turn the fraction upside down.

$0.5 = \frac{1}{2}$ **Reciprocal =** $\frac{2}{1}$

Changing the subject of the formula

Use inverse operation to get a given letter on its own. It is like solving but with no "final" answer.

Make X the subject of the formula

$3Y = 2X + 8$ (-8 -8)

$3Y - 8 = 2X$ (÷2 ÷2)

$\frac{3Y - 8}{2} = X$

Important Ideas

Essential knowledge:

$a + a + a = 3a$

$4 \times d = 4d$

$y \times y \times y = y^3$

$7 \times e \times f = 7ef$

Expanding brackets:

- Expanding means remove brackets
- multiply each term in the bracket by the expression outside the bracket.

e.g. $3\,(5a - 2\,)$
$= (3 \times 5a) - (\,3 \times 2\,) = 15a - 6$

Substitution:

- Replace letters with values
- Always apply BIDMAS
- Use brackets for powers
- Fractions? Work out the top and bottom separately.

Factorising expressions:

- The opposite (inverse) of expanding
- Answer will include brackets
- Look for common factors (numbers and algebra)
- Always choose the HCF

e.g. 1 $10a + 15 = 5\,(2a + 3\,)$
10 & 15 both in the 5 times table
$10a = 5 \times 2a$ $\quad 15 = 5 \times 3$

Vocabulary

Expression	Made up of numbers and/or letters but no equal sigh
Equation	Contains and 'equals' sign and at least one variable
Formula	Shows the **relationship** between **two or more variables**
Identity	An equation which is true for all possible values of the variable.

Q& A

2a + 5a – a	6a
4p + 2q -3p + 5	$4p - 3p + 2q + 5 = p + 2q + 5$
2a x 4b	$2 \times a \times 4 \times b = 2 \times 4 \times a \times b = 8ab$
$3a^2 + 5a + 4a^2$	$7a^2$ + 5a (a and a^2 are NOT like terms)
Find the value of $5b^2 + 1$ given that: $a = 2, b = 3, c = -5$	$5 \times 2^2 + 1 = 5 \times 4 + 1 = 20 + 1 = 21$
Evaluate $7b - 3c$, given that: $a = 2, b = 3, c = -5$	$7 \times 3 - 3 \times -5 = 21 - -15 = 21 + 15 = 36$
Expand $3(5a - 2)$	$3(5a - 2) = (3 \times 5a) - (3 \times 2)$ $= 15a - 6$
Expand & Simplify $(a + 4)(a + 2)$	$(a + 4)(a + 2)$ $= a^2 + 2a + 4a + 8$ $= a^2 + 6a + 8$
Factorise $6x + 15$	Find the HCF for 6 and 15 (3) outside the brackets, then work out what you need to multiply 3 by to get 6 and 15. ANS : $3(2x + 5)$

Key Facts & Formula

Simplifying

Means grouping *'like terms'* together

$3e + 6r - e + 5t$

$2e + 11t$

If there is no sign in front of the term, it is *POSITIVE*

Expand

Expand $3(x + 5)$

Claw $3(x + 5) = 3x + 15$

Box

	x	+5
3	$3x$	+15

$3x + 15$

Expand & Simplify

$2(4m + 3) + 3(5m + 2)$

$8m + 6 + 15m + 6$

$23m + 12$

BIDMAS

Gives the order we carry out operations Brackets, Indices, Divide, Multiply, Add and Subtract.
If there are just + and – in the expression, you wok from left to right.

MathsWatch References

33,34, 35	Simplifying Expressions
75	BIDMAS
93	Expanding Brackets
94	Simple Factorisation
95	Substitution
134	Expanding and Simplifying Expressions
136	Rearranging Formula

KNOWLEDGE ORGANISER PARTICLE MODEL OF MATTER Year 10

State	*Particle arrangement*	Properties
Solid	*Packed in a regular structure. Strong forces hold in place so cannot move.*	Difficult to change shape.
Liquid	*Close together, forces keep contact but can move about.*	Can change shape but difficult to compress.
Gas	*Separated by large distances. Weak forces so constantly randomly / moving.*	Can expand to fill a space, easy to compress.

Density	*Mass of a substance in a given volume*	Density = mass ÷ volume.

Pressure

PHYSICS ONLY: when you do work the temperature increases e.g. pump air quickly into a ball, the air gets hot because as the piston in the pump moves the particles bounce off increasing kinetic energy, which causes a

Reducing the volume of a fixed mass of gas increases the pressure.

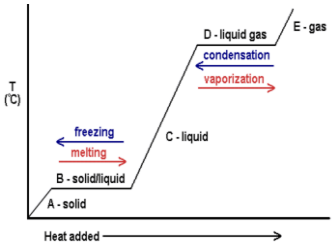
Halving the volume doubles the pressure.

PV = constant.

$P_1V_1 = P_2V_2$

Change of state

Freezing	Liquid turns to a solid. Internal energy decreases.
Melting	Solid turns to a liquid. Internal energy increases.
Boiling / Evaporating	Liquid turns to a gas. Internal energy increases.
Condensation	Gas turns to a liquid. Internal energy decreases.
Sublimation	Solid turns directly into a gas. Internal energy increases.
Conservation of mass	When substances change state, mass is conserved.
Physical change	No new substance is made, process can be reversed.



Kinetic theory of gases

Pressure of a fixed volume of gas increases as temperature increases (temperature increases, speed increases, collisions occur more frequently and with more force so pressure increases).

Temperature of gas is linked to the average kinetic energy of the particles.

If kinetic energy increases so does the temperature of gas.

No kinetic energy is lost when gas particles collide with each other or the container.

Gas particles are in a constant state of random motion.

P = m ÷ V

Specific Heat Capacity	*Energy needed to raise 1kg of substance by 1°C*	Depends on: • Mass of substance • What the substance is • Energy put into the

Change in thermal energy = mass **X** specific heat capacity **X** temperature change.

$\Delta E = m \mathbf{X} c \mathbf{X} \Delta\theta$

Internal energy		
	Energy stored inside a system by particles	Internal energy is the total kinetic and potential energy of all the particles (atoms and molecules) in a system.
	Heating changes the energy stored within a system	Heating causes a change in state. As particles separate, potential energy stored increases. Heating increases the temperature of a system. Particles move faster so kinetic energy of particles increases.

Internal energy and energy transfers

Specific Latent Heat	*Energy needed to change 1kg of a substance's state*
Specific Latent Heat of Fusion	*Energy needed to change 1kg of solid into 1 kg of liquid at the same temperature*
Specific Latent Heat	*Energy needed to change 1kg of liquid*

Energy needed = mass **X** specific latent heat.

Energy needed = mass **X** specific latent heat.

ΔE= m X L

1. Metal oxides

Metals and oxygen	*Metals react with oxygen to form metal oxides*	**magnesium + oxygen → magnesium oxide** $2Mg + O_2 \rightarrow 2MgO$
Reduction	*This is when oxygen is removed from a compound during a reaction*	e.g. metal oxides reacting with hydrogen, extracting low reactivity metals
Oxidation	*This is when oxygen is gained by a compound during a reaction*	e.g. metals reacting with oxygen, rusting of iron

2. The reactivity series

Metals form positive ions when they react	*The reactivity of a metal is related to its tendency to form positive ions*	The reactivity series arranges metals in order of their reactivity (their tendency to form positive ions).
Carbon and hydrogen	*Carbon and hydrogen are non-metals but are included in the reactivity series*	These two non-metals are included in the reactivity series as they can be used to extract some metals from their ores, depending on their reactivity.
Displacement	*A more reactive metal can displace a less reactive metal from a compound.*	Silver nitrate + Sodium chloride → Sodium nitrate + Silver chloride

potassium	most reactive	K
sodium		Na
calcium		Ca
magnesium		Mg
aluminium		Al
carbon		C
zinc		Zn
iron		Fe
tin		Sn
lead		Pb
hydrogen		H
copper		Cu
silver		Ag
gold		Au
platinum	least reactive	Pt

	Reactions with water	Reactions with acid
Group 1 metals	*Reactions get more vigorous as you go down the group*	*Reactions get more vigorous as you go down the group*
Group 2 metals	*Do not react with water*	*Observable reactions include fizzing and temperature increases*
Zinc, iron and copper	*Do not react with water*	*Zinc and iron react slowly with acid. Copper does not react with acid.*

3. Extraction of metals and reduction

Extraction using carbon

Metals less reactive than carbon can be extracted from their oxides by reduction.	For example: **zinc oxide + carbon → zinc + carbon dioxide**

Unreactive metals, such as gold, are found in the Earth as the metal itself. They can be mined from the ground.

4. Oxidation and reduction

Oxidation and reduction in terms of electrons (HT ONLY)

Oxidation Is Loss (of electrons)
Reduction Is Gain (of electrons)

Ionic half equations (HT only)

For displacement reactions	*Ionic half equations show what happens to each of the reactants during reactions*	For example: The ionic equation for the reaction between iron and copper (II) ions is: $Fe + Cu^{2+} \rightarrow Fe^{2+} + Cu$ The half-equation for iron (II) is: $Fe \rightarrow Fe^{2+} + 2e^-$ The half-equation for copper (II) ions is: $Cu^{2+} + 2e^- \rightarrow Cu$

5. Reactions of acids and metals

HT ONLY: Reactions between metals and acids **are redox reactions** as the metal donates electrons to the hydrogen ions. This displaces hydrogen as a gas while the metal ions are left in the solution.

Reactions with acids	*metal + acid → metal salt + hydrogen*	**magnesium + hydrochloric acid → magnesium chloride + hydrogen** **zinc + sulfuric acid → zinc sulfate + hydrogen**

6. Soluble salts

Soluble salts	***Soluble salts can be made from reacting acids with solid insoluble substances (e.g. metals, metal oxides, hydroxides and carbonates).***
Production of soluble salts	***Add the solid to the acid until no more dissolves. Filter off excess solid and then crystallise to produce solid salts.***

6. Neutralisation of acids and salt production

sodium hydroxide + hydrochloric acid → sodium chloride + water

calcium carbonate + sulfuric acid → calcium sulfate, + carbon dioxide + water

Neutralisation	***Acids can be neutralised by alkalis and bases***	An **alkali** is a soluble base e.g. metal hydroxide. A **base** is a substance that neutralises an acid e.g. a soluble metal hydroxide or a metal oxide.

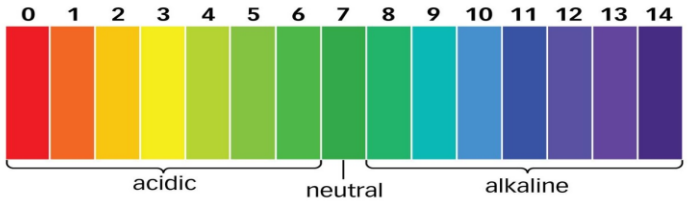
Acid name	Salt name
Hydrochloric acid	Chloride
Sulfuric acid	Sulfate
Nitric acid	Nitrate

7. The pH scale and neutralisation

In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:
$H^+ + OH^- \rightarrow H_2O$

Acids	***Acids produce hydrogen ions (H^+) in aqueous solutions.***
Alkalis	***Aqueous solutions of alkalis contain hydroxide ions (OH^-).***

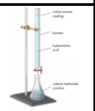
You can use universal indicator or a pH probe to measure the acidity or alkalinity of a solution against the pH scale.



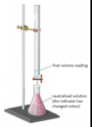
8. Titrations (Chemistry only)

Titrations are used to work out the precise volumes of acid and alkali solutions that react with each other.

1. Use the pipette to add 25 cm^3 of alkali to a conical flask and add a few drops of indicator.



2. Fill the burette with acid and note the starting volume. Slowly add the acid from the burette to the alkali in the conical flask, swirling to mix.



3. Stop adding the acid when the end-point is reached (the appropriate colour change in the indicator happens). Note the final volume reading. Repeat steps 1 to 3 until you get consistent readings.

Calculating the chemical quantities in titrations involving concentrations in mol/dm^3 and in g/dm^3 (HT ONLY):

$2NaOH(aq) + H_2SO_4(aq) \rightarrow Na_2SO_4(aq) + 2H_2O(l)$

It takes 12.20cm^3 of sulfuric acid to neutralise 24.00cm^3 of sodium hydroxide solution, which has a concentration of 0.50mol/dm^3.

Calculate the concentration of the sulfuric acid in g/dm^3

0.5 mol/dm^3 x (24/1000) dm^3 = 0.012 mol of NaOH

The equation shows that 2 mol of NaOH reacts with 1 mol of H_2SO_4, so the number of moles in 12.20cm^3 of sulfuric acid is **(0.012/2) = 0.006 mol of sulfuric acid**

Calculate the concentration of sulfuric acid in mol/ dm^3

0.006 mol x (1000/12.2) dm^3 =0.49mol/dm^3

Calculate the concentration of sulfuric acid in g/ dm^3

H_2SO_4 = (2x1) + 32 + (4x16) = 98g

0.49 x 98g = 48.2g/dm^3

9. Strong and weak acids (HT ONLY)

Strong acids	***Completely ionised in aqueous solutions e.g. hydrochloric, nitric and sulfuric acids.***
Weak acids	***Only partially ionised in aqueous solutions e.g. ethanoic acid, citric acid.***
Hydrogen ion concentration	***As the pH decreases by one unit (becoming a stronger acid), the hydrogen ion concentration increases by a factor of 10.***

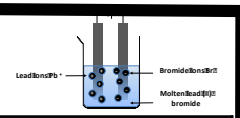
Process of electrolysis	***Splitting up using electricity***	When an ionic compound is melted or dissolved in water, the ions are free to move. These are then able to conduct electricity and are called electrolytes. Passing an electric current though electrolytes causes the ions to move to the electrodes.
Electrode	***Anode Cathode***	The positive electrode is called the anode. The negative electrode is called the cathode.
Where do the ions go?	***Cations Anions***	Cations are positive ions and they move to the negative cathode. Anions are negative ions and they move to the positive anode.

<u>Higher tier:</u> You can display what is happening at each electrode using half-equations:

At the cathode: $Pb^{2+} + 2e^- \rightarrow Pb$

At the anode: $2Br^- \rightarrow Br_2 + 2e^-$

10. Electrolysis



At the negative electrode	Metal will be produced on the electrode if it is less reactive than hydrogen. Hydrogen will be produced if the metal is more reactive than hydrogen.
At the positive electrode	Oxygen is formed at positive electrode. If you have a halide ion (Cl^-, I^-, Br^-) then you will get chlorine, bromine or iodine formed at that electrode.

The ions discharged when an aqueous solution is electrolysed using inert electrodes depend on the relative reactivity of the elements involved.

Extracting metals using electrolysis

Metals can be extracted from molten compounds using electrolysis.

This process is used when the metal is too reactive to be extracted by reduction with carbon.

The process is expensive due to large amounts of energy needed to produce the electrical current.

Example: aluminium is extracted in this way.

YEAR 10 – MICHAELMAS TERM- GEOGRAPHY- RIVERS

LEARNING - LOVING - LIVING

What is a drainage basin?

1. A drainage basin is an area of land drained by a river and its tributaries.

How does a long profile of a river change downstream?

1. In the mountains the velocity of the river varies.
2. Water is sallow and turbulent as tere is frictiojn with the bed and bank slowing the rate of flow down
3. Were the channel becomes narrow it is deeper and the flow is muc faster.
4. Further downstream, the river's channel is much deeper because of tributaries bringing additional water.
5. Less water is in contact with the bed and banks so velocity increases, even though the gradient is less steep than in the mountains.

River processes – how the river is shaped through erosion, transportation and deposition.

Erosion

There are two main types of erosion: **Vertical** and **Lateral.** However, four processes can be identified. These are:

1. **Hydraulic action** – the force of the water hitting the river bed and banks.
2. **Abrasion** – when the load carried by the river repeatedly it's the bed or banks dislodging particles into the flow of water.
3. **Attrition** – when stones carried by the river knock against each other, gradually making stones smaller and less rounded.
4. **Solution** – when the river flows over limestone or chalk, the rock is slowly dissolved. This is because it is soluble in mildly acidic river water.

Transportation

The material transported by a river is called its load. The four main processes of transportation are:

1. **Traction** – large particles rolled on the river bed.
2. **Saltation** – 'bouncing' of particles too heavy to suspend.
3. **Suspension** – small sediment held in the river.
4. **Solution** – dissolved load.

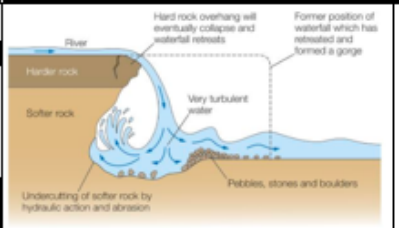
The size and total amount of load that can be carried will depend on the river's rate of flow – its **velocity.**

Deposition

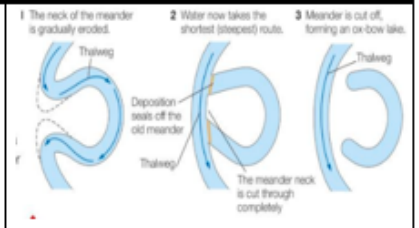
Deposition occurs when the velocity of the water decreases. It no longer has enough energy to transport its sediment so it is deposited.

1. Larger rocks tend to be deposited in the upper course of a river. They are only transported for b=very short distances, mostly by traction, during periods of very high flow.
2. Finer sediment is carried further downstream, mostly held in suspension. This material will be deposited on the river bed and banks, where velocity is slowed by friction.
3. A large amount of deposition occurs at the river mouth, where the interaction with tides, along with the very gentle gradient, greatly reduces the river's velocity.

Waterfall formation



Meanders and ox-bow lakes



	Keywords	Definition
1.	**Source**	The starting point of a river.
2.	**Mouth**	The area where the river flows into the sea.
3.	**Long profile**	A line showing the gradient of a river from source to mouth.
4.	**Cross profile**	A cross-section drawn across the river valley.
5.	**Weathering**	The breaking up of rocks that occurs in situ (the same place) with no major movement taking place
6.	**Erosion**	The breaking up of rocks that is the result of movement.
7.	**Sediment**	Material moved and deposited in a different location.
8.	**Bedload**	Larger particles moved along a river bed.
9.	**Meander**	A large ben in the river.
10.	**Waterfall**	A steep fall of water along the course of a river.
11.	**Flood plain**	Area of flat land which is prone to flooding
12.	**Estuary**	Wide part of a river were it nears the sea.
13.	**Velocity**	Speed of flow, usually measured in metres per second.
14.	**Discharge**	The volume of water at a given point in a river (measured in cumecs)
15.	**Flash floods**	Rapidly rising river levels leading to a rapidly developing flood situation.

Flood risk

Factors increasing flood risk

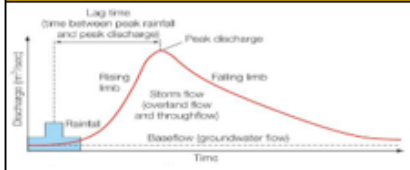
Physical factors

1. **Precipitation** – torrential rainstorms can lead to sudden flash floods as river channels cannot contain the sheer volume of water.
2. **Geology** – impermeable rocks such as shales and clays encourage water to flow overland and into river channels.
3. **Steep slopes** – in mountain environments steep slopes encourage rapid transfer of water towards river channels.

Human factors

1. **Urbanisation** – building on a floodplain creates impermeable surfaces. Water is transferred quickly which makes flooding more likely
2. **Deforestation** – much of the water that falls on trees is evaporated or stored on leaves. When trees are removed much more water reaches the river channel leading to flooding.
3. **Agriculture** – soil left exposed to the elements allows surface runoff. When land is ploughed the water flows along the furrows rapidly into channels.

Flood Hydrograph



1. **Lag time** – time between peak rainfall and peak discharge
2. **Rising limb** – rapid increase of discharge in river
3. **Peak discharge** – total volume of water.
4. **Falling limb** – discharge decreasing in river
5. **Baseflow** – amount of water that is normal to the river channel.

Managing floods

Hard engineering

Flood prevention methods using hard engineering include:

1. **Afforestation** to increase interception, reduce soil erosion and use up some of the water.
2. Construction of **reservoirs** to regulate water flow
3. **Land use zoning** – ensuring new developments are constructed away from flood risk areas.
4. **Controlled flooding** to reduce serious floods downstream.
5. **Channel straightening** to speed up flow of water.
6. Creation of **wetland areas** for water storage.
7. **Channel widening** to increase capacity.
8. **Embankments** to enlarge the channel and reduce the likelihood of flooding
9. **Concrete lined channel** – semi-circular in shape to increase speed of flow.
10. **Flood relief channels** to bypass urban areas to reduce the threat from flooding.

Soft engineering

Flood reduction methods using soft engineering include:

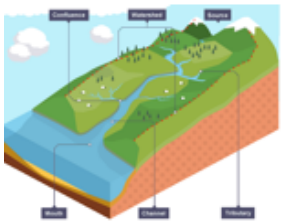
1. **Wetlands and flood storage areas** – areas that are deliberately allowed to flood to form flood storage areas.
2. **Floodplain zoning** – restricts certain land uses in locations on flood plain. Land next to river channels is used as farmland for pasturing instead of housing and industry.
3. **River restoration** – when the course of a river has been changed artificially, river restoration changes it back to its original course.
4. **Flood preparation**

This includes: flood watch, flood warning and severe flood warning.

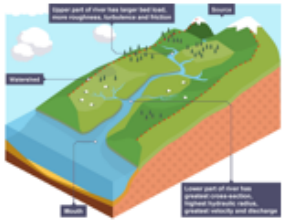
5. **The Environment Agency** makes maps identifying areas at risk. They encourage people to make plans which may include:
   - 5a) Planning what to do
   - 5b) Using flood gates
   - 5c) Using sandbags.

YEAR 10 – MICHAELMAS TERM- GEOGRAPHY- RIVERS

LEARNING - LOVING - LIVING



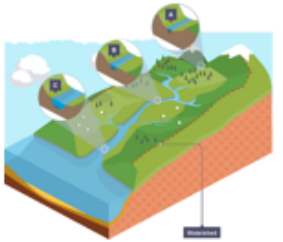
A **drainage basin** is the area of land around the river that is drained by the river and its tributaries.
- **Watershed** - the area of high land forming the edge of a river basin
- **Source** - where a river begins
- **Mouth** - where a river meets the sea
- **Confluence** - the point at which two rivers meet
- **Tributary** - a small river or stream that joins a larger river
- **Channel** - this is where the river flows



A **long profile** is a line representing the river from its source (where it starts) to its mouth (where it meets the sea). It shows how the river changes over its course.

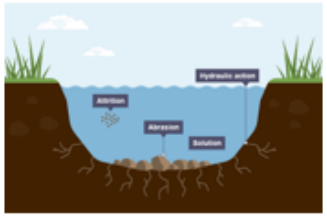
Upper course - in the upper course, where the river starts, there is often an upland area. The river's load is large in the upper course, as it hasn't been broken down by erosion yet.

Lower course - in the lower course, the land is a lot flatter. The river's load is fine sediment, as erosion has broken down the rocks.



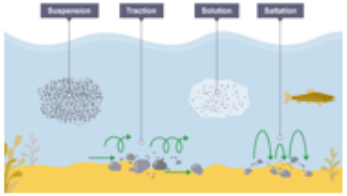
channel and valley at a certain point along the river's course.
A - as the river flows downhill there is an increase in vertical erosion. The channel is shallow and narrow because there is not a lot of water in the channel.
B – as the river flows into the middle course, there is some vertical erosion but more lateral erosion. The channel is wider and deeper as a result.
C - in the lower course there is a lot less erosion, with only some lateral erosion. The channel is at its widest and deepest.

Erosion



Erosion is the process that wears away the river bed and banks. Erosion also breaks up the rocks that are carried by the river.
- **Hydraulic action** - This is the sheer power of the water as it smashes against the river banks. Air becomes trapped in the cracks of the river bank and bed, and causes the rock to break apart.
- **Abrasion** - When pebbles grind along the river bank and bed in a sand-papering effect.
- **Attrition** - When rocks that the river is carrying knock against each other. They break apart to become smaller and more rounded.
- **Solution** - When the water dissolves certain types of rocks, e.g. limestone.

Transportation



The river picks up sediment and carries it downstream in different ways.
- **Traction** - large, heavy pebbles are rolled along the river bed. This is most common near the source of a river, as here the load is larger.
- **Saltation** - pebbles are bounced along the river bed, most commonly near the source.
- **Suspension** - lighter sediment is suspended (carried) within the water, most commonly near the mouth of the river.
- **Solution** - the transport of dissolved chemicals. This varies along the river depending on the presence of soluble rocks.

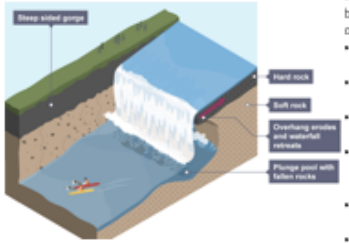
Deposition

When the river loses energy, it drops any of the material it has been carrying. This is known as deposition.
Factors leading to deposition:
- **shallow** water
- at the end of the river's journey, at the river's **mouth**
- when the **volume** of the water decreases

Landforms

Erosional Landforms
The erosional features are often found in the upper course of the river.

Interlocking Spurs
In the upper course there is more vertical erosion. The river cuts down into the valley. If there are areas of hard rock which are harder to erode, the river will bend around it. This creates interlocking spurs of land which link together like the teeth of a zip.

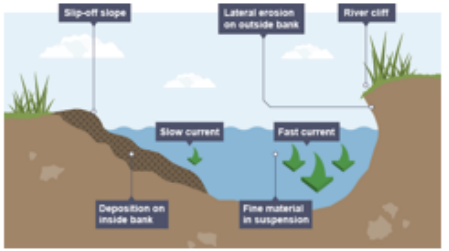


A **waterfall** is a sudden drop along the river course. It forms when there are horizontal bands of resistant rock (hard rock) positioned over exposed, less resistant rock (soft rock).
- The soft rock is eroded quicker than the hard rock and this creates a step.
- As erosion continues, the hard rock is undercut forming an overhang.
- Abrasion and hydraulic action erode to create a plunge pool.
- Over time this gets bigger, increasing the size of the overhang until the hard rock is no longer supported and it collapses.
- This process continues and the waterfall retreats upstream.
- A steep-sided valley is left where the waterfall once was. This is called a gorge.

Erosional & Depositional Landforms

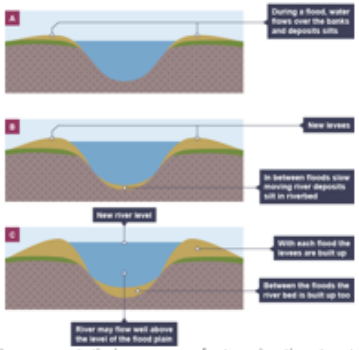
As the river makes its way to the middle course, it gains more water and therefore more energy. Lateral erosion starts to widen the river. When the river flows over flatter land they develop large bends called **meanders**.
- As a river goes around a bend, most of the water is pushed towards the outside. This causes increased speed and therefore increased erosion (through hydraulic action and abrasion).
- The lateral erosion on the outside bend causes undercutting of the bank to form a river cliff.
- Water on the inner bend is slower, causing the water to slow down and deposit the eroded material, creating a gentle slope of sand and shingle.
- The build-up of deposited sediment is known as a slip-off slope (or sometimes river beach).

Oxbow lakes
Due to erosion on the outside of a bend and deposition on the inside, the shape of a meander will change over a period of time. Erosion narrows the neck of the land within the meander and as the process continues, the meanders move closer together. When there is a very high discharge (usually during a flood), the river cuts across the neck, taking a new, straighter and shorter route. Deposition will occur to cut off the original meander, leaving a horseshoe-shaped oxbow lake.



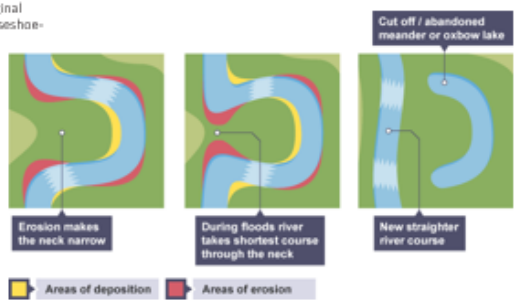
Depositional Landforms

A **floodplain** is an area of land which is covered in water when a river bursts its banks.
Floodplains form due to both erosion and deposition. Erosion removes any interlocking spurs, creating a wide, flat area on either side of the river. During a flood, material being carried by the river is deposited (as the river loses its speed and energy to transport material). Over time, the height of the floodplain increases as material is deposited on either side of the river. Floodplains are often agricultural land, as the area is very fertile because it's made up of alluvium (deposited silt from a river flood). The floodplain is often a wide, flat area caused by meanders shifting along the valley.



Levees occur in the lower course of a river when there is an increase in the volume of water flowing downstream and flooding occurs.
- Sediment that has been eroded further upstream is transported downstream.
- When the river floods, the sediment spreads out across the floodplain.
- When a flood occurs, the river loses energy. The largest material is deposited first on the sides of the river banks and smaller material further away.
- After many floods, the sediment builds up to increase the height of the river banks, meaning that the channel can carry more water (a greater discharge) and flooding is less likely to occur in the future.

An **estuary** is where the river meets the sea. The river here is tidal and when the sea retreats the volume of the water in the estuary is less reduced. When there is less water, the river deposits silt to form mudflats which are an important habitat for wildlife.



Unit 2: Topic 5a The UK's Evolving Human Landscape

Why are population, economic activity and settlements key elements of the human landscape?

How do the urban core and rural periphery compare?

	Urban core E.g.	Rural periphery E.g.
Population density	High, over 200 people per km^2	Low,1-100 people per km^2
Age structure	Young adults, single people	Older people, some single
Economic Activities	Retailing, large shops, offices, HQ's, many jobs	Farming, fishing, forestry, mining, working from home, tourism, renewable energies
Settlement	Conurbation, large town, high and low rise buildings. expensive	Market towns, villages, farms, low rise generally cheaper

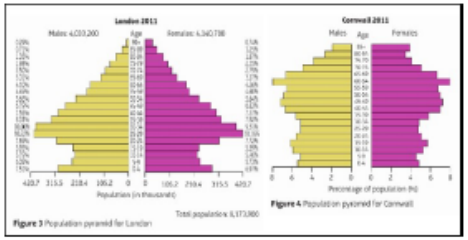
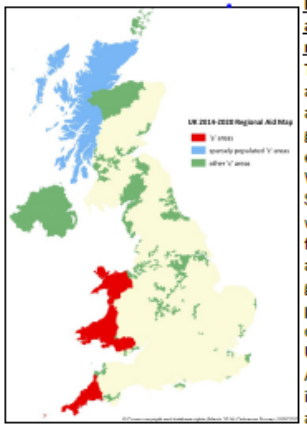


Figure 3 Population pyramid for London

Figure 4 Population pyramid for Cornwall



How are the regional disparities being reduced?

There are certain areas that qualify for assistance from the government. Assisted Areas in north Wales, north west Scotland and Cornwall are rural areas facing isolation and a lack of jobs. In general people are poorer here than other parts of the UK. Other Assisted Areas include former industrial areas such as South Wales and North-East England where a decline in coal, steel and ship building left unemployment and poverty.

What is regional development and transport infrastructure?

The EU's Regional Development Fund supports UK regions by economic regeneration for example projects connecting businesses to fast broadband enabling people to live in Cornwall and work form home. Investment in transport for example rail routes linking Manchester with Sheffield.

How does migration shape the UK economy and society?

Retirement migration

Older people moving within in a country when they retire. The SW attracts many retirement migrants because of beautiful scenery, slower pace of life, lower crime rates and a sense of community.

Rural to urban migration

Advantages	Disadvantages
Creates demand for services, shops and social activities creating jobs locally	Healthcare pressure, house price rise, young people move out

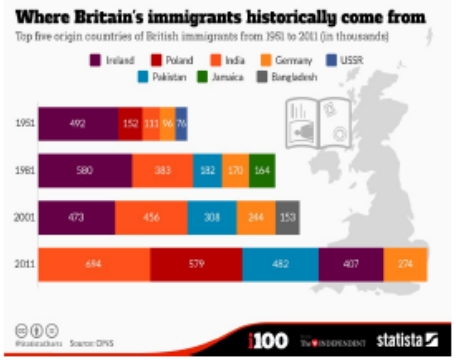
In rural areas, apart from a few jobs in farming, fishing or mining/quarrying jobs opportunities are scarce so young people leave to find better jobs in the city leaving a concentration of older people.

International migration

The UK government encouraged immigration from former British colonies in the Caribbean, India and Bangladesh during the 1950's in response to shortage of workers reaching 1million by 1971. During the 1970's there was no longer a shortage of workers and immigration was controlled by the government. Around 2004 and the enlargement of the EU saw young immigrants, 80% aged 18-34, from Eastern Europe especially Poland to cities such as London and Birmingham for jobs in industries or fruit farming. In 2014 560,000 immigrants arrived in the UK and during the period 2012-15 people fled from fighting in Syria and Afghanistan arrived in cities like Birmingham.

What are the impacts of international migration?

Advantages	Disadvantages
Source of cheap unskilled (construction) and skilled labour (doctors/nurses). Benefits of a youthful population. Introduced to new cultures and cuisines	Puts pressure on services e.g. housing, healthcare, education, social unrest



How is the UK economy changing?

There have been many changes in the UK economy in the last 50years in the primary, secondary, tertiary and quaternary sectors. These changes are best seen in two contrasting regions on the country, the NE and SE of England.

How has the North East changed?

The economy of the NE used to be dominated by heavy industry e.g. coal mining/ shipbuilding. In the last 50years this has declined due to foreign competition, high land and labour costs and end of coal deposits. In 1971, manufacturing was 40% of employment but in 2011, this was only 10%. Between 2007 – 2013, unemployment rose quickly to 8%. The contribution of the area to national GDP is only 2%. Between 2011-12, child poverty rates in Middlesbrough and Newcastle rose 39% on average. In rural areas, economy still relies heavily on agriculture. Mining, fishing and quarrying are very small scale. Manufacturing is based in urban areas but employs fewer people due to increase in machines and new technology. Manufacturing, especially chemicals, are still important but employ fewer people with improved technology and Nissan employ 4000. Tertiary activities have increased (257,000) which has reduced unemployment slightly, 22% of all employment.

How has the South East changed?

Primary industries are mainly centred on farming in rural areas with some of the most prosperous farms in Britain. Manufacturing industry is growing rapidly, mainly in urban areas and along the M4 corridor, a centre for light industries in electronic s and engineering. The region is very important for tertiary and quaternary industries in financial and business service firms. Unemployment is low,6% and prosperity is high compared to the NE.

Why is the South East so attractive to industries?

Transport—M25 motorway network and railways. 72% of UK freight was carried on roads in the south-east. It has 4 major airports e.g. Heathrow and ports e.g. Southampton.

Markets and labour— a market of 19million people, skilled labour from Oxbridge and London Universities

Political— Close to national government. Previous governments encouraged movement from London to the South East.

Geographical—transport routes radiate from London and its close to the channel tunnel giving access to Europe.

	% of UK pop	Median age	Unemployment %	Manufacturing employment 2011
NE	4	41.5	8.2	10.2
SE	14	40.8	6.0	7.2

What are the effects of Globalisation, trade and investment?

Globalisation

'The growing importance of international operations for all economic sectors and for the culture and way of life of people around the world'.

Manufacturing, tertiary and quaternary industries are being increasingly affected by decisions and events in other parts of the world. The three key elements of the global economy are:

Networks – linking countries together e.g. internet/ trading blocs

Flows – goods and services that move through networks e.g. raw materials, manufactured goods or migrant workers

Global players – organisations that have a big impact on the working of the global economy e.g. TNCs, World Bank, IMF

Privatisation

Privatisation of many UK industries e.g. steel, railways, computers, airports, docks, petroleum, electricity, water, gas and postal services.

The Effects of privatisation include:

- Increased Foreign Direct Investment (FDI) from businesses wanting to invest in the UK.
- Increased awareness of markets and increased competition
- Increased foreign ownership of UK firms
- Dividends and profits from some UK based firms going abroad
- Loss of jobs in the UK due to increased efficiency

Free trade

Firms want to and need to take part in international trade to increase their profits. Global links can significantly increase the market for a firm. Not all trade is free trade which is trade without tariffs or import duties. Some countries have high import duties to protect their industries. The UK, as part of the EU, has pursued a policy of promoting free trade with the EU to allow the free movement of goods and services which should make them cheaper.

Foreign Direct Investment (FDI)

FDI is composed of the flows of money (capital) from businesses in one country to another. The flow of finance allows the companies to become involved in the business life and markets of the receiving country – for the UK, this is the EU markets. The companies can vary from giant TNCs e.g. GlaxoSmithKline. In 2014, the largest investor in the UK was the USA. 50% of investment into the UK came from European countries. Most of the investment was in energy projects e.g. wind and nuclear or infrastructure e.g. airports and hotels.

Transnational Companies (TNCs)

TNCs are large companies that operate in a range of other countries. They are powerful players in the global economy and link up national economies in many different parts of the world. The top TNCs are involved in 3 main industries – oil, electronics and motor vehicles. Some TNCs are specialised e.g. Nestle (food & drinks) or Rio Tinto (mining) where are others e.g. Mitsubishi have a range of interests e.g. vehicles, air transport and food processing.

Crime and Punishment from 1900 to the Present	
1	The role of the government in people's lives grew as did the role of the state in enforcing the law. Social attitudes changes which led to some activities being decriminalised while others were made illegal for the first time. Development in science and technology and better methods of communication led to advances in crime prevention and detection. There has been changing attitudes about the rehabilitation of offenders.
Key events	
4	1920's – women recruited into police force.
5	**1950**- Death penalty for Timothy Evans who was hanged for murdering his wife and baby. This was a miscarriage of justice.
6	**1953**- Death penalty for Dreck Bentley. Hanged for the murder of a police officer. He had not fired the gun himself, had learning difficulties and a low mental age.
7	**1955** – Death penalty for Ruth Ellis. Hanged for the murder of her violent and abusive boyfriend.
8	**1965** – Death penalty abolished for most crimes.
9	**1967** – Sexual Offences Act
10	**1968** – Abortion Act and Race Relations Act
11	**1976** – Domestic Violence Act
12	**1980** – Police National Computer is launched.
13	**1991** – Law recognises rape within marriage as a crime.
14	**1995** – National Automatic Fingerprint Identification System and National DNA Database set up.
15	**1998**- Death penalty abolished for all crimes.
16	**2000**- Terrorism Act
17	**2005** – Criminal Justice Act raises severity of 'hate crimes'.
18	**2006** – Racial and Religious Hatred Act
19	**2015**- Modern Slavery Act
Key Concepts	
20	**Changing social attitudes** cause changes in the law.
21	**New technologies** create new crimes.
22	**Important developments in modern policing** include increased use of science and technology, more emphasis on crime prevention and increasing co-operation and co-ordination at national level.
23	In the C20th, there has been **increasing specialisation in policing**.
24	During the C20th, there has been **changing attitudes about the purpose of prisons and types of punishments** and the death penalty has been abolished.

Key Words		
25	**Homosexuality**	Sam sex relationships were decriminalised in 1967.
26	**Sexual Revolution**	Growing liberal attitudes towards sex in the 1960's.
27	**The Crime**	A crime motivated by prejudice against the victim's race, gender, disability or sexual orientation.
28	**Homophobic**	Prejudice against people who are gay.
29	**Multicultural**	Lots of different nationalities living in an area/country.
30	**Injunction**	An order issued by a court to forbid a particular action or behaviour. An injunction can include instructions to stay away from a person or a place.
31	**Coercive behaviour**	Using force or threats towards a partner.
32	**Abortion**	To end a pregnancy.
33	**Social crimes**	Crimes in society that many accept to a degree e.g. tax evasion, copyright.
34	**Terrorism**	The use of violence, fear and intimidation to publicise a political cause.
35	**IRA**	Irish Republic Army – wanted political independence from the rest of the UK.
36	**Al-Qaeda and Isis**	Islamic Fundamentalist Terrorist Organisations.
37	**People Trafficking**	People from poorer countries being brought to the UK and forced to work for very low wages or no wages.
38	**Cybercrime**	This is any crime that is carried out using the internet and other digital technologies.
39	**Fraud**	Impersonating other people or businesses to make money illegally.
40	**Copyright**	This is the right of an artist or company to be recognised and aid as the creator of their work.
41	**Extortion**	Making people pay money by using threats or blackmail.
42	**Biometric Testing**	His uses unique body characteristics like fingerprints or eye patterns to restrict access to date, places an buildings.
43	**Neighbourhood Watch**	A local committee of people who raise awareness about crime and encourage neighbours to keep an eye on each others' property.
45	**Vigilance**	To keep a watchful eye for danger.
46	**Active citizenship**	People taking an active role in their community in order to improve it.
47	**Abolished**	Banned or made illegal.
48	**Liberal**	Open to new ideas.
49	**Age of criminal responsibility**	The age at which a person is judged to be mature enough to understand their actions. A person who has reached the age of criminal responsibility can be prosecuted and punished for their crimes.
50	**Borstal**	A prison for boys only.
51	**Electronic Tagging**	The court orders a person convicted of a crime to wear an electronic tag to monitor their movements.
52	**Anti-Social Behaviour Order**	A court places restrictions on what a person can do.
53	**Community service**	People convicted of minor offences are ordered to do supervised work to improve their local community.
54	**Restorative justice**	A criminal meets the victim of their crime to talk about what they have done and the impact it has had on others.
55	**Conscription**	Compulsive military service.
56	**Conscientious Objectors**	Men who refused to fight.
57	**Pacifists/ absolutists**	People who believe that fighting is wrong.
59	**White feather**	A symbol of cowardice.
60	**Propaganda**	Deliberate mass persuasion.
61	**Peace Pledge Union**	An organisation founded in the 1930's that opposed was and sought to find peaceful means to resolve conflicts around the world.
63	**Joint enterprise**	When an accomplice to a crime is held jointly responsible for the crime. Christopher Craig was the accomplice of Derek Bentley but he couldn't be hanged as he was 16.
64	**Diminished responsibility**	Not being fully in control of your actions, for example, because of mental illness.

YEAR 10 – MICHAELMAS TERM- HISTORY – WHITECHAPEL, C.1870-C.1900

LEARNING - LOVING - LIVING

Whitechapel	
1	The lives of inhabitants of Whitechapel was tough and the policing of such an area was difficult too.
Key events	
2	**1829** – Founding of the Metropolitan Police.
3	**1840's** – Irish immigration to the East End
4	**1842** – A detective Department added to the MET.
5	**1878** – A CID Department set up.
6	**1873** - Great Depression **–** brought widespread unemployment and poverty.
7	**1875** – Artisan's Dwelling Act; a slum clearance programme. Peasbody Estate opened in 1881.
8	**1880's** – A wave of Russian immigration as a Jew was blamed for the assassination of Tsar Alexander II.
9	**1885** – Dynamite Saturday – When the Fenians (Irish Nationalists) launched attacks on central London landmarks.
10	**1887** – 'Bloody Sunday' when the Metropolitan Police attempted to stop a demonstration in Trafalgar Square.
11	**1888** – Serial murders of Jack the Ripper. .
12	**1890** – The Houses of the Working Classes Act 0 opened the way for the new London County Council to begin housing development schemes to replace slums with mass low cost housing. The Public Health Amendment Act - gave more powers to local councils to improve toilets, paving, rubbish collection and other sanitary services.
Key Concepts	
13	**Living conditions** – The poor of Whitechapel were herded together in noisy and filthy courts. Prostitutions, unemployment and poverty were common place.
14	**Statistics –** These can present historians with numerous problems.
15	**Anti Police feeling –** There was a feeling that the police favoured the middle and upper classes against the poor. Also police were expected to manage a variety of tasks that could be termed social work tasks.
16	**Attempts to improve living conditions** - Peasbody Estate and Bernado's.
17	**Anti Jewish feeling** – By 1888, the Jewish population of parts of Whitechapel had grown to 95% of the total. Jewish settlers were resented as they tended to find work quickly, they would accept lower wages, they ran tailoring businesses on the sweatshop model, they worked Sundays and the religious and cultural rules about food and clothing made them stand out.
18	**Jack the Ripper** – The murderer of 5 prostitutes (Mary Ann Nichols, Annie Chapman, Elizabeth Stride, Catherine Eddowes, and Mary Jane Kelly) in the Whitechapel area in 1888 was known by this name. The cases highlighted the challenges and inadequacy of the existing police force and shone a spotlight on the troubled area of Whitechapel.

Key Words		
19	**Whitechapel**	A district in the East End of London. Ruled by gangs. Immigrant area. High levels of homelessness, poverty and crime.
20	**Workhouse/ doss house**	Offered a bed and food in return for hard labour.
21	**Residuum**	A criminal underclass born to steal, lie and rob.
22	**Charles Booth**	Shipping owner and led investigations into poverty
23	**H Division of the Metropolitan Police**	Had to investigate crime in Whitechapel
24	**Home Secretary**	Based in Westminster. He had little control over local police forces outside of London but the Metropolitan Police reported directly to him.
25	**Watch Committee**	A group of local politicians or law professionals set up to monitor the work of police forces.
26	**Manpower**	There were only 13.319 men in the MET in a population of just over 5 million. Only 1,383 were available for duty at any one time.
28	**Penny Dreadful**	A Victorian tabloid.
29	**Sir Charles Warren**	Metropolitan Police Commissioner from 1886. `
30	**Metropolitan Police**	Investigated crime in London and was controlled directly by the government. Did not patrol the City of London which had its own police force.
31	**Sanitation**	Conditions associated with public health, such as running water and sewerage systems.
32	**Pollution**	Wind carried smoke and stinking gas fumes through the maze like streets of the East End.
33	**Rookeries**	Overcrowded slum areas characterised by dirt, disease and crime.
34	**Lodging house**	Squalid accommodation which was rented for 8 hour sleeping shifts a day.
35	**Bernado's**	An attempt to prevent young people from going into the workhouse. It's motto was 'No Destitute Child Ever Refused Admission'.
36	**Navies**	Men who did labouring jobs on canals, roads, railways and as dockers.
37	**Special Branch**	Designed to counter Irish terrorism and protect London from an Irish nationalist group called the Fenians.
38	**Pogroms**	A Russian word describing a government supported attack on the Jews.
39	**Anarchy**	A political movement that opposes all forms of organised government. Mikhail Bukanin was the leading anarchist of the time. Associated with Eastern Europeans.
40	**Socialist**	Someone who believes that poor people would get a better deal if the government nationalised (took over) important industries and services and ran them for the good of all – not for profit.
41	**Capitalist**	Someone who believes individuals should be free to own property and businesses and make a profit.
42	**Blacklegging**	Working during strikes.
43	**Anti-semitism**	Hatred against Jews.
44	**Sensationalist**	Describing events in a deliberately exaggerated style to shock and impress.
45	**Satirical**	Using humour or exaggeration to mock current affairs.
46	**Stereotyping**	Assuming all members of a group are alike – for example, looking similar, or having similar views.
47	**Beat**	The area the policeman is to patrol.
48	**Prostitute**	A person who offers sexual activity in return for a payment.
49	**Brothel**	A house where one or more prostitutes work.
50	**Gin palace**	Extravagant, richly decorated gas lit shop selling gin across the counter. Gin was a cheaply available, potent alcohol, popular with the poor. The light and splendour made a stark contract with the dark, dirty streets.
51	**Opium den**	A place where the drug opium was sold and smoked. Despite the name, the places could vary in appearance from an elegant bar room to a dark cellar.
52	**Protection rackets**	Gangs like the Bessarabian Tigers and the Odessians demanded protection money from small business owners.
53	**Frederick Abberline**	Inspector who led the investigation into the Ripper murders.
54	**Lunatic asylum**	The Victorian term for a psychiatric hospital.
55	**Alibi**	Proof that an accused person was in some other place at the time a crime was committed.
56	**Post mortem**	A detailed examination of a person's body to try and discover the cause of death.
57	**Dissecting**	Cutting an animal or human body into parts, usually as part of a scientific investigation.
58	**Forensic**	Using scientific methods and techniques to investigate crime.
59	**Bertillon system**	Combined physical measurements, photography and record keeping to identify repeat criminals.
60	**Mug Shot**	A head and shoulders photograph, typically taken of a person after arrest.
61	**Whitechapel Vigilance Committee**	Set up by businessmen due to the police's lack of progress in catching Jack the Ripper.

BOX 1: Key words.

1. **Afterlife** – Life after death; the belief that existence continues after physical death.
2. **Euthanasia** – Greek for 'a good death'. Sometimes known as 'mercy killing'. Killing or permitting the death of a seriously ill person.
3. **Evolution** – The process by which different living creatures have developed from earlier less complex forms during the history of the earth.
4. **Abortion** – When a pregnancy is ended so that it does not result in the birth of a child.
5. **Quality of life** – The extent to which life is meaningful and pleasurable.
6. **Sanctity of life** – The belief that life is precious, or sacred. For many religious believers, only human life holds this special status.
7. **Bioethics** – the process of deciding what is good and acceptable in medicine.
8. **Situation ethics** – judging the rightness or wrongness of an act on a case-by-case basis. Basing moral decision-making on the most loving thing.
9. **Hospice** – A place where those with terminal illness go to die with dignity. Palliative care – focuses on relieving pain and suffering.
10. **Purgatory** – A Catholic place of waiting to have sins forgiven before entering heaven.

BOX 2: Life after Death

Christians believe in resurrection and everlasting life. Jesus modelled what would happen to our mortal bodies by rising from the dead. On **Judgement Day** God will decide who enters paradise and who doesn't. **Dualists** believe the body will decay upon death and the soul, which is immortal, will be reunited with God in heaven. **Evangelicals** argue we will have a bodily resurrection like Jesus. St Paul says it will be a spiritual body.

The Parable of the Sheep and Goats reveals that Jesus will separate those who followed Him (sheep) from those who rejected Him (goats).

Humanists say we can reflect on our own lives. There is nothing after death. We should live morally for ourselves and others, not God.

BOX 3: Heaven and Hell

For **Christians**, heaven is to be in God's presence. **Evangelicals** argue it is a real place. **Liberal Christians** say heaven is symbolic. Heaven is believe to be a reminder there are consequences to actions and thoughts.

For **Christians** hell is to be in constant torment cut off from all things good and loving. **Evangelicals** argue it is a real place. **Liberal Christians** say hell is symbolic. A reminder there are consequences to actions and thoughts.

The **Roman Catholic Church** teaches that after death there is a state of **Purgatory**. This is a place where some people who have sinned are purified in a 'cleansing fire', after which they are accepted into Heaven.

Humanists say there is no heaven or hell, the dead live on through the memories of the living.

BOX 4: The scientific origins of the world

Charles Darwin in the 1800s explained how living creatures have evolved through a process of gradual change over millions of years.

Natural selection was observed on the Galapagos Islands where finches (birds) had different shaped beaks on different islands to suit the environment and eat food. These characteristics happened by chance but helped them survive and pass on these traits to their offspring. **'The survival of the fittest.'** Over time, this process led to new species of animals. It is how humans evolved.

Theory of the Expanding Universe Lemaitre argues that the universe is expanding outwards and possibly into infinity. Lemaitre also argues that time and space began 15 billion years ago from a singularity which was infinitely hot and dense and expanded causing sub-atomic particles and atoms to appear. He referred to this argument as hypothesis of the 'primeval atom' or the 'cosmic Egg'. Stars and planets were formed, including Earth.

BOX 5: The sanctity of life

Most people believe to have **life is special** but religious people believe this because it is God's gift. This belief has an impact on issues of **bioethics** such as **abortion** and **euthanasia**.

Christians believe God is involved in His creation and has made everyone unique. He made humankind in His own image which means all life is sacred. Only G-d should take life away. Quakers oppose the death penalty and war. God chooses when life begins. Catholics disagree with IVF and contraception.

Humanists argue there is no soul or afterlife as this is the only life we get. Therefore life is special and its purpose is to make us and others happy.

The quality of life

Some argue this is more important than the sanctity of life. If we are free from pain and can live in freedom and dignity then we have a good quality of life. If pain outweighs pleasure, then we are have a poor quality of life. Measuring our quality of life is difficult as we all experience different tolerance to pain and pleasure. Government look at living conditions, health, education, the economy and human rights to determine the quality of life. This belief impacts medical ethics where some argue if the quality of life has deteriorated then someone should be allowed to die (**euthanasia**).

BOX 6: Sources of Authority

"I am the resurrection and the life; he who believes in me will live, even if he dies". -John 11:25

"Before I formed you in the womb I knew you" - Jeremiah 1: 5

"Don't you know that your body is the temple of the Holy Spirit"-
1 Corinthians 6:19

"You shall not kill" 10 Commandments - Exodus 20:13

BOX 7: Euthanasia

The four types of euthanasia:
Voluntary (asks to die)
Active (tries to end their life)
Passive (treatment is removed)
Involuntary (forced death)
Usually the poor **quality of life** and suffer from incurable degenerative diseases is the reason someone may want to end their life. Euthanasia is **illegal in the UK** but legal in countries like Switzerland where the ***Dignitas*** clinic exists.

Christians mostly disagree stating the **sanctity of life** argument or see it as murder/ going against the 10 Commandments and also believe there is purpose in suffering. Many Christians see **Hospices** as an alternative. **Liberal Christians** might agree to life support being turned off or withholding treatment as it is the most loving thing (**situation ethics**).

Humanists support legalising **voluntary euthanasia** and not just for the terminally ill. People should be able to die with dignity and when faced with a poor **quality of life**.

BOX 8: Abortion

Life begins at different points for people. Some argue it is at **conception** (when the sperm meets the egg). Other when the baby can be felt in the womb. Others it's when the nervous system and organs develop. At **24 weeks** the baby has viability and can survive if born. This is the **UK legal limit** for an abortion where 2 doctors must agree. For some it is at birth. **Pro-life** people believe abortion is always wrong as the foetus has a right to life. UK law however does not recognize an unborn child as a person**. Pro-choice** people believe a women should have a right to choose what happens to her body.

Catholics do not allow abortions due to the sanctity of life. Life begins at conception. It is murder and against the 10 Commandments.

Church of England opposes abortion for social reasons but not if the mother's life is in danger, or it affects the quality of her life (e.g rape).

Humanists look for the least amount of harm to be brought to all concerned. There is not one view, but many are liberal and pro-choice.

Outdoor Activities	A leisure, recreation or sport activity undertaken in a natural , rural space that can be done as an individual or part of a group.
Types of Outdoor Activities	
Water Sports	**Canoeing** – paddling a canoe kneeling down with a single-bladed paddle can be done in the sea, on rivers, canals or lakes. **Kayaking** - sitting in a kayak uses a double bladed paddle, can be done in the sea, on rivers, canals or lakes. **Sailing** – wing acting on sales to move the boat on the surface of the water. Boats range in size, can be done in a dinghies for one person, or yachts with up to groups of 20. **Windsurfing** – uses a board with a sail attached to it, usually learned on flat lakes – variations include: kitesurfing, wakeboarding and kiteboarding.
Trekking	**Trekking** - is a long journey undertaken on foot in areas where there are usally no forms of transport. Walking usually for a couple of days on footpaths that are unchartered, in challenging areas such as on hills and mountains. **Hill Walking** – involves walking in areas that are mountainous or hilly. **Orienteering** – activity that requires skill of using a map and compass to navigate from a point to a point in unfamiliar terrain, whilst moving at speed. Participants are given specially prepared orienteering map which they use to find control points as quickly as possible. This involves decide the best route between control points and the best pace to use on different terrains. **Mountaineering** – is climbing and trekking in the mountains. Hiking in the mountains can also be a simple form of mountaineering if it includes some scrambling over rocks or simple rock climbing.
Climbing	Ascent of steep inclune using hands and feet usually with the special aid of specialist equipment such as ropes, harness to protect he climber from falling. Normally involves two or more people working together in a process called belaying. Examples include – **free climbing, ice climbing, rock climbing, indoor climbing, and bouldering.**
Caving	**Caving** – often referred to as potholing is an exploration of caving systems. Caves come in different shapes and sizes, but they all lack light. It often involves some rock climbing, squeezing into small spaces and crawling.
Cycling	**Mountain biking** – riding bicycles off road, often over rough terrains. These style bikes have thicker tyres for extra grip and suspension to handle the bumps. **Trail Biking** – using a mountain bike on short steep and highly technical and specially constructed trails.
Snow Sports	**Skiing –** a participant uses skiis to guide about on the snow – two main types alpine (downhill skiing) and Nordic (cross contry) **Snowboarding** – riding down a snowy slope with a board that is attached to the rider's shoes. **Snowshoeing** – form of hiking in snow with specialized shoes.
Gliding	**Gliding** – air based activity where pilots fly unpowered aircraft using natural currents of rising air to remain airbourne. Gliders are launched by powered aircraft or winced from airfields. Hang Gliding – piolot flies a lighter than air craft called a hang glider. The pilot is attached y a harness and controls the craft by shifting their body weight. Paragliding – flying a canopy adapted from a parachute – most paragliders launch themselves off mountain tops and use the air currents to glide along.

Provision	
Provision	Refers to how easy it is for people to participate and where each activity takes place. Provision is affected by several factors, including: media; location and finance.
Outdoor Activity Providers	
National Sport Centres	There are three national sport centres as part of Sport England's policy. Plas y Brenin is an example of one of these in Wales offering a range of outdoor activities such as mountaineering, mountain biking and paddling.
Voluntary Organisations	E.g. the Scounts – voluntary organization that offers young people opportunities to enjoy fun and adventure in the outdoors. Duke of Edinburgh – a school led initiative where you take part in outdoor challenges such as orienteering and trekking in order to achieve awards – bronze, silver and gold.

Value	
Value	The general benefits of participating in outdoor activities may be summarized under four headings – physical, social, emotional and intellectual.

Examples include:

Increased confidence
Enjoyment and Challenge
Improved health and fitness
Greater environmental awareness
Increased motivation
Opportunity to socialize with others
Team building skills
Decision making skills
Learning how to plana nd organise
Improved communication skills with others.

YEAR 10 –ART – MIX MEDIA OUTCOMES

Keyword	Description
7. Embroider	Using sewing and thread to add decoration
2. Stencil	How an image is separated into tones to allow for processes such as spray painting
3. Highlight	Areas of light in an image/ the areas on a surface upon which there is the highest intensity of light being reflected
4. Distort	pull or twist out of shape. "a grimace distorted her fine mouth"
5. Proportion	The correct, attractive, or ideal relationship between one thing and another or between the parts of a whole. "perceptions of colour, form, harmony, and proportion"
6. Contemporary	living or occurring at the same time.
7. Collage	a piece of art made by sticking various different materials such as photographs and pieces of paper or fabric on to a backing.

B. Command Words

Keyword	Description
8. Refine	To improve, enhance and change elements of your work for the better.
9. Response	To produce personal work generated by a subject, theme, starting point, or design brief.
10. Investigate	To enquire into, examine in depth, and/or analyse the relevance of a chosen subject and associated sources.
11. Research	To study in detail, discover and find information about.

C. Technique

C1. **Grid method** requires you to measure and draw a grid over an image
C2 The Grid method provides accurate spacing for your image
C3 Acrylic Paint is a paint that will dry as a plastic
C4 Acrylic paint can be used to paint bold layered painting as it dries quickly
C5 Carbon Paper is paper that is coated in carbon to be used for transferring images

D. Types of Equipment and Materials

Keyword	Description
D1 Round Brushes	Round **brushes** are the most **versatile** and widely used brushes. Their shape makes them suitable for small details and delicate lines. They can also be used to make broader strokes and washes.
D2 Flat Brush	**Flat brushes** aren't as versatile as round brushes but they're useful for blending and creating washes
D3 Spotter Brush	**Spotter brushes** are small round brushes with shorter bristles to give extra control. They are excellent for precise details.
D4 Wash Brush	**Wash brushes** are similar to flat brushes, but are much wider. They are suitable for blending or applying lots of paint.




YEAR 10 – MICHAELMAS TERM- FOOD AND NUTRITION –FOOD PROVENANCE

You must be able to demonstrate knowledge and understanding of the environment issues associated with food and its production. Demonstrate knowledge and understanding of where ingredients are grown, reared and caught. Have a clear understanding of different farming methods and their effect on the environment. Demonstrate knowledge and understanding of the impact that food has on local and global markets. Demonstrate a knowledge of primary and secondary processing. Know and understand how processing affects the sensory and nutritional properties of ingredients.

Key words

1. Transportation
2. Food Miles
3. Food Origin
4. Climate Change
5. Carbon Footprint
6. Recycling
7. Packaging
8. Landfill
9. Food Waste
10. Composting
11. Sustainable food

Keywords

1. Traceability
2. Field to fork
3. Barn reared animals
4. Organic
5. Genetically Modified (GM)
6. Free range
7. Hydroponics
8. Fish Farms
9. Intensive farming

Keywords

1. Green house gases (GHG's)
2. Crop rotation
3. Fairtrade
4. Red Tractor
5. Climate change
6. CFC's
7. Sustainability of food
8. Deforestation

Keywords

1. Homogenised
2. Primary and Secondary processing
3. Pasteurised
4. Skimmed
5. Semi skimmed
6. Ultra heat treated (UHT)
7. Sterilised
8. Evaporated, Condensed

Keywords

1. Preservation
2. Temperature
3. Drying
4. Chemical Preservation
5. Modified Atmospheric Packaging
6. Vacuum packaging, Irradiation

Quick Test

1. Explain what food miles are.
2. Give two ways that fish stocks can be made more sustainable than intensive farming.
3. What are the benefits are free range farming>
4. Why is it important that the origins of food can be traced?
5. What does the flag on the Red Tractor logo mean?
6. How does Fairtrade support farmers in developing countries?
7. Which two gases contribute to global warming?
8. What is the outer skin on the wheat grain called?
9. What is homogenised milk?
10. What type of flour is used to make pasta?
11. Which vitamins may be lost during irradiation?
12. How does vacuum packaging differ to MAP?

Key Points

1. Food and packaging waste contributes to greenhouse gases (GHG's)
2. Seasonal and sustainable foods address many environmental issues.
3. MSC – Marine Stewardship Council = Seafood can be traced back to a certified sustainable fishery.
4. Food miles are the distance food travels from its point of origin to your table. Recycling and producing less waste can help reduce carbon emissions.
5. Nearly a third of all food produced ends up in landfill sites where it gives off methane gas as it decomposes.
6. Cheaper foods are ones that are GM/intensively farmed
7. Best quality protein foods are ones where the welfare of the animals has been considered.
8. Hydroponic farming is the production of food using specially developed nutrient rich liquids rather than soil.
9. Free range farming allows animals to access outdoor areas as part of their life. Increased demand for fish stocks has seen stocks diminishing in the wild due to over fishing.
10. Barn reared animals live in an environment similar to intensive farming
11. Under EU law, all foods need to be traceable from field to fork.
12. Carbon emissions and global climate change affect food and water supplies. Sustainable food production ensures less negative impact on the environment and the farmers.

YEAR 10 — MICHAELMAS TERM- ENGINEERING

LEARNING - LOVING - LIVING

Materials

Ceramic

	**Glass**— A hard, brittle substance, typically transparent or translucent, made by fusing sand with soda and lime and cooling rapidly.
	**Concrete**— A building material made from a mixture of broken stone or gravel, sand, cement, and water,
	**Terra cotta**—Unglazed, typically brownish-red earthenware, used chiefly as an ornamental building material and in modelling.

Plastic

	Acrylic (polymethyl methacrylate), (of synthetic resins and textile fibres) made from polymers of acrylic acid or acrylates.
	High impact polystyrene (HIPS) (of plastic or a similar substance) able to withstand great impact without breaking.
	Polyvinyl chloride (PVC) A tough chemically resistant synthetic resin made by polymerizing vinyl chloride and used for a wide variety of products including pipes, flooring, and sheeting.

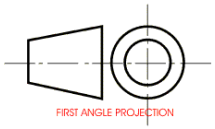
Print

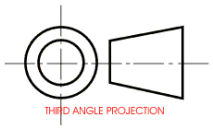
	**Aluminium**—A metal used in domestic utensils, engineering parts, and aircraft construction
	**Pewter**—A gray alloy of tin with copper and antimony (formerly, tin and lead).
	**Copper**—A red-brown metal, a very good conductor of heat and electricity and is used especially for electrical wiring

Wood

	**Pine**—An evergreen coniferous tree used for making furniture, doors and floors.
	**Plywood**—A type of strong thin wooden board consisting of two or more layers glued and pressed together
	**Medium density fibreboard (MDF)** - A type of board made from compressed sawdust usually bonded with formaldehyde resin

Orthographic projection





Title Block — Contents

Author	Drawing number	Date
Title	Materials	Scale
Sheet Number	System of measurement	Projection

Properties and characteristics of materials

	Absorbency	To be able to soak up liquid easily.
	Strength	The capacity of an object or substance to withstand great force or pressure.
	Elasticity	The ability of an object or material to resume its normal shape after being stretched or compressed; stretchiness.
	Plasticity	The quality of being easily shaped or moulded.
	Malleability	To be able to be hammered or pressed into shape without breaking or cracking.
	Density	The quantity of mass per unit volume of a substance
	Effectiveness	The degree to which something is successful in producing a desired result; success.
	Durability	The ability to withstand wear, pressure, or damage.

Environmental Factors

Recyclability
We should recycle as many materials as possible, as this reduces the amount of new materials required to manufacture the products we want.

A vast range of materials can be recycled particularly paper, card, and many plastics.

Reusability
Where possible, we should reuse products or their components / parts when they are disassembled, at the end of their life cycles.

Products should be designed, so that they can be used again or at least their parts, with minimal reprocessing.

Sustainability
This means using less non-renewable resources.
Reducing the amount of raw materials we use to manufacture products.

Reduce wastage of raw materials used in the manufacture of products.

Ecological footprint.
The ecological footprint measures human demand on nature, i.e., the quantity of nature it takes to support people or an economy.

The ecological footprint is defined as the biologically productive area needed to provide for everything people use:.

SI Base Units

unit	abb	physical quantity	Smallest - - - - - - - - - - Largest
metre	m	length	Micrometer, millimeter, centimeter, meter
second	s	time	Microsecond, millisecond, seconds
kilogram	kg	mass	Milligram, gram, kilogram
ampere	A	electric current	Micro amp, milliamp, amp, kiloamp
kelvin	K	thermodynamic temperature	Kelvin, degrees Celsius
candela	cd	luminous intensity	Microcandela, millicandela, candela
mole	mol	amount of substance	Nanomole, micromole, millimole, mole

Engineering Disciplines

Mechanical	Hydraulics, gears, pulleys
Electrical	Power station, household appliances, integrated circuits
Aerospace	Aircraft, space vehicles, missiles
Communications	Telephone, radio, fibre optic
Chemical	Pharmaceuticals, fossil fuels, food and drink
Civil	Bridges, roads, rail
Automotive	Cars, motorcycles, trains
Biomedical	Prosthetics, medical devices, radiotherapy
Software	Applications, systems, programming

Understand the making Process

1	Preparation	Drawing, CAD, sketches, plans.
2	Marking Out	Pencil, scribe, steel rule, tri square, marking gauge, calipers, centre punch.
3	Modification	Saw, jigsaw, scroll saw, laser cutter, pliers, hammer, drill, file, glass paper.
4	Joining	Riveting gun, spanner, screwdriver, hot glue, gun , soldering iron, nail gun.
5	Finishing	Hand sander, glass paper, disc sander, buffing wheel, polish, spray paint, varnish.

Health & Safety Legislation

Health and Safety at work Act	Personal Protective Equipment	Manual Handling Operations	Control of Substances Hazardous to Health	Reporting of Injuries RIDDOR

Flowchart: a graphical representation of an algorithm. Each step in the algorithm is represented by a symbol. Symbols are linked together with arrows showing the order in which steps are executed.
Pseudocode is structured code like language, not a programming language, it is a simple way of describing a set of **instructions**.
Bubble sort: works its way through the list, making comparisons between a pair of adjacent items. Any items found to be in the wrong order are then exchanged.
Merge sort: a technique called divide and conquer. The list is repeatedly divided into two until all the elements are separated individually. Pairs of elements are then compared, placed into order and combined.
Linear search: is sequential as it moves through the list item by item.
Binary search: Search a sorted array by repeatedly dividing the search interval in half. Begin with an interval covering the whole array. If the value of the search key is less than the item in the middle of the interval, narrow the interval to the lower half. Otherwise narrow it to the upper half. Repeatedly check until the value is found or the interval is empty.
Decomposition: It involves breaking down a complex problem or system into smaller parts that are more manageable and easier to understand.
Variable: They also provide a way of labeling data with a descriptive name, so our programs can be understood more clearly by the reader and ourselves.
Sequence: the order that commands are executed by a computer, allows us to carry out tasks that have multiple steps.
Selection: Sometimes you only want some lines of code to be run only if a condition is met, otherwise you want the computer to ignore these lines and jump over them. This is achieved using IF statements.
Iteration: Sometimes you want the computer to execute the same lines of code several times. This is done using a loop.

Bubble sort: Works by repeatedly going through the list to be sorted, comparing each pair of adjacent elements. If the elements are in the wrong order they are swapped, else they are left in position.

Insertion sort: Sorts data one element at a time. The algorithm takes one data item from the list and places it in the correct location in the list. This process is repeated until there are no more unsorted items in the list. More efficient than bubble sort.

Merge sort: This is a two-stage sort. Firstly the list is split in half into sub lists repeatedly. The algorithm stops splitting the lists when each list has only 1 element in it. The second stage involves repeatedly merging the lists in order until there is only one sub list remaining.

Programming techniques

- **Sequence**
- **Selection**
  - IF… ELSE…
- **Iteration**
  - For & While
- **Basic string manipulation**

Data types

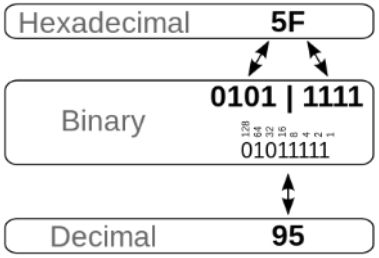
- **Integer** e.g. 23
- **Real** e.g. 23.7
- **Character** e.g. A or 5
- **String** e.g. A546TH
- **Boolean** e.g. TRUE or FALSE.

- **Arrays**
  - one dimensional arrays
  - two dimensional arrays

Comparison Operator	What it means
==	Is equal to
< >Or !=	Is not equal to
<	Is less than
>	Is greater than
<=	Islessthanor equal to
>=	Is greater than or equal to

Number Bases

- Binary – base 2
- Denary – base 10
- Hexadecimal – base 16
- Hex to denary
- Hex to binary

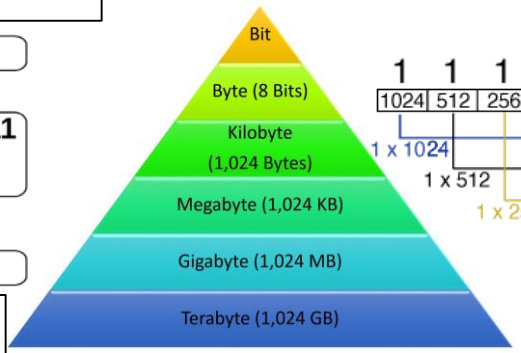


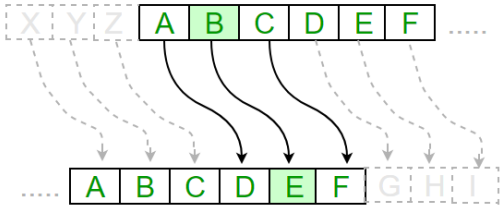
Using Binary

- Why? (transistors etc.)
- Binary to denary
- Denary to binary
- Units:
  - Nibble
  - Byte
  - Kilobyte
  - Megabyte
  - Gigabyte
  - Terabyte
- Sign and Magnitude
- 2's Complement

Binary Manipulation

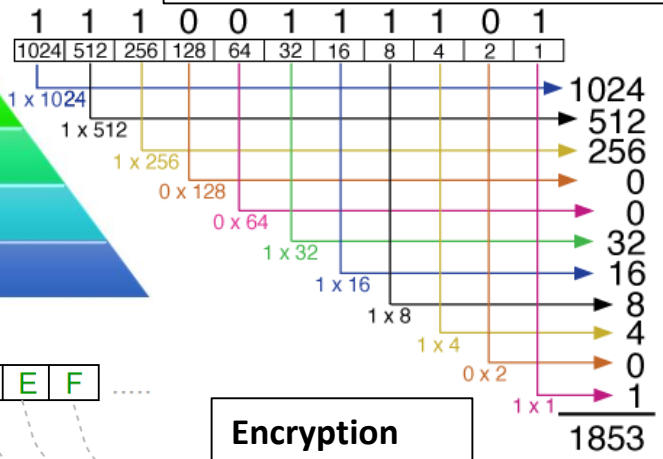
- Addition
- Subtraction
- Logical Shifts
- Arithmetic Shifts

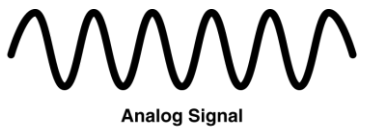




Sound

- Analogue to Digital
- Metadata
- Sample rate & bit depth
  - Quality of sound
  - File size
- Bit rate





Images

- Stored in binary
- Metadata
- Bitmap images
  - Pixels
  - Colour depth
  - Resolution
- Vector images
- File sizes

Encryption

Why encrypt?

Caesar Cipher

Compression

Algorithms and formats

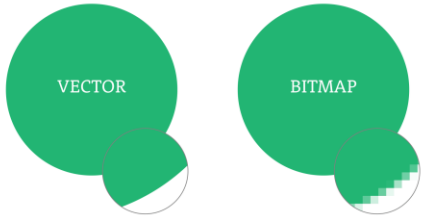
Lossy (JPEG/MP3…)

Lossless (RLE, FLAC, .zip)

Effect on file size & transfer speed

Artefacts

Features	Lossy	Lossless
Image reconstruction	Quality degraded compare to original image source	Quality remain the same with original image
Compression size rate	High compression up to 50% of original data file size	2:1 , the most is 3:1 ratio



YEAR 10 – MICHAELMAS TERM - DRAMA – BRECHT

LEARNING - LOVING - LIVING

Devised: Explanation

Devising is a way of creating a drama without starting with a script. It usually begins with an idea and a stimulus. Actors and designers research, improvise, develop and shape scenes until they have a drama ready for an audience. The play you create will use either the techniques from a theatre practitioner (e.g. Brecht or Stanislavski) or in the style of a theatre genre (e.g. Physical Theatre or Theatre in Education). You will research your chosen topic, create a performance and document the development in a devising log portfolio. You will then write an evaluation of the final performance. This knowledge organiser will focus on Brecht.

Higher Level Challenge

In order to gain the most marks in your performance exam and your portfolio remember to consider and refer to the following contexts:

- **Social Context**: A social setting or environment which people live.
- **Historical Context**: A part of history which has happened (this could be when the play was set)
- **Political Context**: The political party in power at the time and how this impacted on society.
- **Cultural Context**: How culture can effect behaviour, choices and decisions for characters.

Devised: How Assessed

Performance
A performance live on stage which is designed to realise your original intentions.

Devising Log : Portfolio
A record of the creation and development of your ideas to communicate meaning through and the development of your play.

Devising Log: Evaluation
An analysis and evaluation of your individual contribution to the devising process and the final devised piece.

Bertolt Brecht – A Brief Background

The playwright Bertolt Brecht was born in 1898 in the German town of Augsburg. After serving as a medical orderly in the First World War and appalled by the effects of the war, he went first to Munich and then to Berlin in pursuit of a career in the theatre. That period of his life came to an end in 1933 when the Nazis came to power in Germany. Brecht fled and during this period the Nazis formally removed his citizenship, so he was a stateless citizen.

In 1941 Brecht became resident in the USA but returned to Europe in 1947 after appearing before the House Un-American Activities Committee. Ostensibly against communism, this committee also targeted intellectuals. By the time of his death in 1956, Brecht had established the **Berliner Ensemble** and was regarded as one of the greatest theatrical practitioners.

As an artist, Brecht was influenced by a diverse range of writers and practitioners including Chinese theatre and Karl Marx. The turmoil of the times through which Brecht lived gave him a strong political voice. The opposition he faced is testament to the fact that he had the courage to express his personal voice in the world of the theatre. He also had an original and inspired talent to bring out a dynamic theatrical style to express his views.

His most acclaimed work is *Mother Courage and Her Children*. Although it's set in the 1600s, the play is relevant to contemporary society and is often regarded as one of the finest anti-war plays. *Fear and Misery of the Third Reich* is Brecht's most overtly anti-fascist play. This work analyses the insidious way the Nazis came to power.

Why is Brecht so important?

Bertolt Brecht was a **theatre practitioner**. He made and shaped theatre in a way that had a huge impact upon its development. Many of his ideas were so revolutionary that they changed the theatrical landscape forever. Modern theatre owes a lot to his methods.

When naturalistic theatre was at its height and acted as a mirror to what was happening in society, he decided to use it as a force for change. He wanted to make his audience think and famously said that theatre audiences at that time "hang up their brains with their hats in the cloakroom".

In naturalistic or **dramatic theatre** the audience care about the lives of the characters onstage. They forget their own lives for a while and escape into the lives of others. When an audience cries for a character or feels emotion through the events happening to them it's called catharsis.

Brecht was against cathartic theatre. He believed that while the audience believed in the action onstage and became emotionally involved they lost the ability to think and to judge. He wanted his audiences to remain objective and distant from emotional involvement so that they could make considered and rational judgements about any social comment or issues in his work. To do this he used a range of theatrical devices or techniques so that the audience were reminded throughout that they were watching theatre; a presentation of life, **not** real life itself. His kind of theatre was called **Epic theatre**. He called the act of distancing the audience from emotional involvement the **verfremdungseffekt.**

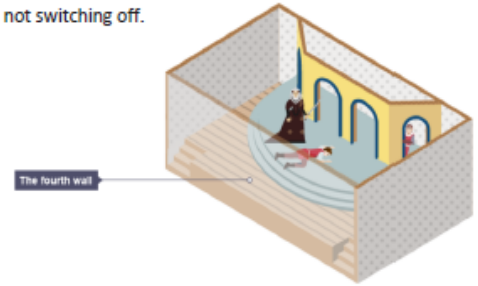
The 'V' effect

Many people speak of alienating the audience (making them separate from the action) but **verfremdungseffekt** actually translates more closely to 'distancing.' However, it's still often called the **alienation** effect or is shortened to the 'v' effect and there are many ways of using it.

Brecht definitely wanted his audience to remain interested and engaged by the drama otherwise his message would be lost. It was **emotional investment** in the characters he aimed to avoid.

His approach to theatre suits work which has a political, social or moral message. Perhaps you want the audience to consider the meaning in a **parable** (a story with a wider moral message). You might want to explore a theme or issue and make your audience consider varying viewpoints or sides to an argument. If so you can learn a lot from the distancing devices used in Brechtian theatre.

Epic theatre (Brechtian theatre) breaks the **fourth wall**, the imaginary wall between the actors and audience which keeps them as observers. They are active members of the theatrical experience as they are kept thinking throughout, not switching off.



Want to know more? Turn over to learn about how to create the 'v' effect using Brechtian Devices.

Brechtian devices to create the 'v' effect

A theatrical **device** is a method or technique used onstage which has an aim or purpose. The aim when using the 'v' effect is to ensure that the audience are constantly reminded that they're watching a piece of theatre. Brecht used the techniques below to alienate the audience causing the 'v' effect.

Political Message
Brechtian plays have a political message.

Narration
Narration is used to remind the audience that what they're watching is a presentation of a story. Sometimes the narrator will tell us what happens in the story before it has happened. This is a good way of making sure that we don't become emotionally involved in the action to come as we already know the outcome. There are two types of narration:

1. **In role**
   The character narrates in first person For example "My name is Little Red Riding Hood. I live in the forest".
2. **Third Person/Out of role/All Knowing**
   Commenting upon a character as an actor is a clear way of reminding the audience of theatricality. The narrator speaks in third person. For example "This is Little Red Riding Hood.. She lives in the forest".

Speaking the Stage Directions
This device was used by Brecht more frequently in rehearsal than performance. It helps distance the actor from the character they're playing. It also reminds the audience that they're watching a play and forces them to study the actions of a character in objective detail.

Direct Address and Step Out
Speaking directly to the audience breaks the fourth wall and destroys any illusion of reality. An example would be the moment where Grusha pleads to save baby Michael in *The Caucasian Chalk Circle* by Brecht: I brought him up, shall I also tear him to bits? I can't.

Placards
A placard is a sign presented onstage. Using placards might be as simple as holding up a card or banner. Multimedia or a PowerPoint slideshow can also be used for this effect. The musical, *Miss Saigon*, for example, used a slideshow to demonstrate the loss of lives in the Vietnam War which was highly effective. What's important is that the information doesn't just comment upon the action but deepens our understanding of it. For example, a married couple are arguing and the wife is very upset. If the actress held up a placard saying 'I'm miserable' that wouldn't tell us anything about the character that we didn't already know. However, if her placard said 'I'm having an affair' or 'I've never loved him' the audience would be forced to consider other aspects of their relationship and to think about deeper reasons behind her tears. Placards can also help the audience to consider wider contexts, for example, the wife could hold up a placard that says facts about divorce "50% of married couples apply for divorce" Placards can also be used to identify changes the movement from one episode to the next.

Symbolic Props
Often one item can be used in a variety of ways. A suitcase might become a desk, or a car door or a bomb.

Episodes
Brecht called scenes 'episodes', with each scene being relatively self-contained.

Minimal set / costume / props
Set, costume and props are all kept simple and representational. Elaborate costumes might mean that the sense of theatre, of pretending to be something else, was lost.

Shock Tactics
Brecht would often try to shock the audience so that they would really consider his political message.

Multi-roling
Multi-roling is when an actor plays more than one character onstage. The differences in character are marked by changing voice, movement, gesture and body language but the audience can clearly see that the same actor has taken on more than one role. This means the audience are more aware of the fact that they are watching a presentation of events. Cross-sex casting is also possible in Epic theatre as we don't need to suspend our disbelief.

Split-role
This is where more than one actor plays the same character. For instance, the actor playing the main character might rotate from scene to scene. This keeps that character representational and inhibits emotional involvement and attachment on the part of the audience.

Stylised Lighting
Brecht believed in keeping lighting simple as he didn't want the production values to overshadow the message of the work. He believed in using harsh white light as this illuminates the truth. However, many modern productions do use lighting effects. The important thing is that the audience still see the theatre, so often they will see production personnel, such as backstage crew, in action on the stage rather than hidden.

Spass
Spass literally translates as 'fun'. Brecht wanted to make his audience think. He realised that while we are laughing we are also thinking. Brechtian work isn't boring and it's definitely not always serious either. Even if the message itself is serious Brecht realised that comedy could be an excellent way of engaging the audience and forcing them to think about issues. Spass was also used to break the tension. For example, a very serious work addressing suicide might break the action by creating a parody of an American advert: Are you feeling low? Depressed? Think there's no way out? Then you need new 'End it All'...The poor taste of this would be shocking for an audience. But it actually highlights the pain of depression through contrast and black comedy. The audience will laugh and then question why they laughed.

Gestus
Gestus, another Brechtian technique, is a clear character gesture or movement used by the actor that captures a moment or attitude rather than delving into emotion. So every gesture was important and exaggerated. Brecht didn't want the actors to be the character onstage, only to show them as a type of person. For example, the boss who is corrupt and smoking a fat cigar as his workers starve is representative of every boss who profits through the exploitation of others. For this reason Brecht will often refer to his characters by archetypal names, such as 'The Soldier' or 'The Girl'. So we judge the character and their situation, rather than just empathising with them. Gestus is also gesture with social comment. For example, a soldier saluting as he marches across a stage is a gesture. But if he was saluting as he marched over a stage strewn with dead bodies, it would be Gestus as a social comment about the type of person he represents.

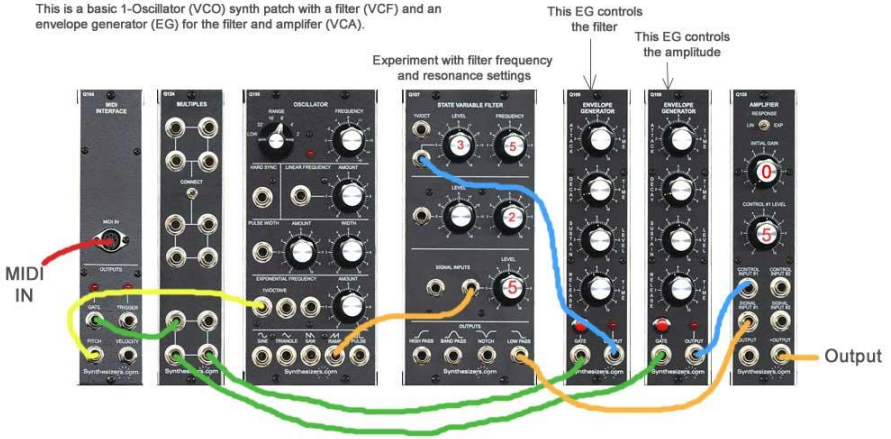
Song, Nursery Rhyme, Dance and Movement
This reminds the audience of the fact they are watching a play. Often in Brechtian theatre the style of the music and the lyrics jar, they don't seem to fit together in style. This distances the audience further. Brecht used melodies that are upbeat and joyous, yet the lyrics are sinister and dark (example 'Mack the Knife' from The Threepenny Opera. Brecht also used well known nursery rhymes and changed the lyrics to deepen the audience's thoughts and have an impact on how they felt about certain political views.

Ensemble
All members of the cast working together on behalf of the play, rather than emphasising individual actors or characters.

KEYWORDS

1- Synthesiser: An electronic **musical** instrument that generates audio signals that may be converted to sound.
2- Filters: An electrical circuit that emphasizes or eliminates some frequencies from a signal. **Filters** are used in electronic **music** to alter the harmonic content of a signal, which changes its timbre.
3-ADSR: An acronym that stands for Attack, Decay, Sustain, Release and is a **means** to replicate those respective elements of a sound. It is especially used in sound designing with electronic **music** instruments.
4-Oscillator: A repeating waveform with a fundamental frequency and peak amplitude and it forms the basis of most popular synthesis techniques today. Aside from the frequency or pitch of the **oscillator** and its amplitude, one of the most important features is the shape of its waveform.
5-Sampler: allows **music** to be made out of any sound recorded by the user, rather than relying on tones generated by oscillators, computer chips, white noise or other synthesiser **technology**.
6-Routing: There are times when you may want to **route** (send) groups of channels to another channel. An auxiliary is simply a channel that is configured to allow the outputs of other channels to be **routed** to its inputs.
7-Effects: Processes applied to a signal to alter its **sound** quality in some way, or the devices used to do so. Common **effects** include reverb, delay, chorus, distortion, flange and phasing.
8-Inserts an **insert** is an access point built into the mixing console, allowing the audio engineer to add external line level devices into the signal flow between the microphone preamplifier and the mix bus.
9-Automation: a DAW (Logic Pro X, Pro Tools, Ableton, etc.) automatically perform tasks over time, particularly moving knobs, faders, and switches for you.
10- Mixing: The process of blending all the individual tracks in a recording to create a version of the song that sounds as good as possible – the "mix"
13-Plug-in: An audio **plug**-in, in computer software, is a **plug**-in that can **add** or enhance audio-related functionality in a computer program. Such functionality may include digital signal processing or sound synthesis.
14-Velocity: A measure of how rapidly and forcefully a key on a keyboard is pressed when the player initially presses the key.
16- Fader: a device for gradually increasing or decreasing the level of an audio signal.
17- Master fader: The fader, which controls the main output(s) of the console during mixdown.

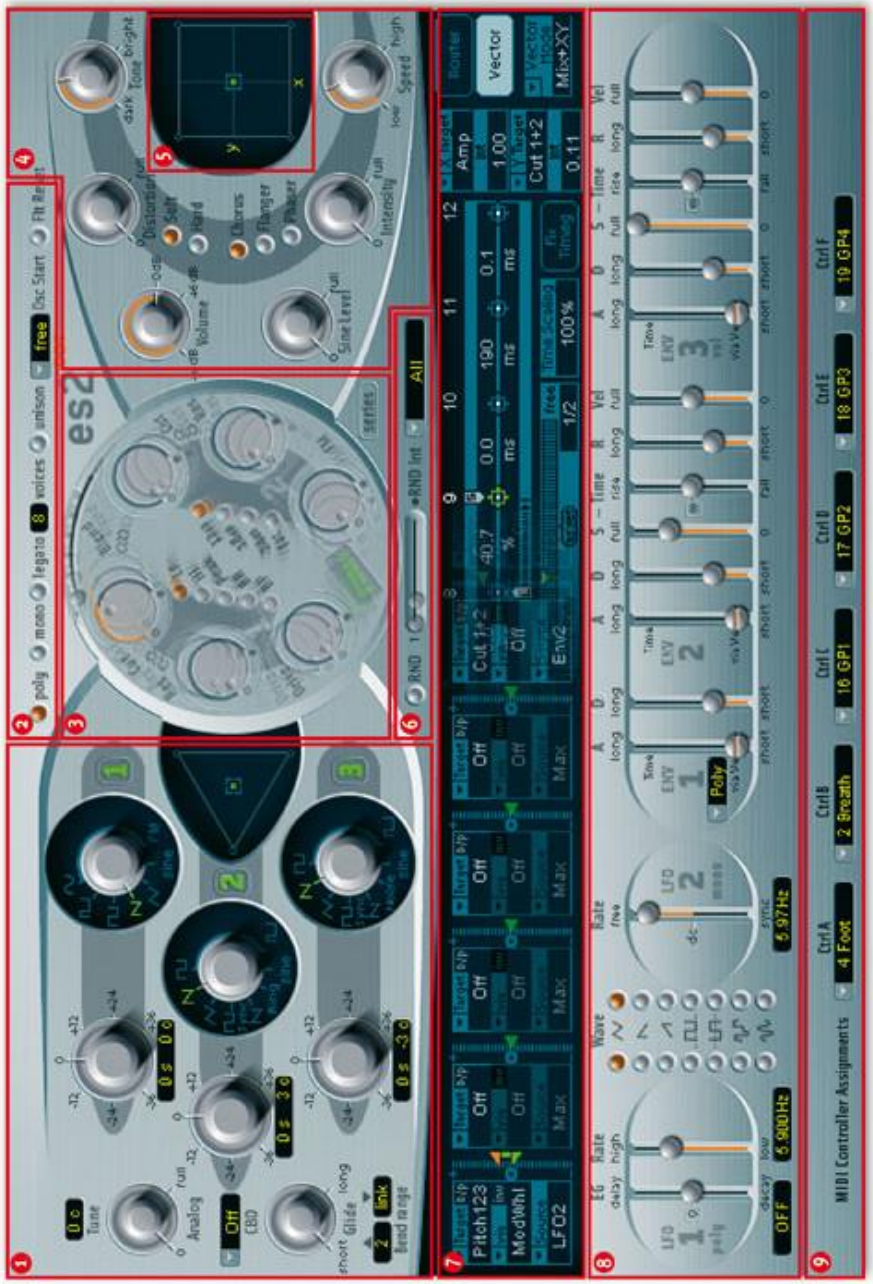
Basic Synthesizer Patch



What are the similarities and differences between HARDWARE synthesisers (old-fashioned machines) and SOFTWARE synthesisers (computerized – part of the DAW)?

How does an understanding of the old system help you to better understand the computerized version?

Sequencers
1 - Oscillator section – An **oscillator** is a repeating waveform with a fundamental frequency and peak amplitude and it forms the basis of most popular synthesis techniques today. Aside from the frequency or pitch of the **oscillator** and its amplitude, one of the most important features is the shape of its waveform. * *ES2* has three oscillators and each oscillator has a slightly different role with all three having a familiar line-up of waveforms. * The Oscillator Mix Field (the triangular pad) is used to crossfade between the three oscillators; when the locator is central, an equal mix of all three is sent to the filters.
2 - Keyboard mode - Here, as with most software and hardware synths, you can control how the keyboard input will affect the synth's output: * There are the usual poly, mono and legato modes. * Unison mode can be engaged to add those classic warm chorus effects. * The Osc Start menu enables you to restart the oscillator cycles every time you press a key. * Filter Reset can be used to instantly engage filter self-oscillation when a key is pressed.
3 – Filters – An electrical circuit that emphasizes or eliminates some frequencies from a signal. **Filters** are used in electronic **music** to alter the harmonic content of a signal, which changes its timbre. * *ES2* has two filters that can be used in parallel or series. They behave differently, depending on which mode is in operation: * Filter one can be selected to work in five different modes. * Filter two is permanently low-pass, but has variable slopes.
4 - Output section - This section controls the master output: * The Sine Level knob introduces a pure sine signal at the output stage. * Tube- and transistor-derived distortion can be added. * One of three effects can be blended with the master signal.
5 - The X-Y Square - *ES2* 's modulation parameters can be assigned to the X and Y axes, then modulated in real-time using this area: * X and Y 'targets' can be specified in the Router. * The Vector mode can be used to create complex 'moving' sounds, by setting up points along a timeline with different X and Y values. **Modulation** means changing the property of sound over time. The **modulation** of sound requires a source signal called a **modulator** that controls another signal called a carrier. **Modulating** sounds adds a sense of motion, dimension, and depth. There are several ways to process audio with **modulation**.
6 – Randomiser - A simple yet effective way to create your own sounds is to choose an *ES2* preset, then use this random parameter generator to warp the sound.
7 - Router/Vector section - This panel is extremely flexible. When the Router is displayed, 10 independent modulation routings can be made. When the Vector button is pressed, an envelope is displayed, which allows you to create evolving sounds using the X-Y Pad and Oscillator Mix Field.
8 - LFOs & Envelopes – Low-frequency oscillation (**LFO**) is an electronic frequency which is usually below 20 Hz and creates a rhythmic pulse or sweep. **Envelopes** are the attack, sustain, and decay of a sound. * This section is fairly basic in concept, and comprises two low-frequency oscillators and three envelopes, all of which have slightly different feature sets:
9 - MIDI Controller Assignments - A total of six external controllers (Ctrl A to Ctrl F) can be assigned here, and used to modulate *ES2* 's parameters.



Factors that influenced its inception	Significant artists/bands/producers	Important recordings/performances/events
1970s: Took ideas from MCs toasting in Jamaican dancehalls **1980s:** Transformed into DJs playing tracks on beatboxes with MCs hosting these Bloc parties in the Bronx, NY **1990s**: Gangsta Rap, East & West Coast rivalry. **2000s**: Technological advances meaning that all samplers, sequencers & sound modules are all now combined into computer programmes – effects and processors are common features Style became more commercial & accepted. **2010s**: Internet and home-grown videos take force with a return to an underground scene, particularly focused around gang culture.	**DJ Kool Herc & Afrika Bambaataa:** pioneers of the hip-hop style, they were credited with bringing a more positive attitude to life in the Bronx. **Grandmaster Flash & Grand Wizzard Theodore:** introduced the idea of scratching. **Sugar Hill Records:** specialist producers in rap music, producing the first commercial hip-hop hit. **N.W.A:** themes of urban crime, developing the Gangsta rap sub-genre – leading into East-West coast rivalries between **Dr Dre** & **Snoop Doggy Dogg** and **Puff Daddy** & **Notorious B.I.G**. **Eminem:** rapper & record producer **Black Eyed Peas:** specialist producers in rap music, producing the first commercial hip-hop hit. **Stormzy:** the voice of young British black youth, bringing politics into his music.	**'Rapper's Delight', Sugar Hill Gang:** The 1st commercial hip-hop hit. **'The Message', Grandmaster Flash & The Furious Five:** A no-holes-barred depiction of ghetto life. **'Walk this Way', Run-DMC:** cross-over track, cover of Aerosmith, bringing hip-hop into mainstream view. **'F***k the Police', Sugar Hill Gang:** The 1st commercial hip-hop hit. **'I'll be missing You', Puff Daddy:** reaction to the murder of Notorious B.I.G **'Gold Digger', Kanye West:** 80,000 digital downloads in a week **'My name is', Eminem**: quickly became one of rap's biggest star's

Imagery & fashion associated with the style	Musical Features
 What message, ideas about Hip-Hop do these images put across?	**Rhythm & Metre:** 4/4; Straight (not swung); Syncopation; Backbeat **Harmony & Tonality**: Major/Minor; Riff based; Consonant harmony (no clashes) **Texture & Melody:** Samples; Loops (backing is very repetitive); Disco samples usually have a thick texture; Drumbeat samples can be thin texture **Timbre & Dynamics:** DJs and Turntablism; scratching; MCs/Rappers; 70s Disco instrumentation (elec gtr, bass, strings, synths); Prominent Bass line and Drum beat; Effects processors: reverb, delay, auto tune, vocoder, EQ filtering. **Structure:** Intro, verse, chorus; Breakbeat (instrumental backing); Call and Response phrases.

M1 Semaine 1

Les pays	Countries		
le Danemark	*Denmark*	la Belgique	*Belgium*
le Pakistan	*Pakistan*	l'Espagne	*Spain*
le pays de Galles	*Wales*	l'Italie	*Italy*
le Royaume-Uni	*the UK*	la Pologne	*Poland*
l'Algérie	*Algeria*	la Russie	*Russia*
l'Allemagne	*Germany*	la Suisse	*Switzerland*
l'Angleterre	*England*	les États-Unis	*the USA*
l'Autriche	*Austria*	les Pays-Bas	*the Netherlands*

M1 Semaine 2

Les vacances	Holidays		
Où vas-tu en vacances?	*Where do you go on holiday?*	une auberge de jeunesse	*a youth hostel*
Je vais …	*I go …*	une caravane	*a caravan*
en France	*to France*	Avec qui pars-tu en vacances?	*Who do you go on holiday with?*
au pays de Galles	*to Wales*	Je pars …	*I go …*
aux États-Unis	*to the USA*	avec ma famille	*with my family*
Comment voyages-tu?	*How do you travel?*	avec mes copains/copines	*with my friends*
Je voyage …	*I travel …*	avec mes grands-parents	*with my grandparents*
en avion/en bateau	*by plane/by boat*	seul(e)	*alone*
en car/en train	*by coach/by train*	C'est comment?	*What's it like?*
en voiture	*by car*	C'est …	*It's …*
à vélo	*by bike*	extra/formidable	*amazing/great*
Où loges-tu?	*Where do you stay?*	bien	*good*
Je loge dans …	*I stay in/on …*	ennuyeux/nul	*boring/rubbish*
un camping	*a campsite*	Ce n'est pas mal.	*It's not bad.*
un hôtel	*a hotel*		

M1 Semaine 3

Les hôtels	Hotels		
un hôtel	*a hotel*	un balcon	*a balcony*
des chambres d'hôtes	*guest rooms (i.e. in a B&B/ guest house)*	la climatisation	*air conditioning*
		Nous avons aussi …	*We also have …*
Nous proposons des chambres avec …	*We offer rooms with …*	une aire de jeux	*a games area*
		un parking	*a car park*
un grand lit	*a double bed*	une piscine	*a swimming pool*
un lit simple	*a single bed*	un restaurant	*a restaurant*
une salle de bains	*a bathroom*	le Wi-Fi	*Wi-Fi*
une douche	*a shower*	Nos chambres sont bien équipées.	*Our rooms are well equipped.*
un micro-ondes	*a microwave*	Le petit-déjeuner est inclus/compris.	*Breakfast is included.*
une télévision à écran plat	*a flat-screen TV*	Notre hôtel est situé/se trouve …	*Our hotel is located …*
une vue sur la mer	*a sea view*		

M1 Semaine 4

Réserver une chambre	Booking a room		
Nous voulons/Je voudrais réserver une chambre …	*We want/I would like to book a room …*	Votre chambre est …	*Your room is …*
		au rez-de-chaussée	*on the ground floor*
pour une/deux personne(s)	*for one person/two people*	au premier étage	*on the first floor*
avec un lit simple/un grand lit	*with a single/double bed*	au deuxième étage	*on the second floor*
pour une nuit/deux nuits	*for one night/two nights*	Je voudrais payer avec ma carte bancaire.	*I would like to pay with my debit/ credit card.*
Est-ce que vous avez …	*Do you have …*		
une piscine?	*a swimming pool?*		
la climatisation?	*air conditioning?*		

M1 Semaine 5

Voyager	Travelling		
l'aéroport (m)	*airport*	l'autoroute (f)	*motorway*
le billet	*ticket*	la ceinture de sécurité	*seatbelt*
le conducteur/la conductrice	*driver*	la circulation	*traffic*
le contrôle des passeports	*passport control*	la douane	*customs*
le guichet	*ticket office/counter*	la gare	*station*
le/la pilote	*pilot*	la route	*road*
le quai	*platform*	les bagages	*luggage*

M1 Semaine 6

Au guichet	At the ticket counter		
Je peux vous aider?	*Can I help you?*	C'est quel quai?	*Which platform is it?*
Je voudrais un aller simple/ un aller-retour pour (Lyon), s'il vous plaît.	*I would like a single/a return to (Lyon), please.*	Le train part à quelle heure?	*What time does the train leave?*
		Le voyage dure combien de temps?	*How long does the journey last?*
		Est-ce qu'il faut changer?	*Do I/we have to change?*
En quelle classe?	*In which class?*	C'est un train direct.	*The train is direct.*
En première/deuxième classe.	*In first/second class.*		

M1 Semaine 7

Moyens de transports préférés et raisons	Favourite means of transport and reasons		
Je voyage toujours (en train, etc.)	*I always travel (by train, etc.)*	plus aventureux	*more adventurous*
parce que c'est …	*because it's …*	mieux pour la planète	*better for the planet*
plus rapide/plus confortable	*faster/more comfortable*	moins ennuyeux/fatigant	*less boring/tiring*
plus pratique/plus vert	*more practical/greener*	moins cher	*less expensive*

M2 Semaine 1

Les activités en vacances	Holiday activities		
Je fais de la planche à voile.	*I go windsurfing.*	Je joue à la pétanque.	*I play French bowls.*
Je fais de la voile.	*I go sailing.*	Je me baigne.	*I swim (in the sea).*
Je fais de l'accrobranche.	*I do a tree-top adventure.*	Je me promène.	*I go for a walk.*
Je fais du ski.	*I go skiing.*	Je me repose.	*I rest.*
Je visite les musées.	*I visit the museums.*	Je me lève (tôt/tard).	*I get up (early/late).*
Je visite les monuments.	*I visit the monuments.*	Je m'habille.	*I get dressed.*
Je vais à la pêche.	*I go fishing.*	Je ne m'ennuie pas.	*I don't get bored.*
Je vais à la plage.	*I go to the beach.*	Je sors au restaurant.	*I go out to a restaurant.*

M2 Semaine 2

Au restaurant	At the restaurant		
Voici la carte.	*Here is the menu.*	Qu'est-ce que vous avez comme desserts?	*What desserts do you have?*
Le plat du jour, c'est …	*The daily special is …*		
Vous avez fait votre choix?	*Have you made your choice?*	Vous avez besoin d'autre chose?	*Do you need anything else?*
Pour commencer, je vais prendre …	*To start, I am going to have …*	On a besoin de l'addition.	*We need the bill.*
Comme plat principal, je voudrais …	*As a main course, I would like …*	J'ai faim.	*I am hungry.*
Je vais prendre le menu (à 30 euros).	*I am going to have the (30 euro) set menu.*	J'ai soif.	*I am thirsty.*
		J'ai envie d'un dessert.	*I want a dessert.*
Et comme boisson?	*And to drink?*		

M2 Semaine 3

Les plats	Dishes		
les entrées	*starters*	le poulet basquaise	*Basque-style chicken*
les brochettes de crevettes	*prawn skewers*	le rôti de veau	*roast veal*
les escargots	*snails*	les desserts	*desserts*
la soupe à la tomate	*tomato soup*	la crème brûlée	*crème brûlée*
la tarte à l'oignon	*onion tart*	la mousse au chocolat	*chocolate mousse*
les plats principaux	*main dishes*	le roulé au chocolat	*chocolate roll*
l'épaule d'agneau	*shoulder of lamb*	le sorbet	*sorbet*
la cuisse de canard	*duck leg*	la tarte au citron	*lemon tart*
les lasagnes végétariennes	*vegetarian lasagne*	la tarte aux pommes	*apple tart*
le loup de mer	*sea bass*	l'eau gazeuse	*sparkling water*

M2 Semaine 4

Critiques	Reviews		
J'y suis allé(e) pour le déjeuner/ le dîner.	*I went there for lunch/dinner.*	C'était … délicieux/bien cuit.	*It was … delicious/well cooked.*
Le service était lent/exceptionnel.	*The service was slow/exceptional.*	La nourriture était froide/trop salée.	*The food was cold/too salty.*
Le serveur/La serveuse était/ n'était pas (très) poli(e).	*The waiter/waitress was/wasn't … (very) polite.*	La nourriture n'était pas cuite.	*The food wasn't cooked.*
		Je recommande/Je ne recommande pas ce restaurant.	*I recommend/I don't recommend this restaurant.*

M2 Semaine 5

Des vacances catastrophiques	Catastrophic holidays		
J'ai oublié mon passeport.	*I forgot my passport.*	J'ai perdu mes photos.	*I lost my photos.*
J'ai pris un coup de soleil.	*I got sunburnt.*	J'ai vomi.	*I vomited.*
J'ai cassé mon appareil photo.	*I broke my camera.*	J'ai dû aller au commissariat.	*I had to go to the police station.*
J'ai été malade.	*I got sick.*	Il n'y avait rien à faire.	*There was nothing to do.*
On m'a volé mon sac.	*Someone stole my handbag.*	On a dû chercher un autre hôtel.	*We had to look for another hotel.*
Il a plu tous les jours.	*It rained every day.*	La prochaine fois, je vais …	*Next time, I am going …*
Il y avait des cafards dans notre chambre.	*There were cockroaches in our room.*	faire plus attention	*to be more careful*
		mettre de la crème solaire	*to put on sun cream*
J'ai raté l'avion.	*I missed the plane.*	loger dans un camping	*to stay on a campsite*
J'ai dû aller chez le médecin.	*I had to go to the doctor.*		

M2 Semaine 6

Les mots essentiels	High-frequency words		
d'habitude	*usually*	un peu	*a bit*
normalement	*normally*	plutôt	*rather, quite*
tous les ans	*every year*	enfin	*finally*
le lendemain	*the next day*	évidemment	*obviously*
à l'avenir	*in future*	malheureusement	*unfortunately*
toujours	*always/still*	y	*there*
parfois	*sometimes*	gratuit	*free*

Each test is made of 20 questions.
Previous week vocabulary can be used.

L2

Intereses e influencias

Vocabulario Vale Higher

Semana 1

La paga / Pocket money

Mis padres me dan…	*My parents give me…*	saldo para el móvil	*credit for my phone*
Mi madre / padre me da…	*My mum / dad gives me…*	ropa / joyas / maquillaje	*clothes / jewellery / make-up*
…euros a la semana / al mes	*…euros a week / a month*	zapatillas de marca	*designer trainers*
Gasto mi paga en…	*I spend my pocket money on…*	videojuegos / revistas	*computer games / magazines*
También compro…	*I also buy…*		

Mis ratos libres / My free time

las actividades de ocio	*leisure activities*	hacer deporte	*do sport*
Tengo muchos pasatiempos.	*I have lots of hobbies.*	ir al cine	*go to the cinema*
A la hora de comer…	*At lunchtime…*	leer libros / revistas / periódicos	*read books / magazines / newspapers*
Cuando tengo tiempo…	*When I have time…*	salir con amigos	*go out with friends*
Después del insti…	*After school…*	usar el ordenador	*use the computer*
Los fines de semana…	*At weekends…*	ver la tele	*watch TV*
Mientras desayuno / como…	*Whilst I have breakfast / lunch…*	Es divertido / relajante / sano	*It's fun / relaxing / healthy*
juego al billar / futbolín	*I play billiards / table football*	Soy creativo/a / perezoso/a / sociable	*I'm creative / lazy / sociable*
monto en bici / monopatín	*I ride my bike / I skateboard*	Soy adicto/a a…	*I'm addicted to…*
quedo con mis amigos	*I meet up with friends*	me ayuda a relajarme	*it helps me to relax*
voy de compras	*I go shopping*	me ayuda a olvidarme de todo	*it helps me to forget everything*
mi pasión es la música / la lectura	*my passion is music / reading*	me hace reír	*it makes me laugh*
Suelo…	*I tend to / I usually …*	necesito comunicarme / relacionarme con otra gente	*I need to have contact with other people*
descansar	*rest*		
escuchar música / la radio	*listen to music / the radio*		

Semana 2

mi pasión es la música / la lectura	*my passion is music /*	me ayuda a olvidarme de todo	*it helps me to forget everything*
Suelo…	*I tend to / I usually …*	me hace reír	*it makes me laugh*
descansar	*rest*	necesito comunicarme / relacionarme con otra gente	*I need to have contact with other people*
escuchar música / la radio	*listen to music / the radio*		

El deporte / Sport

Soy / Era…	*I am / I used to be…*	submarinismo	*diving*
(bastante / muy) deportista	*(quite / very) sporty*	tiro con arco	*archery*
miembro de un club / un equipo	*a member of a club / a team*	voy…	*I go…*
aficionado/a / hincha de…	*a fan of…*	fui…	*I went…*
un(a) fanático/a de…	*a … fanatic*	iba…	*I used to go…*
juego al…	*I play…*	a clases de…	*to … classes*
jugué al…	*I played…*	de pesca	*fishing*
jugaba al…	*I used to play…*	ya no (juego)…	*(I) no longer (play)…*
bádminton / baloncesto	*badminton / basketball*	todavía (hago)…	*(I) still (do)…*
béisbol / balonmano	*baseball / handball*	batir un récord	*to break a record*
críquet / fútbol	*cricket / football*	correr	*to run*
hockey / ping-pong	*hockey / table tennis*	entrenar	*to train*
rugby / tenis / voleibol	*rugby / tennis / volleyball*	jugar un partido contra…	*to play a match against…*
hago…	*I do…*	marcar un gol	*to score a goal*
hice…	*I did…*	montar a caballo	*to go horseriding*
hacía…	*I used to do…*	participar en un torneo	*to participate in a tournament*
baile / boxeo / ciclismo	*dancing / boxing / cycling*	patinar	*to skate*
deportes acuáticos	*water sports*	mi jugador(a) preferido/a es…	*my favourite player is…*
equitación / escalada	*horseriding / climbing*	su punto culminante fue cuando…	*the highlight (of his/her career) was when…*
gimnasia / judo	*gymnastics / judo*	el campeón / la campeona	*the champion*
kárate / natación	*karate / swimming*	la temporada	*the season*
patinaje sobre hielo	*ice skating*		
piragüismo / remo	*canoeing / rowing*		

Semana 3

La música / Music

Me gusta el soul / el rap / el dance / el hip-hop / el pop / el rock / el jazz / la música clásica / electrónica	*I like soul / rap / dance/ hip-hop / pop / rock / jazz / classical / electronic music*	la batería / la flauta / la guitarra / la trompeta	*the drums / the flute / the guitar / the trumpet*
asistir a un concierto	*to attend a concert*	mi cantante preferido/a es…	*my favourite singer is…*
cantar (una canción)	*to sing (a song)*	un espectáculo	*a show*
tocar el teclado / el piano /	*to play the keyboard / the piano /*	una gira (mundial)	*a (world) tour*

Las películas / Films

un misterio	*a mystery*	una película de animación	*an animated film*
una película de amor	*a love film*	una película de ciencia ficción	*a sci-fi film*
una película de terror	*a horror film*	una película de fantasía	*a fantasy film*
una película de acción	*an action film*	una película extranjera	*a foreign film*
una película de aventuras	*an adventure film*		

Semana 4

La tele / TV

(No) Soy teleadicto/a.	*I'm (not) a TV addict.*	Es / Son…	*It is / They are…*
Mi programa favorito es…	*My favourite programme is…*	aburrido/a/os/as	*boring*
un concurso	*a game / quiz show*	adictivo/a/os/as	*addictive*
un programa de deportes	*a sports programme*	divertido/a/os/as	*fun*
un reality	*a reality TV show*	entretenido/a/os/as	*entertaining*
un documental	*a documentary*	tonto/a/os/as	*silly*
un culebrón / una telenovela	*a soap*	informativo/a/os/as	*informative*
una comedia	*a comedy*	malo/a/os/as	*bad*
una serie policíaca	*a crime series*	emocionante(s)	*exciting*
el telediario / las noticias	*the news*	interesante(s)	*interesting*
Me gustan las comedias.	*I like comedies.*		

Nacionalidades	Nationalities		
americano/a	*American*	alemán/alemana	*German*
argentino/a	*Argentinian*	danés/danesa	*Danish*
británico/a	*British*	español(a)	*Spanish*
chino/a	*Chinese*	francés/francesa	*French*
griego/a	*Greek*	holandés/holandesa	*Dutch*
italiano/a	*Italian*	inglés/inglesa	*English*
mexicano/a	*Mexican*	irlandés/irlandesa	*Irish*
sueco/a	*Swedish*	japonés/japonesa	*Japanese*

Semana 5

Ir al cine, al teatro, etc.	*Going to the cinema, theatre, etc.*		
¿Qué vamos a hacer…	*What are we going to do…*	Es una película / obra de…	*It's a … film / play*
esta tarde?	*this afternoon / evening?*	¿A qué hora empieza / termina?	*What time does it start / finish?*
esta noche?	*tonight?*	Empieza / Termina a las…	*It starts / finishes at…*
mañana / el viernes?	*tomorrow / on Friday?*	Dos entradas para…, por favor.	*Two tickets for …, please.*
¿Tienes ganas de ir…	*Do you fancy going…*	para la sesión de las…	*for the … showing / performance*
a un concierto / un festival?	*to a concert / a festival?*	No quedan entradas.	*There are no tickets left.*
a un espectáculo de baile?	*to a dance show?*	¿Hay un descuento para estudiantes?	*Is there a discount for students?*
al cine / al teatro / al circo?	*to the cinema / theatre / circus?*	Aquí tiene mi carné de estudiante.	*Here is my student card.*
¿Qué ponen?	*What's on?*		

Temas del momento	*Trending topics*		
he compartido…	*I have shared…*	cuenta la historia de…	*it tells the story of…*
he comprado…	*I have bought…*	trata de…	*it's about…*
he jugado…	*I have played…*	combina el misterio con la acción	*it combines mystery with action*
he leído…	*I have read…*	el argumento es fuerte / débil	*the plot is strong / weak*

Semana 6

he oído…	*I have heard…*	la banda sonora es buena / mala	*the soundtrack is good / bad*
he roto…	*I have broken…*	los actores…	*the actors…*
he subido…	*I have uploaded…*	los efectos especiales…	*the special effects…*
¿Has probado…?	*Have you tried…?*	los gráficos…	*the graphics…*
mi hermano ha descargado…	*my brother has downloaded…*	los personajes…	*the characters…*
se ha estrenado…	*…has been released.*	las animaciones…	*the animations…*
la nueva canción	*the new song*	las canciones…	*the songs…*
el último libro	*the latest book*	son guapos/as / guay	*are good looking / cool*
Ya lo/la/los/las he visto.	*I have already seen it/them.*	son estupendos/as / impresionantes	*are great / impressive*
No lo/la/los/las he visto todavía.	*I haven't seen it/them yet.*	son originales / repetitivos/as	*are original / repetitive*
acabo de ver / jugar a…	*I have just seen / played…*		

¿En el cine o en casa?	*At the cinema or at home?*		
(No) Me gusta ir al cine porque…	*I (don't) like going to the cinema because…*	las palomitas están ricas	*the popcorn is tasty*
		los asientos no son cómodos	*the seats aren't comfortable*
		los otros espectadores me molestan	*the other spectators annoy me*
Prefiero ver las pelis en casa porque…	*I prefer watching films at home because…*	ponen tráilers para las nuevas pelis	*they show trailers for new films*
el ambiente es mejor	*the atmosphere is better*	si vas al baño te pierdes una parte	*if you go to the toilet you miss part of it*
hay demasiadas personas	*there are too many people*		
la imagen es mejor en la gran pantalla	*the picture is better on the big screen*	tienes que hacer cola	*you have to queue*
		una corrida de toros	*a bull fight*
las entradas son muy caras	*the tickets are very expensive*	en directo	*live*

Semana7

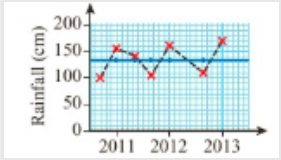
Los modelos a seguir	*Role models*		
Admiro a…	*I admire…*	la pobreza / la homofobia	*poverty / homophobia*
Mi inspiración / ídolo es…	*My inspiration / idol is…*	los derechos de la mujer	*women's rights*
…es un buen / mal modelo a seguir	*…is a good / bad role model*	los derechos de los refugiados	*the rights of refugees*
Un buen modelo a seguir es	*A good role model is someone who…*	los niños desfavorecidos	*underprivileged children*
alguien que…		la justicia social	*social justice*
apoya a organizaciones benéficas	*supports charities*	a pesar de sus problemas…	*despite his/her problems…*
recauda fondos para…	*raises money for…*	ha batido varios récords	*he/she has broken several records*
tiene mucho talento / éxito	*is very talented / successful*	ha creado…	*he/she has created…*
trabaja en defensa de los animales	*works in defence of animals*	ha ganado … medallas / premios	*he/she has won … medals / awards*
usa su fama para ayudar a los demás	*uses his / her fame to help others*	ha sufrido varias enfermedades	*he/she has suffered several illnesses*
se emborrachan	*they get drunk*	ha superado sus problemas	*he/she has overcome his/her problems*
se comportan mal	*they behave badly*	ha tenido mucho éxito como…	*he/she has had lots of success as…*
se meten en problemas con la policía	*they get into trouble with the police*	siempre sonríe	*he/she always smiles*
es amable / cariñoso/a / fuerte	*he/she is nice / affectionate / strong*	solo piensa en los demás	*he/she only thinks of other people*
lucha por / contra…	*he/she fights for / against…*		

Important Ideas

- Time series graphs are useful for studying the trend and seasonal variation
- Trend lines can be used to predict future values.
- You can find estimates of a probability by repeating an experiment many times
- You can use a variety of diagrams to represent all the different outcomes possible of events

Vocabulary

Time series	Graphs which show variation over time
Trend	The overall behaviour over time
Trend line	Shows the tend of data over time ignoring any seasonal variation
Moving average	A sequence of averages that smooths out variations in data. Used to show trends.
Expected (relative) frequency	How often we expect something to happen based on trials.
Risk	The probability of loss
Two-way table	A way of presenting data with two variables
Sample space diagram	A table showing all possible outcomes of two combined events
Tree diagram	A diagram with branches used to work out probabilities of combined events
Venn diagram	A diagram using circles to represent sets. The position and overlap of the circles indicates the relationships between the sets.

Question	Answer
Time series	
<table><tr><td></td><td colspan="3">2011</td></tr><tr><td>Rainfall (cm)</td><td>102</td><td>156</td><td>142</td></tr><tr><td>3-point moving average</td><td></td><td>133</td><td>135</td></tr><tr><td></td><td colspan="3">2012</td></tr><tr><td>Rainfall (cm)</td><td>106</td><td>157</td><td>135</td></tr><tr><td>3-point moving average</td><td>135</td><td>133</td><td>134</td></tr><tr><td></td><td colspan="2">2013</td><td></td></tr><tr><td>Rainfall (cm)</td><td>110</td><td>169</td><td></td></tr><tr><td>3-point moving average</td><td>138</td><td></td><td></td></tr></table>	
Plot the time series Plot the moving averages Draw the trend line Describe the trend	The trend is flat
Experimental probability	
Sami spins a coin 250 times. He gets 110 heads (a) Work out the experimental probability of getting a head (b) Write down the experimental probability of getting a tail	(a) 110/250 (b) 140/250
Risk	
<table><tr><td></td><td>Football</td><td>Hockey</td><td>Rugby</td></tr><tr><td>Injuries</td><td>8</td><td>5</td><td>13</td></tr><tr><td>Games</td><td>50</td><td>60</td><td>40</td></tr></table> Work out the risk of a knee injury in each sport Estimate the number of knee injuries next season, which has 35 games	Football 0.16 Hockey 0.083 Rugby 0.325 3 (rounded from 2.9)

Key Facts & Formula

Moving averages

Expected (relative) frequency

Uses trials to estimate the probability of something happening next.

Equation of a trend line

$Y = ax + b$

where b is the intercept on the y-axis and a is the gradient of the line.

Experimental probability

Number of times the event happens ÷ total number of trials

Estimate

Total number of trials x probability

The more times an experiment is repeated the more accurate the estimate will be.

Increasing sample size leads to better estimates

Risk

Risk of a fault x number of items sold

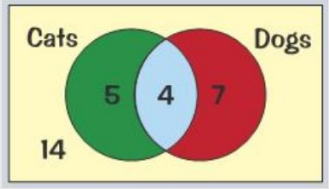
Important Ideas

Index numbers are often used to compare price changes over time.

The probability of one event may affect the probability of another.

Vocabulary

Independent events	Events are independent if the outcome of one does not affects the probability of another occurring.
Conditional probability	When the probability of a second event depends on the first.
Index numbers	A way of tracking changes in value through time.
Weighted index numbers	A measure of how a set of items changes in value.
Retail price index (RPI)	Shows changes in the cost of living. Used to set interest rates for student loans.
Consumer price index (CPI)	Shows changes in the cost of living (not including mortgage payments). Used to index benefits, tax credits and pensions in the UK
Gross domestic product (GDP)	The main measure of economic output based on the value of goods and services produced by a country or region.
Crude rates	A simple way to compare population statistics such as births, deaths and employment levels
Standardised rates	Enables valid comparisons between distributions

Question	Answer
Conditional probability	
 Using the Venn diagram above, find the probability that a randomly chosen household does not own a dog, given the household owns a cat.	$P(\text{no dog} \mid \text{cat})$ $= \frac{\text{Number of households with cats but no dog}}{\text{Number of households with cats}}$ $= \frac{5}{9}$
Index numbers	
<table><tr><td>Year</td><td>2013</td><td>2014</td><td>2015</td></tr><tr><td>Index Number</td><td>100</td><td>85</td><td>109</td></tr></table> The index numbers in the table show the average monthly rent for a flat, using 2013 as the base year. a) In which year did the average monthly rent decrease? b) The average monthly ret in 2013 was £530 Calculate the average monthly rent for the years 2014 and 2015.	(a) Average monthly rate decreased in 2014 (85 < 100) (b) 2014: $85 = \frac{\text{price in 2014}}{£530} \times 100$ $\Rightarrow \text{price in 2014} = £450.50$ 2015: $109 = \frac{\text{price in 2015}}{£530} \times 100$ $\Rightarrow \text{price in 2015} = £577.70$

Key Facts & Formula

Independent events	$P(A \text{ and } B) = P(A) \times P(B)$
Conditional probability	$P(A \text{ and } B) = P(A) \times P(B \mid A)$
Index number	$\frac{\text{value}}{\text{value in base year}} \times 100$
Weighted index numbers	$\frac{\sum(\text{index number} \times \text{weight})}{\sum \text{weights}}$
Chain base index number	$\frac{\text{value this year}}{\text{value last year}} \times 100$

Key term	Definition
1. Democracy	a system of government which allows citizens (18+) to vote and take part in how the country is run.
2. Tolerance	the ability or willingness to accept the existence of opinions or behaviour that one dislikes or disagrees with.
3. Liberty	the state of being free within society from harsh restrictions imposed by authority on one's way of life, behaviour, or political views.
4. Law	Rules made by Parliament and enforced by the courts.
5. Respect	Treating a person or their feelings with consideration.
6. Golden rule	Treat others as you would like to be treated.
7. Nationalism	A strong feeling or belief in the rightness of ones country.
8. House of Commons	The more powerful of the two parts of the British Parliament. The members are elected by the public.
9. Bill	A proposal to change something into law.
10. Social Cohesion	Shared sense of belonging for all groups in society.

Why do you need to Know British Values?

Understanding British values are the key values that are believed to be fundamental to being a British citizen and for life in modern British society. There are 5 fundamental British Values. The UK government have been promoting British Values, especially in schools, for over 10 years. The goal is through understanding the British values of **Democracy, the Rule of Law, Individual Liberty, Mutual Respect, and Acceptance** for those with different faiths and beliefs, all citizens will develop self-knowledge, be better able to make the right choices and make contributions to the school and the wider community creating **social cohesion**.

Democracy

In the United Kingdom we vote (age 18 +) for the people we want to run our **councils** and Government. We vote for Members of Parliament (MP's). Elections take place at least once every 5 years. 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. 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.

Where can I see British Values at School? Democracy – Student voice and prefects.

11. council	a body of people elected to manage the affairs of a city, county, or other municipal district	13. policies	a course or principle of action adopted or proposed by an organization or individual
12. ratify	sign or give formal consent to (a treaty, contract, or agreement), making it officially valid	14. political	relating to the government or public affairs of a country

MICHAELMAS TERM- PSHE - BRITISH VALUES

Key term	Definition
15. consequences	a result or effect, typically one that is unwelcome or unpleasant.
16. principle	a rule or belief governing one's behaviour
17. accountable	required or expected to justify actions or decisions; responsible
18. institution	an organization founded for a religious, educational, professional, or social purpose
19. reconciled	restore friendly relations between
20. extremist	a person who holds extreme political or religious views, especially one who advocates illegal, violent, or other extreme action
21. discrimination	the unjust or prejudicial treatment of different categories of people, especially on the grounds of race, age, or sex
22. dignity	the state or quality of being worthy of honour or respect
23. reciprocated	respond to (a gesture or action) by making a corresponding one
24. radicalised	advocating or based on thorough or complete political or social change; representing or supporting an extreme or progressive section of a political party
25. ethnicity	the fact or state of belonging to a social group that has a common national or cultural tradition

The rule of law

In the UK, we have laws which determine what is legal and illegal. You are expected to know the difference between right and wrong. There are **consequences** for making the wrong choice or taking illegal actions. We all take responsibility for our actions. The rule of law is a principle that individuals and **institutions** are subject and **accountable** to, which is fairly applied and enforced.

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 and learning can take place.

Individual liberty
In the UK you are free to have an opinion (unless it is **extremist**) and believe in what you want without **discrimination**.

Where can I see British Values at School? Mutual Respect – Our school ethos of being outstanding Trinitarians encourages us to show respect, anti-bullying and assemblies. Boundaries are used to ensure you are safe.

The acceptance and tolerance of those with different faiths and beliefs and for those without faith.
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. We are to protect one another and to tackle 'extremist' views and prevent people from being **radicalised**. Differences in terms of faith, **ethnicity**, gender, sexuality, age, young carers and disability, are differences that should be respected, tolerated and celebrated.

Where can I see British Values at School? Acceptance of differences – Assemblies, RE, Citizenship and PSHE Lessons. As a Christian school we following the teaches of Jesus who said we should 'love thy neighbours' We give you messages of tolerance and respect for others no matter what their ethnicity, beliefs, sexuality, gender or disability.