Mathematics

Topics covered from the beginning of the academy year to the end of this half-term.

SPR 1:

1. Area and volume
2. Graphs

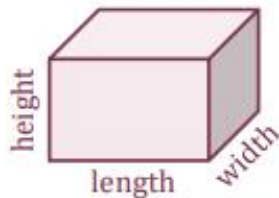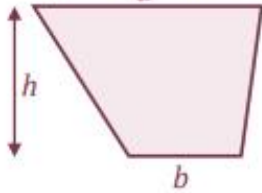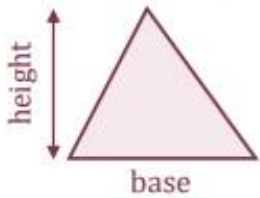**SPR 2:**

6. Transformations
7. Ratios

MATHEMATICS
Learning Journey

ARENA ACADEMY

YEAR 7
Welcome!

- Visit Arena Academy Maths Department
- Year 6 Maths SATs
- Year 7 Baseline Assessments
- Algebraic Notation
- Sequences
- Equality & Equivalence
- Place Value & Ordering Numbers
- Addition & Subtraction
- Fractions, Decimals & Percentages
- Fractions & Percentages of Amounts
- Multiplication & Division
- Consolidation
- Operations with Directed Numbers

YEAR 8
- Working in the Cartesian Plane
- Representing Data
- Tables & Probability
- Brackets, Equations & Inequalities
- Sequences
- Indices
- Fractions & Percentages
- Standard Form
- Number Sense
- Multiplying & Dividing Fractions
- Ratio
- Multiplicative Change
- Consolidation
- Probability
- Number Sense
- Prime Numbers
- Adding & Subtracting Fractions
- Constructing & Measuring Angles
- Geometric Reasoning
- Angles
- Consolidation
- Straight Line Graphs
- End of Year 7 Maths Assessment
- End of Year 8 Maths Assessment

YEAR 9
- Numbers
- Measures of Location
- Area
- Symmetry & Reflection
- Transformations
- Using Percentages
- Deductions
- Consolidation
- Maths & Money
- Data Handling
- Consolidation
- Testing Conjectures
- 3D Shapes
- Constructions & Congruency
- Solving Equations
- Consolidation

YEAR 10
- Algebraic Representation
- Sequences
- Fractions & Percentages
- Ratio & Proportion
- Probability
- Rates
- Consolidation
- UKMT Challenge
- Pythagoras' Theorem
- Ratio & Proportion Probability
- Consolidation
- H: Area & Volume / F: Tables & Charts
- H: Angles / F: Tables & Charts
- H: Graphs & Charts / F: Algebra
- H: Algebra / F: Algebra
- H: Number / F: Fractions & Percentages
- H: Transformations / F: Averages
- H: Area & Volume / F: Angles
- H: Probability / F: Transformation
- H: Multiplicative Reasoning / F: Ratio & Proportion
- H: Algebra / F: Graphs
- Consolidation
- End of Year 9 Maths Assessment
- End of Year 10 Maths Assessment

YEAR 11
- Revision & Gap Filling
- Maths Retrieval & Gap Filling
- Maths Mock Examinations: Paper 1 & 2
- Maths GCSE Examinations: Paper 1, 2 & 3
- GCSE Results Day
- H: Probability / F: Ratio & Proportion
- H: Statistics / F: Multiplicative Reasoning
- H: Algebra / F: Algebra
- H: Multiplicative Reasoning / F: Right-Angled Triangles
- H: Further Algebra / F: Area & Volume
- H: Vectors / F: Congruence & Similarity
- H: Circle Theorems / F: Quadratic Graphs & equations
- H: Equations & Graphs / F: Constructions
- H: More Trigonometry / F: Probability
- H: Number / F: Fractions & Percentages
- H: Graphs / F: Algebra
- H: Statistics / F: Multiplicative Reasoning
- Consolidation

Next steps
- A Level or Apprenticeship: Accounting
- A Level: Economics
- A Level: Mathematics / Further Maths
- Apprenticeship: Engineering
- UNIVERSITY
- COLLEGE
- WORKPLACE

CORE

missing angle

Areas and volumes

G16, G17, G18, G23

$$\text{Area of triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$\text{Volume of cuboid} = \text{length} \times \text{width} \times \text{height}$$

$$\text{Area of trapezium} = \frac{1}{2}(a+b) \times h$$

$$\text{Circumference of circle} = \pi \times D$$
$$\text{Area of circle} = \pi \times r^2$$

$$\text{Arc length} = \frac{\theta}{360°} \times \pi \times D$$

$$\text{Area of sector} = \frac{\theta}{360°} \times \pi \times r^2$$

$$\text{Volume of cylinder} = \pi r^2 \times \text{height}$$

$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$
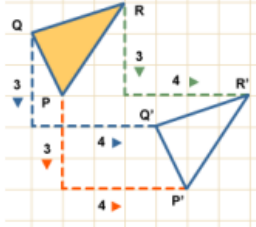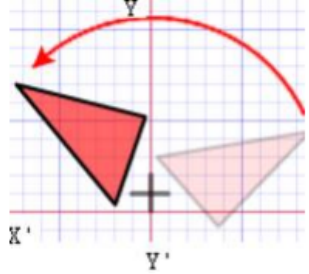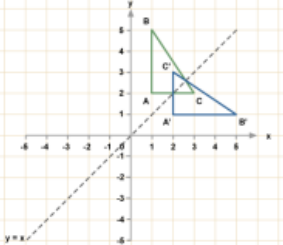
3. Area of a Rectangle	**Length x Width**	
4. Area of a Parallelogram	**Base x Perpendicular Height** Not the slant height.	
5. Area of a Triangle	**Base x Height ÷ 2**	
6. Area of a Kite	Split in to **two triangles** and use the method above.	
7. Area of a Trapezium	$\dfrac{(a+b)}{2} \times h$ "Half the sum of the parallel side, times the height between them. That is how you calculate the area of a trapezium"	
8. Compound Shape	A shape made up of a **combination of other known shapes** put together.	

$A = 36cm^2$

$A = 21cm^2$

$A = 24cm^2$

$A = 8.8m^2$

$A = 55cm^2$

Standard graphs   A12

$x = 2$

$y = 4$

$x + y = 3$

$y = x^2$

$y = x^3$

$y = \dfrac{1}{x}$

Expanding brackets   A4

Right angled triangles   G20, G22

Topic/Skill	Definition/Tips	Example
1. Ratio	Ratio compares the size of **one part** to **another part**. Written using the ':' symbol.	**3 : 1**
2. Proportion	Proportion compares the size of **one part** to the size of the **whole**. Usually written as a fraction.	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
3. Simplifying Ratios	**Divide** all parts of the ratio by a **common factor**.	$5 : 10 = 1 : 2$ (divide both by 5) $14 : 21 = 2 : 3$ (divide both by 7)
4. Ratios in the form $1 : n$ or $n : 1$	**Divide** both parts of the ratio by one of the numbers to make **one part equal 1**.	$5 : 7 = 1 : \frac{7}{5}$ in the form 1 : n $5 : 7 = \frac{5}{7} : 1$ in the form n : 1
5. Sharing in a Ratio	**1. Add** the total parts of the ratio. **2. Divide** the amount to be shared by this value to find the value of one part. **3. Multiply** this value by each part of the ratio. Use only if you **know the total**.	Share £60 in the ratio 3 : 2 : 1. $3 + 2 + 1 = 6$ $60 \div 6 = 10$ 3 x 10 = 30, 2 x 10 = 20, 1 x 10 = 10 £30 : £20 : £10

Topic/Skill	Definition/Tips	Example
1. Translation	**Translate** means to **move a shape**. The shape does not change **size** or **orientation**.	
2. Column Vector	In a column vector, the **top** number moves **left (-) or right (+)** and the **bottom** number moves **up (+) or down (-)**	$\binom{2}{3}$ means '2 right, 3 up' $\binom{-1}{-5}$ means '1 left, 5 down'
3. Rotation	The size does not change, but the **shape is turned around a point**. Use tracing paper.	Rotate Shape A 90° anti-clockwise about (0,1)
4. Reflection	The size does not change, but the shape is 'flipped' like in a **mirror**. Line $x =?$ is a **vertical line**. Line $y =?$ is a **horizontal line**. Line $y = x$ is a **diagonal line**.	Reflect shape C in the line $y = x$
5. Enlargement	The shape will get **bigger or smaller**. Multiply each side by the **scale factor**.	Scale Factor = 3 means '3 times larger = multiply by 3' Scale Factor = ½ means 'half the size = divide by 2'

Powers and roots — N6, N7

Special indices: for any value a:
$$a^0 = 1$$
$$a^{-n} = \frac{1}{a^n}$$
$$a^{\left(\frac{p}{q}\right)} = \sqrt[q]{a^p}$$

➜ $3^{-4} = \frac{1}{3^4} = \frac{1}{81}$

➜ $8^{\left(\frac{2}{3}\right)} = \sqrt[3]{8^2} = 4$

Surds — N8

Look for the biggest square number factor of the number:
➜ $\sqrt{80} = \sqrt{16 \times 5} = 4\sqrt{5}$

Rationalise the denominator — N8

Multiply the numerator and denominator by an expression that makes the denominator an integer:

➜ $\frac{4}{\sqrt{7}} = \frac{4 \times \sqrt{7}}{\sqrt{7} \times \sqrt{7}} = \frac{4\sqrt{7}}{7}$

➜ $\frac{2}{4+\sqrt{5}}$

$= \frac{2}{4-\sqrt{5}} \times \frac{4-\sqrt{5}}{4-\sqrt{5}} = \frac{2(4-\sqrt{5})}{11}$

Standard form — N9

Standard form numbers are of the form $a \times 10^n$, where $1 \le a < 10$ and n is an integer.

Recurring decimals — N10

Make a recurring decimal a fraction:
➜ $n = 0.2\dot{3}\dot{6}$
(two digits are in the recurring pattern, so multiply by 100)
$100n = 23.\dot{6}$
(this is the same as 23.636)
$99n = 23.636 - 0.236 = 23.4$
$n = \frac{23.4}{99} = \frac{234}{990} = \frac{13}{55}$

Error intervals — N15

Find the range of numbers that will round to a given value:
➜ $x = 5.83$ (2 decimal places)
$5.825 \le x < 5.835$
➜ $y = 46$ (2 significant figures)
$45.5 \le y < 46.5$
Note use of ≤ and <, and that the last significant figure of each is 5.

Equations and identities — A3

An equation is true for some particular value of x...
➜ $2x + 1 = 7$ is true if $x = 3$
...but an identity is true for every value of x
➜ $(x + a)^2 \equiv x^2 + 2ax + a^2$
(note the use of the symbol ≡)

Expanding brackets — A4

$$p(q + r) = pq + pr$$
➜ $5(x - 2y) = 5x - 10y$
$(x + a)(x + b) = x^2 + ax + bx + ab$
➜ $(2x - 3)(x + 5)$
$= 2x^2 - 3x + 10x - 15$
$= 2x^2 + 7x - 15$
Opposite of expanding is factorising - putting an expression into brackets.

Laws of indices — A4

For any value a:
$$a^x \times a^y = a^{x+y}$$
$$\frac{a^x}{a^y} = a^{x-y}$$
$$(a^x)^y = a^{xy}$$

➜ $\left(\frac{2pq^4}{p^3q}\right)^3 = \frac{8p^3q^{12}}{p^9q^3} = \frac{8q^9}{p^6}$ or $8q^9p^{-6}$

Quadratics — A18

Solve a quadratic by factorising.
➜ Solve $x^2 - 8x + 15 = 0$
Put into brackets (taking care with any negative numbers)...
$(x - 3)(x - 5) = 0$
...then either $x - 3 = 0$ or $x - 5 = 0$,
so that $x = 3$ or $x = 5$.

Sequences — A24, A25

nth term of an arithmetic (linear) sequence is $bn + c$
➜ nth term of 5,8,11,14,... is $3n+2$
(always increases by 3; first term is $3 \times 1 + 2 = 5$.)
nth term of a quadratic sequence is $an^2 + bn + c$
➜ First three terms of $n^2 + 3n - 1$ are $3, 9, 17, ...$
Geometric sequence; multiply each term by a constant ratio
➜ $3, 6, 12, 24, ...$ (ratio is 2)
Fibonacci sequence; make the next term by adding the previous two ...
➜ $2, 4, 6, 10, 16, 26, 42, ...$

Difference of two squares — A4

$$a^2 - b^2 = (a + b)(a - b)$$
➜ $x^2 - 25 = (x + 5)(x - 5)$

Rearrange a formula — A5

The subject of a formula is the term on its own. Rearrange to
➜ Make x the subject of
$2x + ay = y - bx$
$2x + bx = y - ay$
$x(2 + b) = y - ay$
$x = \frac{y - ay}{2 + b}$

Error intervals — N15

Find the range of numbers that will round to a given value:
➜ $x = 5.83$ (2 decimal places)
$5.825 \le x < 5.835$
➜ $y = 46$ (2 significant figures)
$45.5 \le y < 46.5$
Note use of ≤ and <, and that the last significant figure of each is 5.

Angle facts — G3

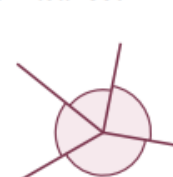Equal angles in parallel lines: always use correct terminology...
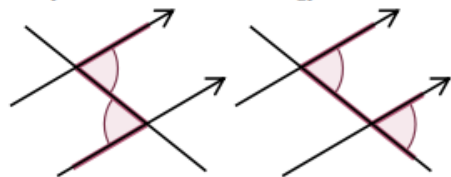
Alternate angles   Corresponding angles

Angles on a straight line total 180°

Angles in a full turn total 360°

Interior angles in a triangle total 180°

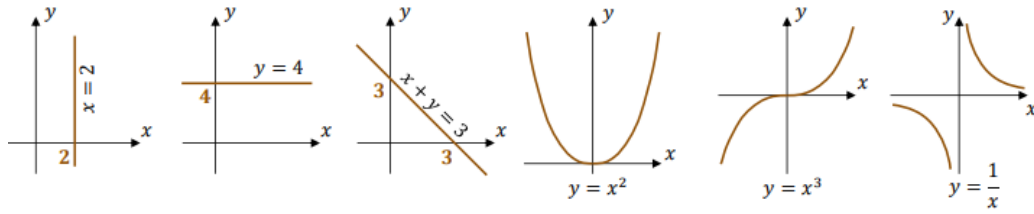Use this for the interior angles of any polygon...
...or 360° × (n − 2)

Exterior angles always total 360°

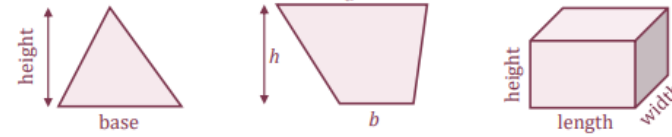## Standard graphs — A12

$x = 2$, $y = 4$, $x + y = 3$, $y = x^2$, $y = x^3$, $y = \frac{1}{x}$

$y = mx + c$ — A9

Equation of straight line $y = mx + c$
m is the gradient; c is the y intercept:
→ Find the equation of the line that joins $(0, 3)$ to $(2, 11)$
Find its gradient...
$$\frac{11 - 3}{2 - 0} = \frac{8}{2} = 4$$
...and its y intercept...
Passes through $(0, 3)$, so c = 3.
Equation is $y = 4x + 3$.

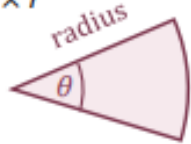Parallel lines: gradients are equal; perpendicular lines: gradients are "negative reciprocals".
→ $y = 2x + 3$ and $y = 2x - 5$ are parallel to each other; $y = 2x + 3$ and $y = -\frac{1}{2}x + 3$ are perpendicular
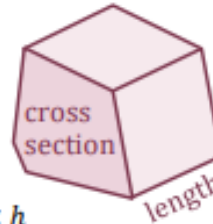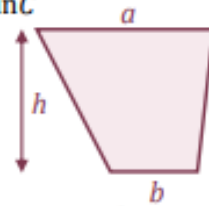
Equation of a circle — A16

$x^2 + y^2 = r^2$ is a circle with centre $(0,0)$ and radius r.
→ $x^2 + y^2 = 25$ has centre $(0, 0)$ and radius 5.

Areas and volumes — G16, G17, G18, G23

Area of triangle = $\frac{1}{2} \times$ base $\times$ height   Volume of cuboid = length $\times$ width $\times$ height

Area of trapezium = $\frac{1}{2}(a + b) \times h$

Circumference of circle = $\pi \times D$
Area of circle = $\pi \times r^2$
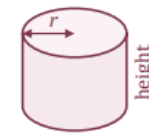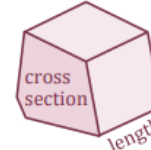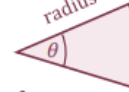
Arc length = $\frac{\theta}{360°} \times \pi \times D$

Area of sector = $\frac{\theta}{360°} \times \pi \times r^2$ Volume of prism = area of cross section $\times$ length

Volume of cylinder = $\pi r^2 \times$ height

Parts of a circle — G9

sector, tangent, radius, arc, circumference, segment, diameter, chord

Areas and volumes — G16, G17, G18, G23

Circumference of circle = $\pi \times D$ Area of triangle = $\frac{1}{2}ab\sin C$
Area of circle = $\pi \times r^2$

cone, frustum
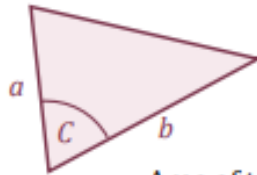
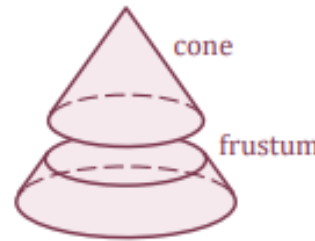Arc length = $\frac{\theta}{360°} \times \pi \times D$
Area of sector = $\frac{\theta}{360°} \times \pi \times r^2$ Area of trapezium = $\frac{1}{2}(a + b) \times h$

Volume of prism = area of cross section $\times$ length   Volume of cone = $\frac{1}{3}\pi r^2 h$
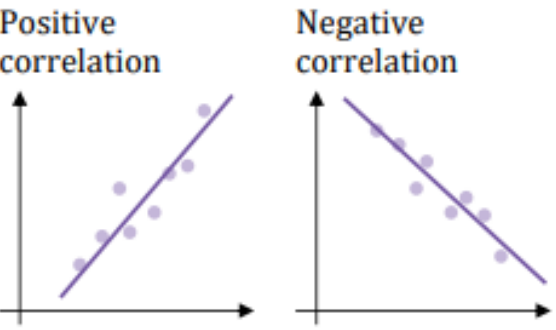Volume of frustum is difference between the volumes of two cones

Averages   S4

Mode: most frequently occurring
Median: put the data in numerical order, then choose the middle one

$$Mean = \frac{total\ of\ items\ of\ data}{number\ of\ items\ of\ data}$$

Correlation   S6

Positive correlation   Negative correlation

G3

Transformations   G7, G8

Reflection
• Line of reflection
Translation
• Vector

Rotation
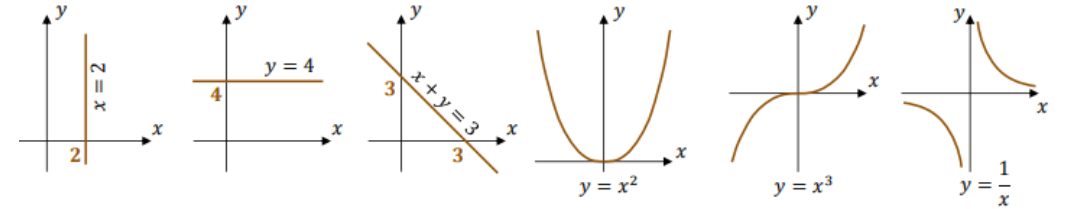• Centre of rotation
• Angle of rotation
• Clockwise or anticlockwise

Enlargement
• Centre of enlargement
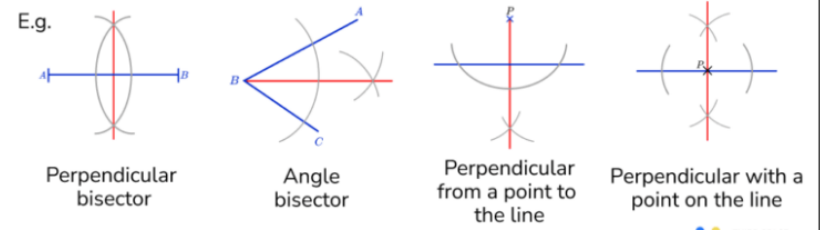• Scale factor (if −1 < SF < 1 the shape will get smaller).

Similar shapes   G19

Ratios in similar shapes and solids:
• Length/perimeter $1:n$ $a:b$
• Area $1:n^2$ $a^2:b^2$
• Volume $1:n^3$ $a^3:b^3$

Standard graphs   A12

$y = x^2$ $y = x^3$ $y = \frac{1}{x}$

Loci and Construction

Constructions are set methods for doing accurate drawings in maths.

A **locus** of points (plural **loci**) is a set of points that follow a given rule. We often use constructions to accurately draw loci.

To draw loci and constructions **accurately**, you will be required to use a **ruler**, a **pair of compasses**, and a **protractor** when appropriate.

A **bearing** is an angle, measured clockwise from north, used to describe the position of an object. Bearings are given using **three figures**, for example 052.

Constructions

Constructions are accurate drawings of shapes, angles and lines in geometry. To do this we need to use a pencil, a ruler (a straight-edge) and compasses.

E.g.

Perpendicular bisector   Angle bisector   Perpendicular from a point to the line   Perpendicular with a point on the line

Quadratics — A11, A18

If a quadratic equation cannot be factorised, use the formula

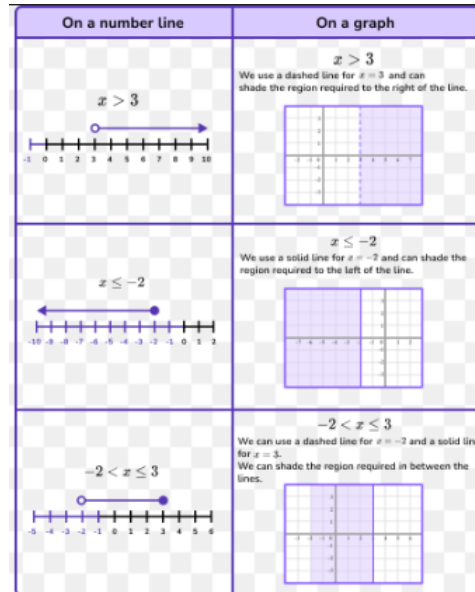$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

➤ Solve $2x^2 + 3x - 7 = 0$

$$x = \frac{-3 - \sqrt{9 - (-56)}}{2 \times 2} = -2.73$$

or $x = \dfrac{-3 + \sqrt{9 - (-56)}}{2 \times 2} = 1.23$

Complete the square to find the turning point of a quadratic graph.

➤
$$y = x^2 - 6x + 2$$
$$y = (x - 3)^2 - 9 + 2$$
$$y = (x - 3)^2 - 7$$
Turning point is at $(3, -7)$

Quadratic Equations and Inequalities

$x^2 - 4x + 3 > 0$
$(x-1)(x-3) > 0$
$x < 1$ or $x > 3$

On a number line	On a graph
$x > 3$	$x > 3$ — We use a dashed line for $x = 3$ and can shade the region required to the right of the line.
$x \leq -2$	$x \leq -2$ — We use a solid line for $x = -2$ and can shade the region required to the left of the line.
$-2 < x \leq 3$	$-2 < x \leq 3$ — We can use a dashed line for $x = -2$ and a solid line for $x = 3$. We can shade the region required in between the lines.

$y > x + 1$	$y \leq 4 - x$
We need y to be greater than $x + 1$ so y should be large. The region required is above the line.	We need y to be less than $4 - x$ so y needs to be small. The region required is under the line.
$3x + 2y < 6$	$2x - 5y > 10$
We can use the origin (0, 0) to check the region. 3(0) + 2(0) < 6 so (0, 0) is in the required region.	We can use the origin (0, 0) to check the region. 2(0) - 5(0) < 10 not > 10 so (0, 0) is not in the required region.

Probability — P8, P9

$$p = \frac{n(\text{equally likely favourable outcomes})}{n(\text{equally likely possible outcomes})}$$

$p = 0$	impossible
$0 < p < 0.5$	unlikely
$p = 0.5$	evens
$0.5 < p < 1$	likely
$p = 1$	certain

Probability rules — P8, P9

Multiply for independent events
➤ P(6 on dice and H on coin)
$$\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$$
Add for mutually exclusive events
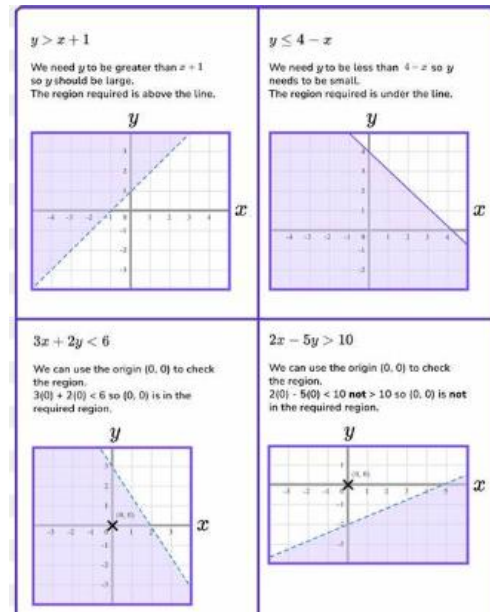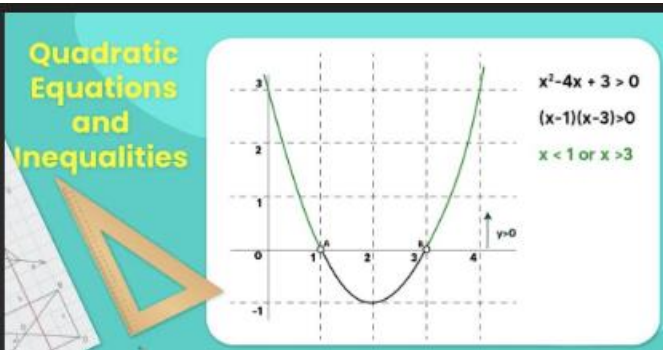➤ P(5 or 6 on dice)
$$\frac{1}{6} + \frac{1}{6} = \frac{2}{6}$$
Apply these rules to tree diagrams.

In general...
$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$
$$P(A \text{ and } B) = P(A \text{ given } B) \times P(B)$$

Histograms

Division using ratio — R5

Use a ratio for unequal sharing
➜ Divide £480 in the ratio 7 : 5
$7 + 5 = 12$, then $£480 ÷ 12 = £40$
$7 × £40 = £280$, $5 × £40 = £200$
(check: £280 + £200 = £480 ✓)

Ratio and fractions — R8

Link between ratios and fractions
➜ Boys to girls in ratio 2 : 3
$\frac{2}{5}$ are boys, $\frac{3}{5}$ are girls.

Percentages — R9

$$y \text{ percent of } x = \frac{y}{100} × x$$

➜ Increase £58 by 26%.
$$\frac{26}{100} × £58 = £15.08$$
$$£58 + £15.08 = £73.08$$

$$y \text{ as a percentage of } x = \frac{y}{x} × 100\%$$

➜ The population of a town increases from 3 500 to 4 620. Find the percentage increase.
$$\frac{1\,120}{3\,500} × 100\% = 35\%$$
Note: $\text{fraction} = \frac{\text{increase}}{\text{original}}$

Learn the most frequently used ones:

$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{10}$	$\frac{1}{5}$	$\frac{1}{100}$
50%	25%	10%	20%	1%

Speed, distance, time — R11

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

➜ A car travels 90 miles in 1 hour, 30 minutes. Find its average speed.
$90 \text{ miles} ÷ 1.5 \text{ hours} = 60 \text{ mph}$

Percentages: multipliers — R9, R16

Percentage increase or decrease; use a multiplier (powers for repetition)
➜ Initially there were 20 000 fish in a lake. The number decreases by 15% each year. Estimate the number of fish after 6 years.
$20\,000 × 0.85^6 = 7\,500$ (2sf)

Formula for compound interest
$$\text{Total accrued} = P\left(1 + \frac{r}{100}\right)^n$$
➜ I invest £600 at 3% compound interest. What is my account worth after 5 years?
$$£600 × \left(1 + \frac{3}{100}\right)^5 = £695.56$$

Direct & inverse proportion — R10

y is directly proportional to x:
$y = kx$ for a constant k
➜ b is directly proportional to a^2;
$a = 6$ when $b = 90$. Find b if $a = 8$.
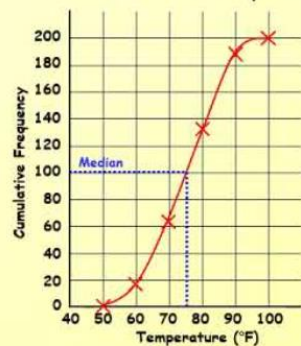$b = ka^2$; $a = 6$ and $b = 90$ for k;
$90 = k × 6^2$ so $k = 2.5$, $b = 2.5a^2$
$b = 2.5 × 8^2 = 160$
y is inversely proportional to x:
$yx = k$ or $y = \frac{k}{x}$ for a constant k

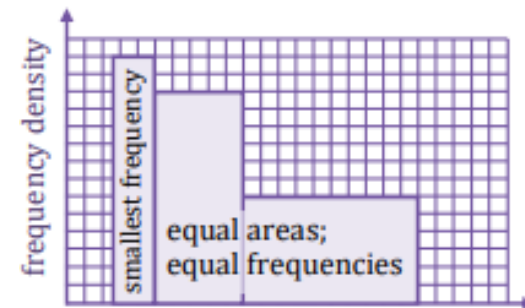### Cumulative Frequency and Quartiles

- The median value is the middle number of a set of data
- This can be estimated from the Cumulative Frequency curve.
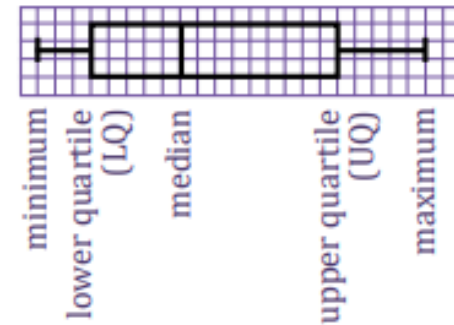- The median here will be the 100th value (out of 200)

Histograms — S3

Frequency = frequency density multiplied by class width. This means that bars with the same frequency have the same area.
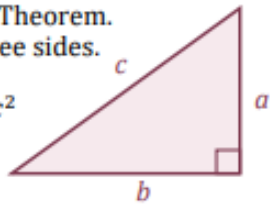

equal areas; equal frequencies

Box plots — S4

Interquartile range (IQR) = UQ – LQ

minimum | lower quartile (LQ) | median | upper quartile (UQ) | maximum

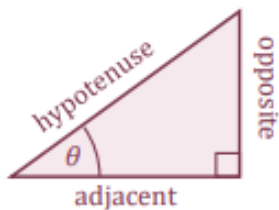## Right angled triangles   G20

Pythagoras Theorem.
Links all three sides.
No angles.
$a^2 + b^2 = c^2$

Trigonometry.
Links two sides and one angle.
SOH | CAH | TOA

$\sin\theta = \frac{opp}{hyp}$ $\cos\theta = \frac{adj}{hyp}$ $\tan\theta = \frac{opp}{adj}$

Use "2ndF" or "SHIFT" key to find a missing angle
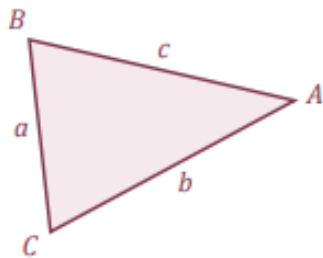
The longest side of any right angled triangle is the hypotenuse; check that your answer is consistent with this.

Advanced trigonometry   G21, G22

Sine Rule
Use if you are given an angle-side pair

Missing side: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Missing angle: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Cosine Rule
Use if you can't use the sine rule

Missing side: $a^2 = b^2 + c^2 - 2bc\cos A$

Missing angle: $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$

Special values of sin, cos, tan
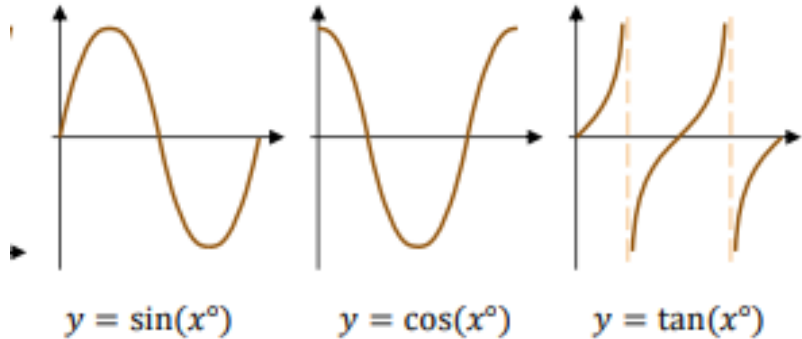Learn (or be able to find
without a calculator)...

$\sin 0° = 0,$ $\cos 0° = 1,$ $\tan 0° = 0$

$\sin 30° = \frac{1}{2},$ $\cos 30° = \frac{\sqrt{3}}{2},$ $\tan 30° = \frac{1}{\sqrt{3}}$

$\sin 45° = \frac{1}{\sqrt{2}},$ $\cos 45° = \frac{1}{\sqrt{2}},$ $\tan 45° = 1$

$\sin 60° = \frac{\sqrt{3}}{2},$ $\cos 60° = \frac{1}{2},$ $\tan 60° = \sqrt{3}$

$\sin 90° = 1,$ $\cos 90° = 0$

A is opposite a
B is opposite b
C is opposite c

$y = \sin(x°)$ $y = \cos(x°)$ $y = \tan(x°)$

Transformations of curves   A13

Starting with the curve $y = f(x)$:

Translate $\begin{pmatrix} 0 \\ a \end{pmatrix}$ for $y = f(x) + a$

Translate $\begin{pmatrix} -a \\ 0 \end{pmatrix}$ for $y = f(x + a)$

Reflect in x axis for $y = -f(x)$
Reflect y axis for $y = f(-x)$

English

Topics covered from the beginning of the academy year to the end of this half-term.

SPRING:

1.   **Poetry – Power and Conflict**

ARENA ACADEMY

ENGLISH Learning Journey

YEAR 7
- Play Study: The Tempest by William Shakespeare
- Consolidation point 1
- Introduction to Poetry Reading and Recital
- People and Place
- Dreams and Nightmares
- Non-fiction Travel Writing
- Consolidation point 2
- Novel Study: 'A Monster Calls' by Patrick Ness
- Year 7 Baseline test
- Welcome!
- Read a book from the Summer Recommended Reading List!
- Visit CORE English Departments
- Year 6 SATs Reading and Spelling

YEAR 8
- End of Year 8 English Assessment
- Consolidation point 3
- Gothic Horror Narrative Reading
- Character and Voice
- Imaginative and Creative Writing
- Consolidation point 2
- End of Year 7 English Assessment
- Consolidation point 3
- Changing the World Rhetoric – Speeches
- Attitudes and Perspectives
- Novel Study: 'Animal Farm' by George Orwell
- Consolidation point 1

YEAR 9
- 19th Century Literature – Dickens' 'Great Expectations' & 'Oliver Twist'
- Poverty and Society
- Speaking & Listening Language in the Media
- Youth, Action and Adventure
- Action & Adventure Creative Writing
- Consolidation point 3
- Dystopia
- Creative Writing
- Social Class and Inequality
- Poetry Familial Love
- Love & Relationships
- Consolidation point 2
- Play Study: Romeo and Juliet
- Consolidation point 1

YEAR 10
- Transactional Writing
- Perspectives in Conflict
- Consolidation point 2
- Play Study: Blood Brothers
- Macbeth Cold Read
- Poetry World at War
- End of Year 9 English Assessment
- Consolidation point 3
- AQA

YEAR 11
- LP2 & Poetry Exam
- Language Paper 2
- Consolidation point 3
- Power & Conflict Poetry
- Consolidation point 2
- LP1 & Macbeth Exam
- POETRY
- Language Paper 1
- Consolidation point 1
- Macbeth
- Speaking & Listening Endorsement
- 'An Inspector Calls - Cold Read
- REVISION
- 'An Inspector Calls - J.B Priestley
- 'A Christmas Carol
- Unseen Poetry
- Consolidation point 1

- A Level: English Language English Literature
- Apprenticeship Marketing
- Apprenticeship Advertising Creative Writing
- Journalism
- AQA GCSE English Language Examinations: Paper 1 & 2
- AQA GCSE English Literature Examinations: Paper 1 & 2
- Consolidation point 2
- English Mock Examinations: Language & Literature
- Timed Essays
- Language Papers 1 & 2 Revision
- Literature Papers 1 & 2 Revision
- English Mock Examinations: Language & Literature

CORE EDUCATION TRUST

GCSE Power and Conflict Poetry – Knowledge Organiser

Poem	Content, Meaning and Purpose	Context	Language	Form and Structure	Key Quotations
Ozymandias – Percy Bysshe Shelley	• Content, Meaning and Purpose The narrator meets a traveller who tells him about a decayed stature that he saw in a desert. • The statue was of a long forgotten ancient King: the arrogant Ozymandias, 'king of kings.' • The poem is ironic and one big metaphor: Human power is only temporary – the statue now lies crumbled in the sand, and the most powerful human creations cannot resist the power of nature.	• Shelley was a poet of the 'Romantic period' (late 1700s and early 1800s). • Romantic poets were interested in emotion and the power of nature. • Shelley also disliked the concept of a monarchy and the oppression of ordinary people. • He had been inspired by the French revolution – when the French monarchy was overthrown.	• 'sneer of cold command': the king was arrogant, this has been recognised by the sculptor, the traveller and the narrator. • 'Look on my works, ye Mighty, and despair.': 'Look' = imperative, stressed syllable highlights commanding tone; ironic – he's telling other 'mighty' kings to admire the size of his statue and 'despair'. To despair because power is temporary. • 'The lone and level sands stretch far away.': the desert is vast, lonely, and lasts far longer than a statue	• A sonnet (14 lines) but with an unconventional structure… the structure is normal until a turning point (a volta) at Line 9 (..these words appear). This reflects how human structures can be destroyed or decay. • The iambic pentameter rhyme scheme is also disrupted or decayed. • First eight lines (the octave) of the sonnet: the statue is described in parts to show its destruction. • Final two lines: the huge & immortal desert is described to emphasise insignificance of human power.	• 'I met a traveller from an antique land.' • 'Two vast and trunkless legs of stone'. • 'Sneer of cold command.' • 'Look on my works, ye Mighty, and despair!' • 'Round the decay of that colossal wreck, boundless and bare.' • 'Lone and level sands stretch far away.'
London – William Blake	• The narrator is describing a walk around London and how he is saddened by the sights and sounds of poverty. • The poem also addresses the loss of innocence and the determinism of inequality: how new-born infants are born into poverty. • The poem uses rhetoric (persuasive techniques) to convince the reader that the people in power (landowners, Church, Government) are to blame for this inequality.	• Poem was published in 1794, at a time of great poverty in many parts of London. • Blake was an English poet and artist. Much of his work was influenced by his radical political views: he believed in social and racial equality. • This poem is part of the 'Songs of Experience' collection, which focuses on how innocence is lost, and society is corrupt. • Questioned the teachings of the Church & decisions of Govt.	• Sensory language creates an immersive effect: visual imagery ('Marks of weakness, marks of woe') and aural imagery "cry of every man' • 'mind-forged manacles': they are trapped in poverty. Rhetorical devices to persuade: repetition ('In every..'); emotive language ('infant's cry of fear'). • Criticises the powerful: 'each chartered street' – everything is owned by the rich; 'Every black'ning church appals' - the church is corrupt; 'the hapless soldier's sigh /Runs in blood down palace walls'–soldiers suffer/die due to decisions of powerful.	• A dramatic monologue, there is a first-person narrator ('I') who speaks passionately about what he sees. • Simple ABAB rhyme scheme: reflects the unrelenting misery of the city, and perhaps the rhythm of his feet as he trudges around the city. • First two stanzas focus on people; third stanza focuses on the institutions he holds responsible; fourth stanza returns to the people – they are the central focus.	• 'I wander through each chartered street.' • 'Marks of weakness, marks of woe.' • 'Every cry of every man'. • 'Every black'ning church appalls'. • 'Hapless soldier's sigh runs in blood down palace walls.' • 'Youthful harlot's curse'.
Extract from, The Prelude – William Wordsworth	• The story of a boy's love of nature and a night-time adventure in a rowing boat that instils a deeper and fearful respect for power of nature. • At first, the boy is calm and confident, but the sight of a huge mountain that comes into view scares the boy and he flees. • He is now in awe of the mountain & fearful of the power of nature (described as 'huge and mighty forms') We should respect nature & not take it for granted.	• Published shortly after his death, The Prelude was a very long poem (14 books) that told the story of Wordsworth's life. • This extract is the first part of a book entitled 'Introduction – Childhood and School-Time'. • Like Percy Shelley, Wordsworth was a romantic poet and his poetry explores themes of nature, human emotion and how humans are shaped by their interaction with nature.	• 'One summer evening (led by her)': 'her' might be nature personified – this shows his love for nature. • 'an act of stealth / And troubled pleasure': confident, but oxymoron suggests he knows it's wrong; forebodes troubling events that follow. • 'nothing but the stars and grey sky': emptiness of sky. 'the horizon's bound, a huge peak, black and huge': the image of the mountain is more shocking (contrast). • 'Upreared its head' and 'measured motion like a living thing': mountain is personified as a powerful beast, but calm – contrasts with his own inferior panic. • 'There hung a darkness': lasting effects of mountain.	• First person narrative – creates a sense that it is a personal poem. • The regular rhythm and enjambment add to the effect of natural speech and a personal voice. • The extract can be split into three sections, each with a different tone to reflect his shifting mood: Lines 1-20: (rowing) carefree and confident Lines 21-31: (the mountain appears) dark and fearful. Lines 32-44: (following days) reflective and troubled • Contrasts in tone: 'lustily I dipped my oars into the silent lake' versus 'I struck and struck again' and 'with trembling oars I turned'.	• 'Straight I unloosed her chain'. • 'It was an act of stealth and troubled pleasure'. • 'Leaving behind her still, on either side, small circles glittering idly in the moon'. • 'I fixed my view upon the summit of a craggy ridge'. • 'Lustily I dipped my oars into the silent lake'. • 'My boat went heaving through the water like a swan'. • 'With trembling oars I turned'.

Poem	Summary	Context	Language	Structure	Quotes
My Last Duchess – Robert Browning	▪ The Duke is showing a visitor around his large art collection and proudly points out a portrait of his last wife, who is now dead. He reveals that he was annoyed by her over-friendly and flirtatious behaviour. ▪ He can finally control her by objectifying her and showing her portrait to visitors when he chooses. ▪ He is now alone as a result of his need for control. ▪ The visitor has come to arrange the Duke's next marriage, and the Duke's story is a subtle warning about how he expects his next wife to behave.	▪ Browning was a British poet, and lived in Italy. The poem was published in 1842. ▪ Browning may have been inspired by the story of an Italian Duke (Duke of Ferrara): his wife died in suspicious circumstances and it was rumoured that she had been poisoned.	▪ 'Looking as if she was alive': sets a sinister tone. ▪ 'Will't please you sit and look at her?' rhetorical question to his visitor shows obsession with power. ▪ 'she liked whate'er / She looked on, and her looks went everywhere.': hints that his wife was a flirt. ▪ -'as if she ranked / My gift of a nine-hundred-years old name / With anybody's gift': she was beneath him in status, and yet dared to rebel against his authority. ▪ 'I gave commands; Then all smiles stopped together': euphemism for his wife's murder. ▪ 'Notice Neptune, though / Taming a sea-horse': he points out another painting, also about control.	▪ Dramatic Monologue, in iambic pentameter. ▪ It is a speech, pretending to be a conversation – he doesn't allow the other person to speak! ▪ Enjambment: rambling tone, he's getting carried away with his anger. He is a little unstable. ▪ Heavy use of caesura (commas and dashes): stuttering effect shows his frustration and anger: 'She thanked men, – good! but thanked / Somehow – I know not how' ▪ Dramatic Irony: the reader can read between the lines and see that the Duke's comments have a much more sinister undertone.	▪ 'That's my last Duchess painted on the wall, /Looking as if she were alive'. ▪ 'I call that piece a wonder, now'. ▪ 'Too easily impressed; she liked whate'er she looked on'. ▪ 'Who'd stoop to blame this sort of trifling?' ▪ 'and I choose never to stoop.' ▪ 'Notice Neptune, though,/Taming a sea-horse'.
The Charge of the Light Brigade – Alfred Lord Tennyson	▪ Published six weeks after a disastrous battle against the Russians in the (unpopular) Crimean War ▪ Describes a cavalry charge against Russians who shoot at the lightly-armed British with cannon from three sides of a long valley. ▪ Of the 600 hundred who started the charge, over half were killed, injured or taken prisoner. ▪ It is a celebration of the men's courage and devotion to their country, symbols of the might of the British Empire.	▪ As Poet Laureate, he had a responsibility to inspire the nation and portray the war in a positive light: propaganda. ▪ Although Tennyson glorifies the soldiers who took part, he also draws attention to the fact that a commander had made a mistake: "Someone had blunder'd". ▪ This was a controversial point to make in Victorian times when blind devotion to power was expected.	▪ "Into the valley of Death": this Biblical imagery portrays war as a supremely powerful, or even spiritual, experience. ▪ "jaws of Death" and "mouth of Hell": presents war as an animal that consumes its victims. ▪ "Honour the Light Brigade/Noble six hundred": language glorifies the soldiers, even in death. The 'six hundred' become a celebrated and prestigious group. ▪ "shot and shell": sibilance creates whooshing sounds of battle.	▪ This is a ballad, a form of poetry to remember historical events – we should remember their courage. ▪ 6 verses, each representing 100 men who took part. ▪ First stanza tightly structured, mirroring the cavalry formation. Structure becomes awkward to reflect the chaos of battle and the fewer men returning alive. ▪ Dactylic dimeter (HALF-a league / DUM-de-de) mirrors the sound of horses galloping and increases the poem's pace. ▪ Repetition of 'the six hundred' at the end of each stanza (epistrophe) emphasises huge loss.	▪ 'Half a league, half a league, half a league onward.' ▪ 'All in the valley of Death / Rode the six hundred'. ▪ 'Charge for the guns!' ▪ 'Cannon to the right of them'. ▪ 'Storm'd at with shot and shell'. ▪ 'Boldly they rode and well, / Into the jaws of Death'. ▪ 'Flash'd all their sabres bare'. ▪ 'Plunged in the battery-smoke.' ▪ 'Whole horse and hero fell'. ▪ 'Honour the charge they made!' ▪ 'Honour the Light Brigade, / Noble six hundred.'
Exposure – Wilfred Owen	▪ Speaker describes war as a battle against the weather and conditions. ▪ Imagery of cold and warm reflect the delusional mind of a man dying from hypothermia. ▪ Owen wanted to draw attention to the suffering, monotony and futility of war.	▪ Written in 1917 before Owen went on to win the Military Cross for bravery, and was then killed in battle in 1918: the poem has authenticity as it is written by an actual soldier. ▪ Of his work, Owen said: "My theme is war and the pity of war". ▪ Despite highlighting the tragedy of war and mistakes of senior commanders, he had a deep sense of duty: "not loath, we lie out here" shows that he was not bitter about his suffering.	▪ "Our brains ache" physical (cold) suffering and mental (PTSD or shell shock) suffering. - Semantic field of weather: weather is the enemy. ▪ "the merciless iced east winds that knive us…" – personification (cruel and murderous wind); sibilance (cutting/slicing sound of wind); ellipsis (never-ending). ▪ Repetition of pronouns 'we' and 'our' – conveys togetherness and collective suffering of soldiers. ▪ 'mad gusts tugging on the wire' – personification	▪ Contrast of Cold>Warm>Cold imagery coveys Suffering>Delusions>Death of the hypothermic soldier. ▪ Repetition of "but nothing happens" creates circular structure implying never ending suffering ▪ Rhyme scheme ABBA and hexameter gives the poem structure and emphasises the monotony. ▪ Pararhymes (half rhymes) ("nervous / knife us") only barely hold the poem together, like the men.	▪ 'Our brains ache, in the merciless iced east winds that knive us.' ▪ 'Low, dropping flares confuse our memory of the salient.' ▪ 'Worried by silence'. ▪ 'We hear the mad gusts tugging on the wire.' ▪ 'The flickering gunnery rumbles.' ▪ 'The poignant misery of dawn begins to grow.' ▪ 'Sudden successive flights of bullets streak the silence.' ▪ 'Slowly our ghosts drag home'.

Poem	Summary	Context	Language/Imagery	Structure/Form	Key Quotations
Storm on the Island – Seamus Heaney	• The narrator describes how a rural island community prepared for a coming storm, and how they were confident in their preparations. • When the storm hits, they are shocked by its power: its violent sights and sounds are described, using the metaphor of war. • The final line of the poem reveals their fear of nature's power	• Seamus Heaney was Northern Irish, he died in 2013. • This poem was published in 1966 at the start of 'The Troubles' in Northern Ireland: a period of deep unrest and violence between those who wanted to remain part of the UK and those who wanted to become part of Ireland. • The first eight letters of the title spell 'Stormont': this is the name of Northern Ireland's parliament. • The poem might be a metaphor for the political storm that was building in the country at the time.	• 'Nor are there trees which might prove company': the island is a lonely, barren place. • Violent verbs are used to describe the storm: 'pummels', 'exploding', 'spits'. • Semantic field of war: 'Exploding comfortably' (also an oxymoron to contrast fear/safety); 'wind dives and strafes invisibly' (the wind is a fighter plane); 'We are bombarded by the empty air' (under ceaseless attack). • This also reinforces the metaphor of war / troubles. -'spits like a tame cat turned savage': simile compares the nature to an animal that has turned on its owner.	• Written in blank verse and with lots of enjambment: this creates a conversational and anecdotal tone. • We' (first person plural) creates a sense of community, and 'You' (direct address) makes the reader feel immersed in the experience. • The poem can split into three sections: Confidence: 'We are prepared:' (ironic) The violence of the storm: 'It pummels your house' Fear: 'it is a huge nothing that we fear.' • There is a turning point (a volta) in Line 14: 'But no:'. This monosyllabic phrase, and the caesura, reflects the final calm before the storm.	• 'We are prepared: we build our houses squat'. • 'Sink walls in rock and roof'. • 'there are no stacks or stooks that can be lost'. • 'Blast: you know what I mean'. • 'leaves and branches / Can raise a tragic chorus in a gale.' • 'It pummels your house too.' • 'The flung spray hits / The very windows.' • 'Spits like a tame cat / Turned savage.; • 'We are bombarded by the empty air.'
Bayonet Charge – Ted Hughes	• Describes the terrifying experience of 'going over the top': fixing bayonets (long knives) to the end of rifles and leaving a trench to charge directly at the enemy. • Steps inside the body and mind of the speaker to show how this act transforms a soldier from a living thinking person into a dangerous weapon of war. • Hughes dramatises the struggle between a man's thoughts and actions.	• Published in 1957, but most-likely set in World War 1. • Hughes' father had survived the battle of Gallipoli in World War 1, and so he may have wished to draw attention to the hardships of trench warfare. • He draws a contrast between the idealism of patriotism and the reality of fighting and killing. ("King, honour, human dignity, etcetera")	• The patriotic tear that brimmed in his eye Sweating like molten iron": his sense of duty (tear) has now turned into hot sweat of fear/pain. • "cold clockwork of the stars and nations": the soldiers are part of a cold and uncaring machine of war. • "his foot hung like statuary in midstride.": he is frozen with fear/bewilderment. The caesura (full stop) jolts him back to reality. • "a yellow hare that rolled like a flame And crawled in a threshing circle": impact of war on nature – the hare is distressed like the soldiers	• The poem starts 'in medias res': in the middle of the action, to convey shock and pace. • Enjambment maintains the momentum of the charge. • Time stands still in the second stanza to convey the soldier's bewilderment and reflective thoughts. • Contrasts the visual and aural imagery of battle with the internal thoughts of the soldier = adds to the confusion.	• 'Suddenly he awoke and was running – raw.' • 'Raw-seamed hot khaki.' • 'Bullets smacking the belly out of the air.' • 'The patriotic tear that had brimmed in his eye.' • 'Sweating like molten iron from the centre of his chest.' • 'Threw up a yellow hare that rolled like a flame.' • 'He plunged past with his bayonet toward the green hedge.' • 'King, honour, human dignity, etcetera'.
Remains – Simon Armitage	• Written to coincide with a TV documentary about those returning from war with PTSD. • Based on Guardsman Tromans, who fought in Iraq in 2003. • Speaker describes shooting a looter dead in Iraq and how it has affected him. • To show the reader that mental suffering can persist long after physical conflict is over.	• These are poems of survivors – the damaged, exhausted men who return from war in body but never, wholly, in mind." Simon Armitage • Poem coincided with increased awareness of PTSD amongst the military, and aroused sympathy amongst the public – many of whom were opposed to the war.	• "Remains" -images/suffering remain. • "Legs it up the road" - colloquial language = authentic voice • "Then he's carted off in the back of a lorry" – reduction of humanity to waste or cattle. • "he's here in my head when I close my eyes / dug in behind enemy lines" – metaphor for a war in his head; the PTSD is entrenched. • his bloody life in my bloody hands" – alludes to Macbeth: Macbeth the warrior with PTSD and Lady Macbeth's bloody hands and guilt.	• Monologue, told in the present tense to convey a flashback (a symptom of PTSD). • First 4 stanzas are set in Iraq; last 3 are at home, showing the aftermath. • Enjambment conveys his conversational tone and gives it a fast pace, especially when conveying the horror of the killing • Repetition of 'Probably armed, Possibly not" conveys guilt and bitterness	• 'We get sent out to tackle looters raiding a bank'. • 'Probably armed, possibly not'. • 'Three of a kind all letting fly'. • 'I see broad daylight on the other side'. • 'So we've hit this looter a dozen times'. • 'the image of agony'. • 'One of my mates goes by and tosses his guts back into his body'. • 'I walk right over it week after week'.

Poem					
Poppies – Jane Weir	• A modern poem that offers an alternative interpretation of bravery in conflict: it does not focus on a soldier in battle but on the mother who is left behind and must cope with his death. • The narration covers her visit to a war memorial, interspersed with images of the soldier's childhood and his departure for war.	• Set around the time of the Iraq and Afghan wars, but the conflict is deliberately ambiguous to give the poem a timeless relevance to all mothers and families. • There are hints of a critical tone; about how soldiers can become intoxicated by the glamour or the military: "a blockade of yellow bias" and "intoxicated".	• Contrasting semantic fields of home/childhood ("cat hairs", "play at being Eskimos", "bedroom") with war/injury ("blockade", bandaged", "reinforcements") • Aural (sound) imagery: "All my words flattened, rolled, turned into felt" shows pain and inability to speak, and "I listened, hoping to hear your playground voice catching on the wind" shows longing for dead son. • "I was brave, as I walked with you, to the front door": different perspective of bravery in conflict.	• This is an Elegy, a poem of mourning. • Strong sense of form despite the free verse, stream of consciousness addressing her son directly – poignant • No rhyme scheme = melancholic • Enjambment gives it an anecdotal tone. • Nearly half the lines have caesura – she is trying to hold it together, but can't speak fluently as she is breaking inside. • Rich texture of time shifts, and visual, aural and touch imagery.	• 'Crimped petals, spasms of paper red, disrupting a blockade of yellow bias binding around your blazer'. • 'Sellotape bandaged around my hand.' • 'I wanted to graze my nose across the tip of your nose.' • 'I resisted the impulse to run my fingers through the gelled blackthorns of your hair.' • 'A split second and you were away, intoxicated'. • 'The dove pulled freely against the sky'.
War Photographer – Carol Ann Duffy	• Tells the story of a war photographer developing photos at home in England: as a photo develops he begins to remember the horrors of war - painting a contrast to the safety of his dark room. • He appears to be returning to a warzone at the end of the poem. • Duffy conveys both the brutality of war and the indifference of those who might view the photos in newspapers and magazines: those who live in comfort and are unaffected by war.	• Like Tennyson and Ted Hughes, Duffy was the Poet Laureate. • Duffy was inspired to write this poem by her friendship with a war photographer. She was intrigued by the challenge faced by these people whose job requires them to record terrible, horrific events without being able to directly help their subjects. • The location is ambiguous and therefore universal: ("Belfast. Beirut. Phnom Penh.")	• All flesh is grass": Biblical reference that means all human life is temporary – we all die eventually. • "He has a job to do": like a soldier, the photographer has a sense of duty. • "running children in a nightmare heat": emotive imagery with connotations of hell. • "blood stained into a foreign dust": lasting impact of war – links to Remains and 'blood shadow'. • "he earns a living and they do not care": 'they' is ambiguous – it could refer to readers or the wider world.	• Enjambment – reinforces the sense that the world is out of order and confused. • Rhyme reinforces the idea that he is trying to bring order to a chaotic world – to create an understanding. • Contrasts: imagery of rural England and nightmare war zones. • Third stanza: A specific image – and a memory – appears before him	• 'In his darkroom he is finally alone'. • 'The only light is red and softly glows'. • 'All flesh is grass'. • 'Solutions slop in trays beneath his hands'. • 'A stranger's features faintly start to twist before his eyes, a half-formed ghost'. • 'The blood stained into foreign dust'. • 'The reader's eye balls prick with tears'.
Tissue – Imtiaz Dharker	• Two different meanings of 'Tissue' (homonyms) are explored: firstly, the various pieces of paper that control our lives (holy books, maps, grocery receipts); secondly, the tissue of a human body. • The poet explores the paradox that although paper is fragile, temporary and ultimately not important, we allow it to control our lives. • Also, although human life is much more precious, it is also fragile and temporary.	• Imtiaz Dharker was born in Pakistan and grew up in Glasgow. • 'Tissue' is taken from a 2006 collection of poems entitles 'The Terrorist at My Table': the collection questions how well we know people around us. • This particular poem also questions how well we understand ourselves and the fragility of humanity.	• Semantic field of light: ('Paper that lets light shine through', 'The sun shines through their borderlines', 'let the daylight break through capitals and monoliths') emphasises that light is central to life, a positive and powerful force that can break through 'tissue' and even monoliths (stone statues). • 'pages smoothed and stroked and turned': gentle verbs convey how important documents such as the Koran are treated with respect. • 'Fine slips […] might fly our lives like paper kites': this simile suggests that we allow ourselves to be controlled by paper.	• The short stanzas create many layers, which is a key theme of the poem (layers of paper and the creation of human life through layers) • The lack of rhythm or rhyme creates an effect of freedom and openness. • All stanzas have four lines, except the final stanza which has one line ('turned into your skin'): this line focuses on humans, and addresses the reader directly to remind us that we are all fragile and temporary • Enjambment creates an effect of freedom and flowing movement.	• "If buildings were paper, I might feel their drift." • "Paper thinned by age or touching." • "The kind you feel in well-used books." • "Paid by credit card might fly our lives like paper kites." • "Living tissue, raise a structure never meant to last." • "Paper smoothed and stroked and thinned to be transparent." • "Turned in to your skin." • "Shapes that pride can make." • "Never wish to build again with brick."

Poem	Context / Content	Background	Language / Imagery	Structure / Form	Quotations
The Emigree – Carol Rumens	• Emigree' – a female who is forced to leave their county for political or social reasons. • The speaker describes her memories of a home city that she was forced to flee. The city is now "sick with tyrants". • Despite the cities problems, her positive memories of the place cannot be extinguished.	• Emigree was published in 1993. The home country of the speaker is not revealed – this ambiguity gives the poem a timeless relevance. • Increasingly relevant to many people in current world climate	• "I left it as a child": ambiguous meaning – either she left when she was a child or the city was a child (it was vulnerable and she feels a responsibility towards it). • "I am branded by an impression of sunlight": imagery of light - it will stay with her forever. • Personification of the city: "I comb its hair and love its shining eyes" (she has a maternal love for the city) and "My city takes me dancing" (it is romantic and passionate lover) • "My city hides behind me": it is vulnerable and – despite the fact that she had to flee – she is strong. • Semantic field of conflict: "Tyrant, tanks, frontiers"	• First person. • The last line of each stanza is the same (epistrophe): "sunlight": reinforces the overriding positivity of the city and of the poem. • The first two stanzas have lots of enjambment – conveys freedom. • The final stanza has lots of full-stops – conveys that fact that she is now trapped.	• "There once was a country... I left it as a child." • "The worst news I receive of it cannot break." • "It may be at war, it may be sick with tyrants." • "The graceful slopes glow even clearer as time rolls its tanks." • "That child`s vocabulary I carried here like a hollow doll." • "Soon I shall have every coloured molecule of it." • "I have no passport, there`s no way back at all." • "My city takes me dancing through the city."
Checking Out Me History – John Agard	• Represents the voice of a black man who is frustrated by the Eurocentric history curriculum in the UK – which pays little attention to the black history. • Black history is quoted to emphasise its separateness and to stress its importance.	• John Agard was born in the Caribbean in 1949 and moved to the UK in the 1970s. • His poetry challenge racism and prejudice. • This poem may, to some extent, have achieved its purpose: in 2016, a statue was erected in London in honour of Mary Seacole, one of the subjects of the poem.	• Imagery of fire and light used in all three stanzas regarding black historic figures: "Toussaint de beacon", "Fire-woman", "yellow sunrise". • Uses non-standard phonetic spelling ("Dem tell me wha dem want", to represent his own powerful accent and mixes Caribbean Creole dialect with standard English. • "I carving out me identity": metaphor for the painful struggle to be heard, and to find his identity.	• Dramatic monologue, with a dual structure. • Stanzas concerning Eurocentric history (normal font) are interspersed with stanzas on black history (in italics to represent separateness and rebellion). • Black history sections arranged as serious lessons to be learned; traditional history as nursery rhymes, mixed with fairytales (mocking of traditional history). • The lack of punctuation, the stanzas in free verse, the irregular rhyme scheme and the use of Creole could represent the narrator's rejection of the rules. • Repetition of "Dem tell me": frustration.	• "Dem tell me bout 1066 and all dat." • "Bandage up me eye with me own history." • "But Toussaint L`Ouverture no dem never tell me bout dat." • "Dem never tell me bout Shaka de great Zulu." • "Dem never tell me bout Mary Seacole." • "From Jamaica she travel far to the Crimean War." • "But now I checking out me own history." • I carving out me identity."
Kamikaze – Beatrice Garland	• In World War 2, Japanese Kamikaze pilots would fly manned missiles into targets such as ships. • This poem explores a kamikaze pilot's journey towards battle, his decision to return, and how he is shunned when he returns home. • As he looks down at the sea, the beauty of nature and memories of childhood make him decide to turn back	• Cowardice or surrender was a great shame in wartime Japan. • To surrender meant shame for you and your family, and rejection by society: "he must have wondered which had been the better way to die".	• The Japanese word 'kamikaze' means 'divine wind' or 'heavenly wind', and has its origin in a heaven-sent storm that scattered an invading fleet in 1250. • "dark shoals of fish flashing silver": image links to a Samurai sword – conveys the conflict between his love for nature/life and his sense of duty. Also has sibilance. • "they treated him as though he no longer existed": cruel irony – he chose to live but now must live as though he is dead. • "was no longer the father we loved": the pilot was forever affected by his decision.	• Narrative and speaker is third person, representing the distance between her and her father, and his rejection by society. • The first five stanzas are ordered (whilst he is flying on his set mission). • Only full stop is at the end of Stanza Five: he has made his decision to turn back. • The final two are in italics and have longer line to represent the fallout of his decision: his life has shifted and will no longer be the same. • Direct speech ("My mother never spoke again") gives the poem a personal tone.	• "Her father embarked at sunrise." • "In the cockpit, a shaven head full of powerful incantations." • "For a one-way journey in to history." • "Beneath them, arcing in swathes like a huge flag." • "Remembered how he and his brothers waiting on the shore." • "Yes, grandfather`s boat – safe." • "Gradually we too learned to be silent, to live as though he had never returned."

Science

Topics covered from the beginning of the academy year to the end of this half-term.

SPR 1:

1. **C2 Atomic Structure and the Periodic Table**
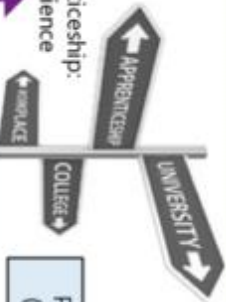2. **P2 Electricity**
3. **P3 Molecules and matter**

SPR 2:

4. **B3 Disease**

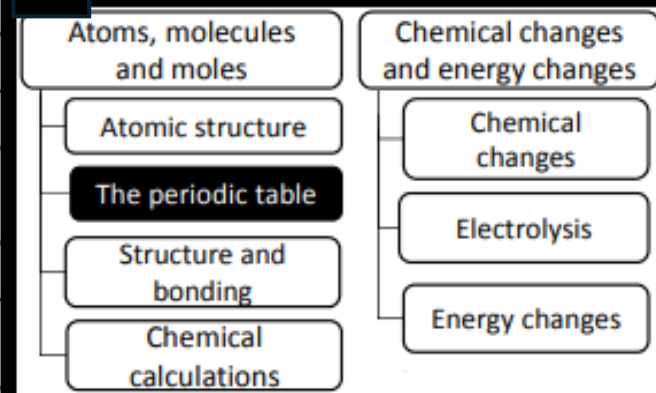ARENA ACADEMY

SCIENCE Learning Journey

1. Chemical symbol	An abbreviated name for every element. Maximum of two letters always starts with a capital letter
2 Reactivity	How easily an element will react
3. Group	Columns in the Periodic Table. Elements in the same group have similar properties
	Tells you how many electrons that atom has in its outer shell
4. Period	Rows in the periodic table
	Tells you how many electron shells that atom has
5. Mass number	Number of neutrons + protons 4 Neutrons + 3 Protons ⇒ ^7_3Li ⇐ 3 Protons
6. Atomic number	Number of protons
7. Ion	Atom where number of protons is not equal to electrons (+'ve or –'ve)
8. Mendeleev	Scientist who placed elements in order of atomic weight but left gaps for undiscovered elements
9. Metals	Have delocalised (free) electrons that can move
	Atoms lose electrons and become positive (+'ve) ions
	Metals

10. Non-metals	Have electrons that cannot move
	Nearly always gain electrons and become (negative -'ve) ions
	Non-metals
11. Group 0 Noble gases	He, Ne, Ar, Kr, Xe, Rn
	Unreactive: full outer shell
	Boiling point increases as you go down the group
12. Group 1 Alkali metals	Li, Na, K, Rb, Cs, Fr
	Very reactive: only one electron in their outer shell
	Reactivity increases as you go down the group
	React with oxygen to give metal oxides eg MgO
	React with water to give metal hydroxide (alkali) and hydrogen eg MgOH
	React with chlorine to give metal chloride eg MgCl
13. Group 7 Halogens	F, Cl, Br, I
	Melting and boiling point increase as you go down group
	Reactivity decreases as you go down the group
	A more reactive halogen will displace a less reactive one

C2
Paper 1

Big picture (Chemistry Paper 1)

Atoms, molecules and moles	Chemical changes and energy changes
Atomic structure	Chemical changes
The periodic table	
Structure and bonding	Electrolysis
Chemical calculations	Energy changes

Background

The periodic table is amazing because it allows us to predict and explain the properties of elements even before they are discovered.

Maths skills

Losing –'ve charge makes you more +'ve. Gaining –'ve charge makes you more –'ve.
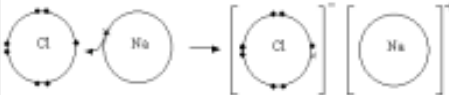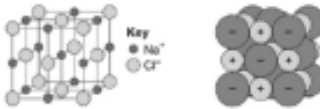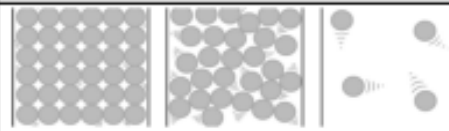
Additional information

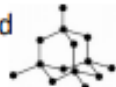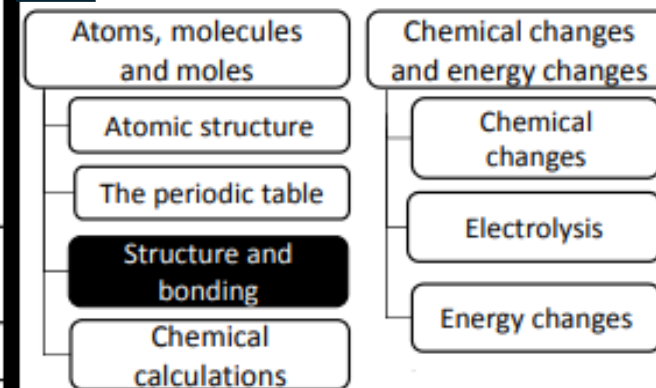|	
Remember Electron energy levels	Where electrons are found. The shells can each hold this many electrons maximum: 2,8,8
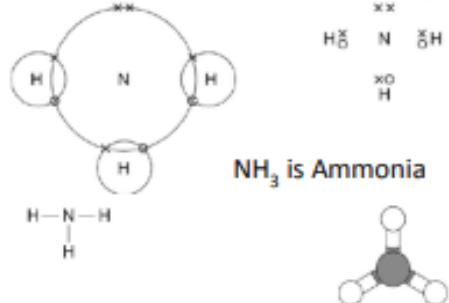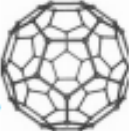
Key points to learn

1. Chemical bonds	Hold atoms together in a molecule after a reaction
2. Ionic bonding	Metal + Non metal
	Metal loses electrons and becomes a positive ion. Non metal gains the electrons and becomes a negative ion
	Cl + Na → NaCl
3. Giant ionic structures	Drawing salt (NaCl)
	High melting and boiling points
	Conduct electricity when melted or dissolved in water
4. Metallic bonding	Metal + Metal
	Giant structures with free electrons moving throughout
5. Conductors	Metals conduct electricity because they have free electrons
6. Graphite	Non-metal that conducts electricity
7. Alloys	A mixture of different metals. Which are then harder
8. States of matter	Solid Liquid Gas

Key points to learn

9. Covalent bonding	Non-metal + Non metal
	Atoms share electrons
	Four different ways of drawing NH₃ NH₃ is Ammonia
10. Giant covalent structures	Examples are diamond and silicon dioxide
	Solids. Very high melting points
11. Small molecules	Usually gases or liquids. Do not conduct electricity
12. Polymers	Long chain molecules linked by strong covalent bonds
13. Particle theory	Particles are held together by intermolecular forces that get weaker as particles gain energy
14. State symbols	(s) solid; (l) liquid; (g) gas; (aq) aqueous solution
15. Graphene	A single layer of graphite used in electronics
16. Fullerenes	Molecules of carbon with hollow shapes
	Used in nanotechnology, electronics and materials

Big picture (Chemistry Paper 1)

Atoms, molecules and moles	Chemical changes and energy changes
Atomic structure	Chemical changes
The periodic table	Electrolysis
Structure and bonding	
Chemical calculations	Energy changes

Background

Chemical reactions are a crucial part of all our lives. Without them the Universe as we know it could not exist.
This topic considers the three type of chemical bonds. All involve atoms trying to fill or empty their outer shells. Together these bonds are responsible for the wide range of different properties we see around us.
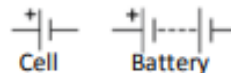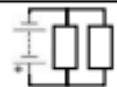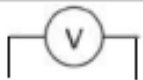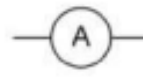
Additional information

You need to be clear which elements are metals and non-metals (see C2: Periodic table) also a good knowledge of the electron energy levels will help (see C1: Atomic structure).

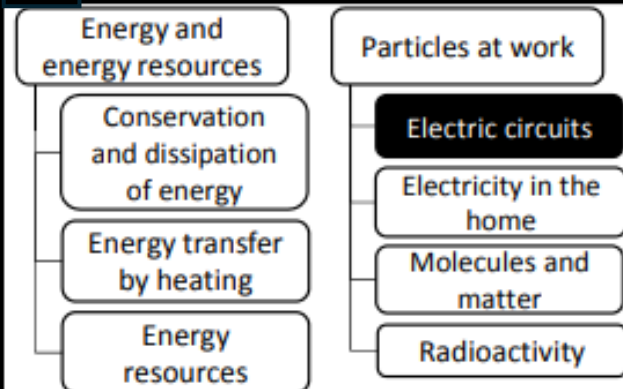| 1. Diode	
	Current only flows one way. Very high resistance in other direction.
2. Resistor (Ohmic conductor)	
	Resistance stays constant. Current proportional to pd.
3. Variable resistor	Resistance can be set by a human. Used in dimmer switches.
4. LED	A diode that gives off light.
5. Lamp	
	Resistance increases as the temperature increases.
6. Thermistor	Resistance decreases as the temperature increases.
	Used in thermostats.
7. LDR	
	Resistance decreases as the light intensity increases (gets brighter).
	Used in automatic lights.

8. Cell and battery	Provides the potential difference (pd) and energy for a circuit. Cell Battery
9. Current, I	Rate of flow of electrical charge. Measured in Amps (A)
10. Charge, Q	Measured in Coulombs (C)
11. Potential difference, V	pd. Energy transferred per unit charge. Measured in Volts (V)
12. Resistance R	Ability to slow current. Measured in Ohms (Ω)
13. Series circuit	Current has only one route.
	Current is the same all the way around. Potential difference is shared across components.
	Resistances are added together.
14. Parallel circuit	Current has different paths it could take.
	Current is shared through each branch. Potential difference is the same across each branch.
	Total resistance is lower than the smallest single resistor.
15. Voltmeter	Measures pd across a component
16. Ammeter	Measures current through a component
17. Fuse	Resistor that melts if current is too high.

P2
Paper 1

Big picture (Physics Paper 1)

Energy and energy resources	Particles at work
Conservation and dissipation of energy	Electric circuits
	Electricity in the home
Energy transfer by heating	Molecules and matter
Energy resources	Radioactivity

Background

Electrical power fills the modern world with light and sound, information and entertainment, remote sensing and control. Its use was identified and explored by scientists of the 19th century but it becomes more important every day.
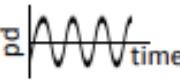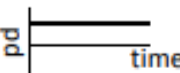
Maths skills

- $Q = I \times t$

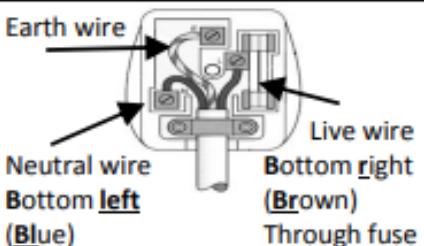 Charge = Current x time

  [C]   [A]   [s]

- $V = I \times R$

  Potential difference = Current x Resistance

  [V]   [A]   [Ω]

(You need to be able to remember and use these)
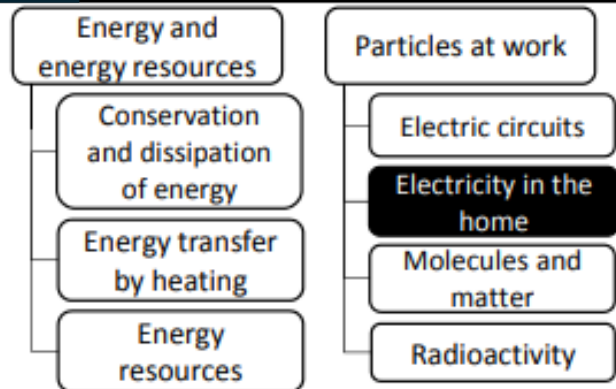
Key points to learn

1. ac	Alternating current Found in mains
	Has an alternating potential difference (voltage) negative to positive.
2. dc	Direct current Found in batteries
	Has a constant potential difference (voltage)
3. UK mains	AC supply of 230Volts and frequency of 50Hz
4. Power, P	Energy [J] transferred in one second. Measured in Watts (W)
5. Potential difference, V	Also known as voltage. Measured in volts (V)
6. Energy transferred, E	Depends on the power of the appliance and the time it is on for. Also called work done.
7. Energy transfer diagram	Energy → Useful + Wasted input energy energy
8. Work done, E	Energy transferred when current flows in a circuit.
9. National grid	System of cables and transformers.
10. Step-up transformer	Increase potential difference so that less heat energy is wasted.
11. Step-down transformer	Decrease potential difference to make electric more easily used.

Key points to learn

12. Current, I	Measured in Amps (A)
13. Resistance, R	Measured in ohms (Ω)
14. Live wire	Brown. Connects to fuse.
	Carries the alternating potential difference from the supply.
	About 230V.
15. Neutral wire	Blue wire
	Completes the circuit.
	Around 0V
16. Earth wire	Green and yellow striped wire.
	Carries current safely to Earth if there is a fault.
	Normally 0V.
17.Electrical plug	Made of plastic as it is a good insulator.
	Earth wire. Live wire. Neutral wire Bottom right Bottom left (Brown) (Blue) Through fuse

- P = V x I
  power = potential difference × current
  [W] = [V] [A]

- P = I² × R
  power = current² × resistance
  [W] = [A] [Ω]

Big picture (Physics Paper 1)

- Energy and energy resources
  - Conservation and dissipation of energy
  - Energy transfer by heating
  - Energy resources
- Particles at work
  - Electric circuits
  - **Electricity in the home**
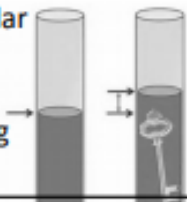 - Molecules and matter
  - Radioactivity

Background

We use electricity in all aspects of modern life. But how is it moved from power stations to our homes and then to our devices? This topic answers that question as well as investigating how power companies measure our electricity usage.
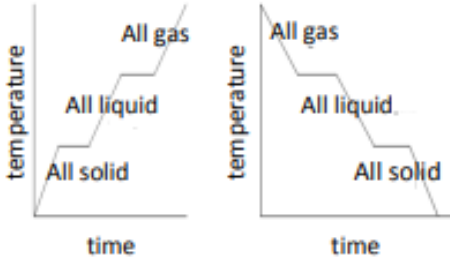
Maths skills

- E = P x t
  Work done = Power x time
  [J] [W] [s]
  [kWh] [kW] [hr]

  (You need to remember and be able to use all of the equations on this sheet.)

- E = Q x V
  Work done = Charge flow x potential difference
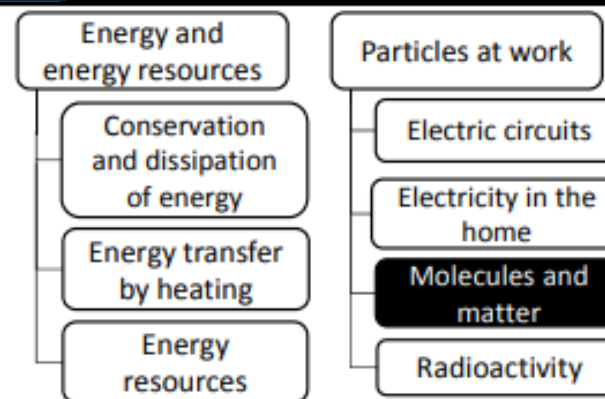 [J] [C] [V]

1. Mass, m	Amount of matter in something. Measured in kg
2. Volume, V	Amount of space something takes up. Measured in m³
	Volume of a cuboid = w x d x h
	Volume of an irregular object can be found by dropping in a liquid and measuring displacement.
3. Density, ρ	Mass per unit volume. Measured in kg/m³
	$density = \dfrac{mass}{volume}$
4. Floating	An object that has a lower density than the fluid will float
5. Sinking	An object that has a higher density than the fluid will sink
6 Evaporation	Happens at any temperature
7 Sublimation	Solid turns straight into gas
8. Solid	Particles held together in fixed positions by strong forces. Least energetic state of matter.
9. Liquid	Particles move at random and are in contact with each other. More energy than solids, less than gas
10. Gas	Particles move randomly and are far apart. Weak forces of attraction. Most energetic.

11. Melting point	Temperature when solid turns into liquid. Same as freezing point.
12. Boiling point	Temperature when liquid turns into gas. Same as condensation point.
13. Condensation point	Temperature when gas turns into liquid. Same as boiling point.
14. Freezing point	Temperature when liquid turns into solid. Same as melting point.
15. Latent heat	Energy transferred when a substance changes state but temperature doesn't change
16. Specific latent heat of fusion	Energy needed to melt 1kg of solid into liquid
17. Specific latent heat of vaporisation	Energy needed to boil 1kg of liquid into gas
18. At state changes...	Temperature and kinetic energy of particles stays constant.
	Internal energy increases due to an increase in potential energy as particles move further apart
19. Heating and cooling curves	
20. Gas pressure	Caused by particles hitting surfaces. Increases when temperature increases

P3
Paper 1

Big picture (Physics Paper 1)

- Energy and energy resources
  - Conservation and dissipation of energy
  - Energy transfer by heating
  - Energy resources
- Particles at work
  - Electric circuits
  - Electricity in the home
  - Molecules and matter
  - Radioactivity

Background

The particle model is widely used to predict the behaviour of solids, liquids and gases. It helps us to design vehicles from submarines to spacecraft. It even explains why it is difficult to make a good cup of tea high up a mountain!

Maths skills

$density = \dfrac{mass}{Volume}$	(You need to remember this.)
[kg/m³] $\rho = \dfrac{m}{V}$ $\dfrac{[kg]}{[m^3]}$	

Latent heat: $Energy = mass \times$ specific latent heat

$E = m \times L$

[J]   [kg]   [J/kg]   (You are given this)

Key points to learn

1. Bacteria	Large microbe Living
	Divide by splitting in two
	May produce toxins to make us ill
	Cause: • Salmonella – food poisoning • Gonorrhoea – sexually transmitted disease (STD)
2. Viruses	Smallest microbe Not alive
	Live and reproduce inside cells
	Cause: • Measles – can be fatal • HIV – can turn into AIDS • Tobacco mosaic virus (TMV) affects photosynthesis in plants
3. Fungi	The other type of microbe. Living
	Cause: • Rose black spot – affects photosynthesis in plants
4. Pathogens	Microbes/microorganisms that cause diseases
	Spread by air, contact and water
5. Communicable diseases	Infectious diseases that can be passed from one person to another
	Caused by pathogens
6. Malaria	Is a protist disease. Spread by mosquito bites

Key points to learn

7. Causes of ill health	Pathogens, diet, stress, life situations/conditions
8. Non-communicable diseases	Cannot be transmitted from one person to another
	Eg heart disease, arthritis
9. Ignaz Semmelweis	Doctor in mid-1850s who persuaded doctors to wash their hands
10. Louis Pasteur	Showed that microbes caused disease. Developed vaccines
11. Vaccines	An inactive form of a pathogen used to prepare your immune system
12. Human defences against pathogens	1. Skin barrier - covers your body 2. Nose - hair and mucus act as trap 3. Trachea and bronchi – covered in cilia and mucus 4. Stomach - makes acid to destroy 5. Immune system – white blood cells defend us in three ways
13. Trachea	Pipe from mouth to bronchi
14. Bronchi	Pipe into each lung
15. Cilia	Tiny hair-like cells
16. White blood cells	1. Phagocytosis ingest microbes
	2. Produce antibodies chemicals to destroy microbes
	3. Produce antitoxins chemicals to cancel-out toxins made by pathogens

Big picture (Biology Paper 1)

- Cells and organisation
  - Cell structure and transport
  - Cell division
  - Organisation and the digestive system
  - Organising animals and plants
- Disease and bioenergetics
  - Communicable diseases
  - Preventing and treating disease
  - Non-communicable diseases
  - Photosynthesis
  - Respiration

Background

Nobody likes getting ill. To better avoid diseases, we need to understand what causes and how our bodies try and defend us from them.

Additional information

This topic links really well with B6 which is all about how we can further defend against these diseases.
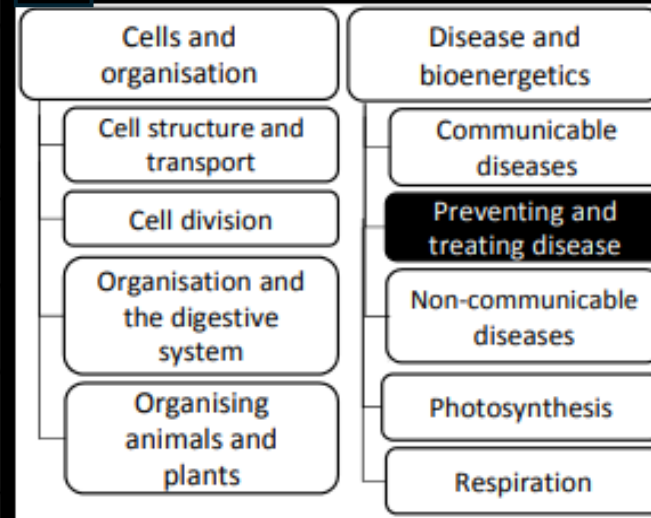
Key points to learn

1. Bacteria	Large microbe. Living
	Divide by splitting in two
	May produce toxins to make us ill
	Cause: - Salmonella - Gonorrhoea
2. Viruses	Smallest microbe. Not alive
	Live and reproduce inside cells
	Cause: - Measles - HIV - Tobacco mosaic virus (TMV)
3. Pathogens	Microbes/microorganisms that cause diseases
	Spread by air, contact and water
4. Communi-cable diseases	Infectious diseases that can be passed from person to person
	Caused by pathogens
5. Louis Pasteur	Showed that microbes caused disease. Developed vaccines
6. Painkillers	No effect on the pathogens but do reduce the symptoms of illness. Eg aspirin and paracetamol
7. Destroying viruses	Is very difficult without damaging body tissue as they live inside cells
8. Discovery of new drugs	Medicines used to be extracted from plants and microorganisms eg • Heart drug *digitalis* from foxglove • Painkiller aspirin from willow tree • Penicillin from mould
9. Placebo	A tablet with no active medicine content

Key points to learn

10. Vaccines	An inactive form of a pathogen used to prepare your immune system
	White blood cells are able to respond quickly to prevent infection
	MMR is a vaccine against mumps, measles and rubella
11. Antibiotics	Medicines that kill specific bacteria. Greatly reduced deaths from bacterial diseases
	Cannot kill viruses
	Some bacteria are becoming resistant which is very concerning
	Alexander Fleming discovered penicillin
12. Making new medicines	Need to be checked for toxicity (safety), efficacy (effectiveness) and dose
	First trials are done using cells, tissues and live animals
	Clinical trials use healthy volunteers and patient: 1. Very low doses at start of trial 2. If safe, more trials done 3. In double blind trial some patients given placebo
13. White blood cells	1. Phagocytosis ingest microbes
	2. Produce antibodies chemicals to destroy microbes
	3. Produce antitoxins chemicals to cancel-out toxins made by pathogens

B3
Paper 1

Big picture (Biology Paper 1)

Cells and organisation	Disease and bioenergetics
Cell structure and transport	Communicable diseases
Cell division	Preventing and treating disease
Organisation and the digestive system	Non-communicable diseases
Organising animals and plants	Photosynthesis
	Respiration

Background

Nobody likes getting ill. To better avoid diseases, we need to understand what causes and how our bodies try and defend us from them.

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