

School Closure – Independent Learning

Monday 5th October 2026

School is closed today. Students should complete **English and Maths** work independently during the normal school day.

This work is provided to support learning. Any questions can be addressed in lessons when we return to school. **Please take care, and we look forward to welcoming everyone back as soon as possible.**

Year 7

Maths

1 M113 • × and ÷ by 10, 100 and 1000

×10, ×100, ×1000: digits move 1, 2 or 3 places **LEFT** in a place-value chart.
÷10, ÷100, ÷1000: digits move 1, 2 or 3 places **RIGHT**.

$4.56 \times 10 = 45.6$	$456 \div 10 = 45.6$
$4.56 \times 100 = 456$	$456 \div 100 = 4.56$
$4.56 \times 1000 = 4560$	$456 \div 1000 = 0.456$

The decimal point stays fixed.
Use zeros as placeholders.

2 M911 • Multiply using place value

Partition numbers into tens and ones.

$$23 \times 4 = (20 \times 4) + (3 \times 4)$$
$$= 80 + 12 = 92$$

	20	3
4	80	12

Tip: $20 \times 4 = 2 \text{ tens} \times 4 = 8 \text{ tens}$.

3 M187 • Multiply integers: grid method

Example: 23×14

1 Partition 2 Multiply each box 3 Add

	20	3
10	200	30
4	80	12

$$200 + 30 + 80 + 12 = 322$$

Tip: Check: 23×14 is close to $20 \times 15 = 300$.

4 M803 • Multiply decimals: grid method

Example: 2.3×1.4

$$2.3 = 2 + 0.3 \quad 1.4 = 1 + 0.4$$

	2	0.3
1	2	0.3
0.4	0.8	0.12

$$2 + 0.3 + 0.8 + 0.12 = 3.22$$

Tip: $0.3 \times 0.4 = 0.12$
(3 tenths × 4 tenths = 12 hundredths).

SPARX

- Multiplying and dividing by 10, 100 and 1000(M113)
- Multiplying using place value(M911)
- Using a written method to multiply integers(M187)
- Using a written method to multiply decimals(M803)

Corbett

Video - <https://corbettmaths.com/2013/02/15/multiplying-decimals-2/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2018/01/multiplication-1-grid.pdf>

Video - <https://corbettmaths.com/2013/02/15/multiplying-decimals-2/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2018/01/multiplying-decimals-textbook-pdf.pdf>

English

Effective Discussion

<https://www.thenational.academy/pupils/programmes/english-secondary-year-7/units/the-fundamentals-of-effective-discussion/lessons>

Year 8

Maths

1 M608 • Index rules with positive indices Same base? Use these rules: Multiply: add the indices $a^m \times a^n = a^{m+n}$ $x^3 \times x^4 = x^7$ Divide: subtract the indices $a^m \div a^n = a^{m-n}$ $x^7 \div x^2 = x^5$ Power of a power: multiply the indices $(a^m)^n = a^{mn}$ $(x^3)^2 = x^6$ Tip: Keep the base the same. For division, the base must be non-zero.	2 M150 • Index rules with negative indices A negative index means a reciprocal. $a^{-n} = \frac{1}{a^n}$ $a \neq 0$ $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$ $x^{-4} = \frac{1}{x^4}$ Zero index: $a^0 = 1$ ($a \neq 0$) Use the same index laws: $x^3 \times x^{-5} = x^{-2} = \frac{1}{x^2}$ Tip: A negative index does not mean a negative answer.
3 M120 • Simplify using index laws 1 Simplify the numbers 2 Apply index laws to each letter 3 Write with positive indices $\frac{6x^5y^2}{3x^2y^4} = 2x^{5-2}y^{2-4}$ $= 2x^3y^{-2}$ $= \frac{2x^3}{y^2}$ $(3x^2)^3 = 27x^6$ Tip: A power outside brackets applies to every factor. In the fraction example, $x \neq 0$ and $y \neq 0$.	4 M568 • Cancel common factors Divide the top and bottom by the same factor. $\frac{6x}{3} = \frac{\cancel{3} \times 2x}{\cancel{3}} = 2x$ Both top and bottom have a factor of 3. $\frac{10x}{5} = 2x$ Tip: Cancel common factors. Keep the remaining letters.

SPARX

- Index rules with positive indices(M608)
- Index rules with negative indices(M150)
- Simplifying expressions using index laws(M120)
- Simplifying algebraic fractions by cancelling common factors(M568)

Video - <https://corbettmaths.com/2013/03/13/laws-of-indices-algebra/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2013/02/laws-of-indices-pdf.pdf>

English

Reading and Writing Fiction

<https://www.thenational.academy/pupils/programmes/english-secondary-year-7/units/step-into-the-unknown-fiction-reading-and-creative-writing/lessons>

Year 9

Maths

1 U166 • Expected results from repeated experiments

Expected frequency = probability $\times$ number of trials

Example: A fair coin is flipped 60 times.

$$P(\text{heads}) = \frac{1}{2}$$
$$\text{Expected heads} = \frac{1}{2} \times 60 = 30$$

Tip: We expect about 30 heads. The actual result may be different.

2 U580 • Experimental probabilities

Experimental probability = number of times the event happens $\div$ total number of trials

Example: A spinner lands on red 12 times in 40 spins.

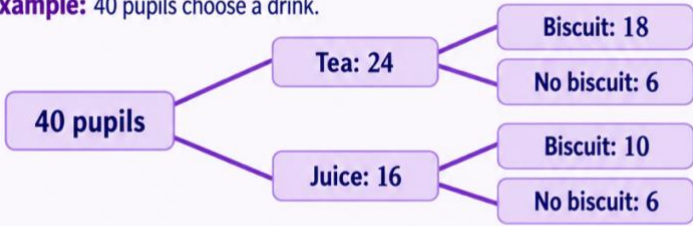
$$P(\text{red}) \approx \frac{12}{40} = \frac{3}{10} = 0.3$$

Tip: Use the results you observed. More trials usually give a more reliable estimate.

3 U280 • Frequency trees

A **frequency tree** shows how a total splits into groups.

Example: 40 pupils choose a drink.



```
graph LR
    A[40 pupils] --> B[Tea: 24]
    A --> C[Juice: 16]
    B --> D[Biscuit: 18]
    B --> E[No biscuit: 6]
    C --> F[Biscuit: 10]
    C --> G[No biscuit: 6]
```

Check: $24 + 16 = 40$
 $18 + 6 = 24$ $10 + 6 = 16$
Total choosing a biscuit = $18 + 10 = 28$

$$P(\text{biscuit}) = \frac{28}{40} = \frac{7}{10}$$

Tip: Each pair of branches adds up to its parent total.

SPARX

- Expected results from repeated experiments(U166)
- Calculating experimental probabilities(U580)
- Frequency trees(U280)

Corbett

Video - <https://corbettmaths.com/2013/06/20/relative-frequency/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2025/09/Relative-Frequency.pdf>

English

History of Empire

<https://www.thenational.academy/pupils/programmes/history-secondary-year-9/units/the-british-empire-how-far-was-it-transformed-in-the-mid-nineteenth-century/lessons>

Year 10

Maths

Foundation – Data and Averages

1 U291 • Mean
Add all the values, then divide by how many there are.
Data: 2, 3, 3, 5, 7
Total = $2 + 3 + 3 + 5 + 7 = 20$
There are 5 values.
Mean = $20 \div 5 = 4$
Tip: Include every value, including repeats.

2 U456 • Median
Put the values in order. Find the middle.
2, 3, **3**, 5, 7
Median = 3
If there are two middle values, find their mean.
Example: 2, **4**, **6**, 8
Median = $(4 + 6) \div 2 = 5$
Tip: Always order the data first.

3 Mode & range
Mode: U260 • Range: U526
Data: 2, 3, 3, 5, 7
Mode = most frequent value
Mode = **3** (it appears twice)
Range = highest – lowest
Range = $7 - 2 = 5$
Range measures spread.
Tip: A smaller range means less spread. The mode can be more than one value.

4 U569 • Averages from frequency tables
Frequency means how often a value occurs.

Value	Frequency	Value × frequency
1	2	2
2	3	6
3	1	3
Total	6	11

Mean = $11 \div 6 \approx 1.83$
Mode = 2 (highest frequency)
Median = 2
Range = $3 - 1 = 2$
Tip: For the mean, divide by the total frequency.

Comparing data: use an average to compare typical values and the range to compare spread.

SPARX

- Mean (U291)
- Median (U456)

- Mode (U260)
- Range (U526)
- Averages from frequency tables (U569)

Corbett

Video - <https://corbettmaths.com/2012/08/02/the-mean/>

Video - <https://corbettmaths.com/2013/12/21/the-mode-video56/>

Video - <https://corbettmaths.com/2012/08/02/the-range-video/>

Video - <https://corbettmaths.com/2012/08/02/the-median/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2013/02/averages-and-range-pdf2.pdf>

Higher – Surds

Surds are irrational roots kept in exact form, such as $\sqrt{2}$ and $\sqrt{3}$.

1 U338 • Simplifying surds

Find the largest square factor.

$$\begin{aligned}\sqrt{72} &= \sqrt{36 \times 2} \\ &= \sqrt{36} \times \sqrt{2} \\ &= 6\sqrt{2}\end{aligned}$$

$$\begin{aligned}\sqrt{50} &= \sqrt{25 \times 2} \\ &= 5\sqrt{2}\end{aligned}$$

Tip: Useful square numbers:
4, 9, 16, 25, 36, 49, 64.

2 U872 • Adding & subtracting

Only combine like surds.

$$3\sqrt{2} + 5\sqrt{2} = 8\sqrt{2}$$

$$7\sqrt{3} - 2\sqrt{3} = 5\sqrt{3}$$

Simplify first if needed:

$$\begin{aligned}\sqrt{8} + \sqrt{18} &= 2\sqrt{2} + 3\sqrt{2} \\ &= 5\sqrt{2}\end{aligned}$$

Tip: $\sqrt{2} + \sqrt{3}$ cannot be combined into one surd term.

3 U633 • Multiplying & dividing

$$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$$

$$\begin{aligned}\sqrt{3} \times \sqrt{12} &= \sqrt{36} = 6 \\ \sqrt{20} \div \sqrt{5} &= \sqrt{4} = 2\end{aligned}$$

U499 • Expanding brackets

$$\sqrt{3}(2 + \sqrt{3}) = 2\sqrt{3} + 3$$

Tip: Multiply the numbers outside the roots too:
 $2\sqrt{3} \times 4\sqrt{2} = 8\sqrt{6}$.

4 U707 • Rationalising

Single-term denominators

Remove the surd from the denominator. Multiply top and bottom by the same surd.

$$\frac{3}{\sqrt{2}} = \frac{3 \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \frac{3\sqrt{2}}{2}$$

U281 • Two-term denominators

Use the conjugate: change the sign between the terms.

$$\frac{1}{3 + \sqrt{2}} = \frac{3 - \sqrt{2}}{(3 + \sqrt{2})(3 - \sqrt{2})} = \frac{3 - \sqrt{2}}{7}$$

Tip: $\sqrt{2} \times \sqrt{2} = 2$. Opposite signs give $9 - 2 = 7$.

Keep answers exact: use surds rather than rounded decimals.

SPARX

- Simplifying Surds (U338)
- Adding and subtracting surds (U872)
- Multiplying and dividing surds (U633)

- Rationalising (U707)

Corbett

Video - <https://corbettmaths.com/2013/05/11/surds/>

Video - <https://corbettmaths.com/2013/05/11/surds-addition/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2013/02/surds-pdf1.pdf>

English

Language practise

<https://www.thenational.academy/pupils/programmes/english-secondary-year-10-eduqas/units/fiction-read-around-the-world/lessons>

Year 11

Maths

Foundation – Expressions and Brackets

1 U105 • Simplifying expressions

Collect like terms: the letters and powers must match.

$$3x + 5x = 8x$$

$$4x + 3 + 2x - 1 = (4x + 2x) + (3 - 1) = 6x + 2$$

Tip: x and x^2 are different terms. $3x + 2y$ cannot be combined.

2 U179 • Expanding single brackets

Multiply every term inside by the term outside.

$$3(x + 4) = 3x + 12$$

$$2x(x + 5) = 2x^2 + 10x$$

Watch negative signs:

$$-2(x - 3) = -2x + 6$$

Tip: Multiply BOTH terms in the bracket.

3 U768 • Expanding double brackets

Multiply each term in the first bracket by each term in the second.

Example: $(x + 2)(x + 3)$

	x	3
x	x^2	$3x$
2	$2x$	6

$$= x^2 + 3x + 2x + 6$$

$$= x^2 + 5x + 6$$

Tip: $(x + 3)^2 = (x + 3)(x + 3)$.

4 Factorising

U365 • Into one bracket

Take out the highest common factor.

$$6x + 9 = 3(2x + 3)$$

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

U178 • Into two brackets

Example: $x^2 + 5x + 6$

Find two numbers that: multiply to 6 and add to 5.

$$2 \times 3 = 6 \quad 2 + 3 = 5$$

$$x^2 + 5x + 6 = (x + 2)(x + 3)$$

Tip: Check by expanding your brackets.

Expanding removes brackets. Factorising puts brackets back.

SPARX

- Simplifying expressions (U105)
- Expanding single brackets (U179)
- Expanding double brackets (U768)
- Factorising single brackets (U365)
- Factorising double brackets (U178)

Corbett

Video - <https://corbettmaths.com/2013/12/23/expanding-brackets-video-13/>

Worksheets - <https://corbettmaths.com/wp-content/uploads/2013/02/expanding-brackets-pdf1.pdf>

Video - <https://corbettmaths.com/2013/02/06/factorisation/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2020/05/Factorisation.pdf>

Video - <https://corbettmaths.com/2013/12/23/expanding-two-brackets-video-14/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2013/02/expanding-two-brackets-pdf2.pdf>

Video - <https://corbettmaths.com/2013/02/06/factorising-quadratics-1/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2026/05/Factorising-Quadratics-pdf.pdf>

Higher – Vectors

1 U632 • Column vectors

A vector has size and direction.

$$\begin{pmatrix} 3 \\ -2 \end{pmatrix} \quad 3 \text{ right, } 2 \text{ down.}$$

Top number: horizontal movement.
Bottom number: vertical movement.

From $A(1, 4)$ to $B(5, 1)$:

$$\vec{AB} = \begin{pmatrix} 5-1 \\ 1-4 \end{pmatrix} = \begin{pmatrix} 4 \\ -3 \end{pmatrix}$$

Tip: Reverse the direction: $\vec{BA} = -\vec{AB}$.

2 Calculating with vectors

U903 • Add & subtract

Add or subtract matching components.

$$\mathbf{a} = \begin{pmatrix} 3 \\ 2 \end{pmatrix} \quad \mathbf{b} = \begin{pmatrix} 1 \\ -4 \end{pmatrix}$$

$$\mathbf{a} + \mathbf{b} = \begin{pmatrix} 4 \\ -2 \end{pmatrix} \quad \mathbf{a} - \mathbf{b} = \begin{pmatrix} 2 \\ 6 \end{pmatrix}$$

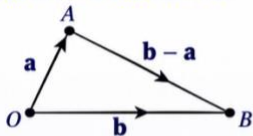
U564 • Multiply by a scalar

$$2\mathbf{a} = \begin{pmatrix} 6 \\ 4 \end{pmatrix}$$

Tip: Multiply every component by the scalar.

3 U781 • Vector journeys

Given $\vec{OA} = \mathbf{a}$ and $\vec{OB} = \mathbf{b}$:



Travel $A \rightarrow O \rightarrow B$

$$\vec{AB} = -\mathbf{a} + \mathbf{b} = \mathbf{b} - \mathbf{a}$$

If M is the midpoint of AB :

$$\vec{AM} = \frac{1}{2}(\mathbf{b} - \mathbf{a})$$

$$\vec{OM} = \mathbf{a} + \frac{1}{2}(\mathbf{b} - \mathbf{a})$$
$$= \frac{1}{2}(\mathbf{a} + \mathbf{b})$$

Tip: Choose a route and add the vectors.

4 Parallel vectors & proofs

U660 • Parallel vectors

Non-zero scalar multiples are parallel.

$$\begin{pmatrix} 6 \\ 4 \end{pmatrix} = 2 \times \begin{pmatrix} 3 \\ 2 \end{pmatrix}$$

Positive multiple: same direction.

Negative multiple: opposite direction.

U560 • Geometric proofs

In triangle OAB , M and N are the midpoints of OA and OB .

$$\vec{OM} = \frac{1}{2}\mathbf{a} \quad \vec{ON} = \frac{1}{2}\mathbf{b}$$

$$\vec{MN} = \frac{1}{2}\mathbf{b} - \frac{1}{2}\mathbf{a}$$
$$= \frac{1}{2}(\mathbf{b} - \mathbf{a}) = \frac{1}{2}\vec{AB}$$

So MN is parallel to AB and half its length.

Tip: For collinearity, also show the vectors share a point.

SPARX

- Column vectors (U632)
- Calculating with vectors (U903)
- Multiplying by a scalar (U564)
- Vector journeys (U781)
- Parallel vectors (U660)
- Geometric Proofs (U560)

Corbett

Video - <https://corbettmaths.com/2016/04/25/vectors/>

Worksheet - <https://corbettmaths.com/wp-content/uploads/2013/02/vectors-pdf.pdf>

English

A Christmas Carol Revision for mocks

<https://www.thenational.academy/pupils/programmes/english-secondary-year-11-aqa/units/nineteenth-century-text-first-deep-dive-190/lessons>

