

IVY MATHS

Curriculum Framework

MATHEMATICS

UK NATIONAL CURRICULUM 2026

CHECKLIST

YEAR 1 – 11 // KEY STAGE 1 – 4

(NAME)

This document is based on the National Curriculum in England: Mathematics Programmes of Study for Key Stages 1–4, published by the Department for Education and updated 28 September 2021, which remains in force as of 2026. It provides a structured breakdown of expected learning from Year 1 to Year 11 (Key Stages 1–4).

Content is organised by domain and topic to support transparency, progression tracking and curriculum alignment. Curated by Ivy Maths, this framework is designed to provide a clear, structured reference for coverage and progression. It is intended as a reference framework and does not function as an assessment or diagnostic tool.

Ideal resource for:

- Identifying gaps in learning
- Homeschool framework
- Private tuition

(DATE)

NOTES



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Curriculum Framework

Welcome

Welcome to the Ivy Maths Complete Framework for Mathematics. This document provides a structured overview of progression across the UK National Curriculum, supporting the development of both knowledge and numerical skills from Year 1 through to Year 11.

It has been designed to present the curriculum in a clear, usable format, allowing users to understand what is expected at each stage and how learning builds over time.

Purpose of the Document

This framework is intended to function as a guiding checklist rather than a formal testing system. It supports a practical understanding of a child's current position within the curriculum and helps identify areas for development. It enables users to:

- Recognise what a child knows
- Understand what a child can do
- Identify where gaps may exist

The document can be used in two ways. It may be followed progressively, moving through each year group in sequence, or used reflectively to assess a child's current level of understanding regardless of age or school year.

Who This Is For

This framework has been designed for a range of users involved in supporting a child's education, including:

- Parents supporting learning at home
- Homeschooling families
- Tutors working with students
- Students themselves, where appropriate

It is suitable for both independent use and collaborative use between parent and child or tutor and student. The structure allows for flexibility depending on the level of support required.

Structure of the Framework

The framework is set out in three levels. Each year group is divided into domains: the broad areas of mathematics such as Number, Geometry and Statistics. Each domain is divided into topics, and each topic into the individual things a child is expected to learn.

The checklist columns follow that order: Domain, then Topic, then a tick box, then What to learn. Items are listed in the order that learning builds.

No terms, weeks or suggested timings appear anywhere in this document. That is deliberate: it is written to be picked up from any starting point and worked through at any pace, whether a child is following their year group, catching up after time away, or learning outside a school setting.

How to Use This Document

This document is designed to be practical and easy to use in everyday learning environments. It can be used as a checklist by:

- Marking areas that are secure
- Highlighting areas that are not yet understood

It can also be used as a learning pathway by:

- Working through year groups in sequence
- Revisiting topics where further reinforcement is needed

There is no requirement for formal testing. The framework can be used through discussion, observation, or informal questioning, and can be integrated naturally into home learning, tutoring sessions, or independent study.

Source Material

This framework is based on the UK National Curriculum for Mathematics, as set out in the statutory guidance:

National curriculum in England: mathematics programmes of study

Updated 28 September 2021

The original material has been adapted into a structured and accessible format to support practical use. The content remains aligned with the expectations of the national curriculum, while being presented in a way that supports daily application.

This material can be accessed at the following URL:

<https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study>

Attribution & Usage Notes

This document has been curated, structured, and formatted by Ivy Maths. All layout design and framework structuring are original to Ivy Maths. The wording of every item is Ivy Maths' own. This framework is intended as a guidance tool to support understanding and progression. It is not a formal assessment and does not replace school-based evaluation.

Disclaimer

This framework is based on the UK National Curriculum for Mathematics and reflects Ivy Maths' interpretation and structuring of the statutory programme of study. While care has been taken to ensure accuracy and alignment, this document is not a direct reproduction of official government materials and should not be considered a

substitute for the original statutory guidance. Users should refer to the official National Curriculum documentation for definitive requirements.

Extended Tools

A digital and interactive version of this framework is available to support continued use and deeper engagement.

All online Ivy Assessments can be accessed here: **www.ivymaths.com**

These tools provide an extended way to review progress and engage with the framework in a more interactive format.

Contact

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Feedback

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KEY STAGE TABLE

KEY STAGE (KS)	CHILD'S AGE	SCHOOL YEAR
KS1	5 – 7	YEAR 1 / YEAR 2
KS2	7 – 11	YEAR 3 / YEAR 4 / YEAR 5 / YEAR 6
KS3	11 – 14	YEAR 7 / YEAR 8 / YEAR 9
KS4	14 – 16	YEAR 10 / YEAR 11
KS5	16 – 18	YEAR 12 / YEAR 13

A Key Stage table is a structured representation of the expected knowledge and skills within a specific phase of the UK education system, typically aligned to Key Stages 1 through 5. It organises curriculum content into clearly defined categories and may also indicate progression, depth, or level of mastery.

Its relevance to the National Curriculum is direct and functional. The table acts as an interpretive framework of the statutory guidance set out by the UK government, translating broad programme of study statements into a clear, trackable format. While the National Curriculum defines the required content and learning objectives, a Key Stage table provides structure, visibility, and usability. It enables educators, parents, and learners to identify coverage, monitor progression, and recognise gaps with precision.

In practice, it supports both forward planning and retrospective assessment. It ensures that learning remains aligned to national expectations while making the curriculum more accessible, measurable, and actionable.

Years 10 and 11 are set out twice in this document, once for the Foundation tier and once for Higher. They are different courses rather than the same content at two levels: Higher covers material Foundation does not reach. Everything in the Foundation list also appears in Higher.

Glossary

The checklists are written in plain English on purpose. A child will meet the proper word in a lesson, though, so this lists both. Where the checklist uses an everyday phrase for something, that phrase is shown in brackets.

Acute angle:

An angle smaller than 90 degrees.

Approximate:

Close enough to be useful, without being exact.

Arc:

Part of the edge of a circle.

$$\text{Arc length} = (\text{angle} \div 360) \times \text{circumference}$$

Area:

The amount of surface a flat shape covers.

$$\text{Rectangle} = \text{length} \times \text{width}. \text{ Triangle} = \frac{1}{2} \times \text{base} \times \text{height}$$

Array:

Objects set out in rows and columns, used to show multiplication.

Average:

A single value that stands for a whole set. Usually the mean.

Axis (plural axes):

The numbered lines running across and up a graph.

Bearing:

A direction given as three digits, measured clockwise from north.

Bond:

A pair of numbers that add to a given total. 6 and 4 are bonds to 10.

Bracket:

Grouping symbols showing what to work out first.

Capacity:

How much a container can hold.

Chord:

A straight line joining two points on a circle.

Circumference:

The distance all the way round a circle.

$$\text{Circumference} = \pi \times \text{diameter} = 2 \times \pi \times \text{radius}$$

Coefficient:

The number in front of a letter in algebra. In $5x$ it is 5.

Common factor:

A factor that two or more numbers share.

Common multiple:

A multiple that two or more numbers share.

Commutative:

An operation that gives the same answer either way round. Addition and multiplication are; subtraction and division are not.

Compound shape:

A shape made by joining simpler ones.

Congruent:

Exactly the same shape and size.

Coordinate:

A pair of numbers giving a position on a grid.

Cube number:

A number multiplied by itself twice: 27 is 3 cubed.

Decimal:

A number written with a decimal point.

Denominator:

The bottom number of a fraction: how many equal parts the whole is split into.

Diameter:

A straight line across a circle through its centre. Twice the radius.

$\text{Diameter} = 2 \times \text{radius}$

Difference:

The result of a subtraction: how far apart two numbers are.

Digit:

A single number symbol, 0 to 9.

Directed number:

A number with a sign, so positive or negative.

Edge:

A line where two faces of a solid meet.

Enlarge:

Make a shape bigger or smaller by a scale factor, keeping its proportions.

Equation:

A statement that two things are equal, with something to find.

Equivalent:

Different in appearance but equal in value. $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent.

Estimate:

A sensible answer worked out quickly, without full calculation.

Exchange:

Swapping ten of one place value for one of the next, when adding or subtracting.

Expand:

Multiply out brackets.

Exponent:

See index.

Expression:

A piece of algebra with no equals sign, such as $3x + 2$.

Face:

A flat surface of a solid shape.

Factor:

A number that divides into another exactly.

Factorise:

Write an expression as a product, the opposite of expanding.

Formula:

A rule connecting quantities, where you put values in.

Fraction:

A number written as one value over another, showing parts of a whole.

Frequency:

How many times something happens.

Gradient:

How steep a line is: how far it rises for each step across.

Gradient = change in $y \div$ change in x

Highest common factor:

The largest factor two numbers share.

The largest factor two numbers share

Histogram:

A chart for grouped data where the area of each bar, not its height, shows the frequency.

Hypotenuse:

The longest side of a right-angled triangle, opposite the right angle.

Pythagoras: $a^2 + b^2 = c^2$, c the hypotenuse

Identity:

A statement true for every value, not just some.

Improper fraction:

A fraction worth one or more, with the top number larger than the bottom.

Index (plural indices):

The small raised number showing a power. In 4^3 the index is 3.

$a^m \times a^n = a^{m+n}$ $a^m \div a^n = a^{m-n}$ $(a^m)^n = a^{mn}$

Inequality:

A statement that one thing is larger or smaller than another.

Integer:

A whole number, positive, negative or zero.

Intercept:

Where a line crosses an axis.

Inverse:

The operation that undoes another. Subtraction is the inverse of addition.

Isosceles:

A triangle with two equal sides and two equal angles.

Locus (plural loci):

All the points that satisfy a rule, such as every point 3cm from A.

Lowest common multiple:

The smallest multiple two numbers share.

Mass:

How much matter something contains. Measured in grams and kilograms.

Mean:

Add all the values, then divide by how many there are.

Mean = total of the values $\div$ how many values there are

Median:

The middle value once the data is in order.

Mixed number:

A whole number and a fraction together, such as $2\frac{1}{2}$.

Mode:

The value that appears most often.

Multiple:

The result of multiplying by a whole number. 12 is a multiple of 3.

Net:

A flat shape that folds up into a solid.

Numerator:

The top number of a fraction: how many parts you have.

Obtuse angle:

An angle between 90 and 180 degrees.

Origin:

The point (0, 0) where the axes cross.

Parallel:

Lines the same distance apart all along, which never meet.

Partition:

Split a number into parts, usually by place value.

Percentage:

A number of parts per hundred.

Perimeter:

The distance all the way round a shape.

Rectangle = $2 \times (\text{length} + \text{width})$

Perpendicular:

At right angles to each other.

Place value:

What a digit is worth because of where it sits. The 3 in 30 is worth thirty.

Polygon:

A flat shape with straight sides.

Prime number:

A number with exactly two factors, itself and 1.

Prism:

A solid with the same cross-section all along its length.

Probability:

How likely something is, from 0 to 1.

Probabilities of all outcomes add to 1

Product:

The result of a multiplication.

Proportion:

A part compared with the whole, or two quantities that change together.

Quadrilateral:

A flat shape with four straight sides.

Quotient:

The result of a division.

Radius:

The distance from the centre of a circle to its edge.

Range:

The largest value minus the smallest.

Range = largest value – smallest value

Ratio:

A comparison of two or more amounts, written with a colon.

Reciprocal:

1 divided by the number. The reciprocal of 4 is $\frac{1}{4}$.

$$\text{Reciprocal of } n = 1 \div n$$

Reflect:

Flip a shape over a line, like a mirror.

Reflex angle:

An angle larger than 180 degrees.

Remainder:

What is left over after a division.

Rotate:

Turn a shape about a fixed point.

Rounding:

Replacing a number with a nearby, simpler one.

Scale factor:

The number a shape or amount is multiplied by when enlarging or shrinking.

Sector:

A slice of a circle, between two radii.

$$\text{Area of a sector} = (\text{angle} \div 360) \times \text{area of the circle}$$

Sequence:

A list of numbers following a rule.

Significant figures:

The digits that carry the size of a number, counted from the first non-zero one.

Counted from the first non-zero digit

Similar:

The same shape but a different size.

Simplify:

Write something in its shortest equal form.

Square number:

A number multiplied by itself: 16 is 4 squared.

Standard form:

A way of writing very large or very small numbers, as a number between 1 and 10 times a power of 10.

$$A \times 10^n, \text{ where } 1 \leq A < 10$$

Substitute:

Put numbers in place of letters.

Sum:

The result of an addition.

Surd:

A root that cannot be written exactly as a fraction, such as $\sqrt{2}$.

Tangent:

A line that touches a circle at exactly one point. Also one of the three trigonometric ratios.

Term:

One number in a sequence, or one part of an algebraic expression.

Translate:

Slide a shape to a new position without turning it.

Vertex (plural vertices):

A corner, where edges meet.

Volume:

The amount of space a solid takes up.

Cuboid = length $\times$ width $\times$ height. Cylinder = $\pi \times \text{radius}^2 \times \text{height}$

Year 1 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 1 (Key Stage 1), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 1. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Sort objects into groups and say what makes each group the same
			Count a group of objects accurately
			Count out a smaller number of objects from a bigger pile
			Show a number of objects using counters, cubes or a drawing
			Read and write number words from 0 to 10
			Carry on counting from any number up to 10
			Find the number that is 1 more
			Count backwards from 10 down to 0
			Find the number that is 1 less
			Line up two groups to see which has more
			Say whether a group has fewer, more or the same
			Use the words less than, greater than and equal to
			Say which of two numbers is bigger
			Put objects and numbers in order from smallest to largest
			Find where a number sits on a number line
Number	Addition and subtraction		See that a whole can be split into parts
			Use a part-whole diagram to show parts and a whole

Domain	Topic	✓	What to learn
Number	Addition and subtraction (continued)		Write an addition using the + and = signs
			Find all the additions that use the same three numbers
			Find pairs of numbers that make a total up to 10
			List every pair that makes a number, working in order
			Recall the pairs of numbers that make 10
			Add two groups together to find the total
			Start with an amount and count on to add more
			Solve a word problem that needs adding
			Work out a missing part when the whole is known
			Write a subtraction to find a missing part
			Find all eight additions and subtractions from three numbers
			Take away by crossing objects out
			Take objects away and count how many are left
			Count back on a number line to subtract
			Add or subtract 1 or 2 in your head
Geometry	Shape		Name solid shapes such as cubes, spheres and cones
			Sort solid shapes by how they look and feel
			Name flat shapes such as circles, squares and triangles
			Sort flat shapes by their sides and corners
			Spot and carry on a repeating pattern of shapes
Number	Place value (within 20)		Count reliably all the way to 20
			See 10 as a full group of 10 ones
			Build and read the numbers 11, 12 and 13
			Build and read the numbers 14, 15 and 16
			Build and read the numbers 17, 18 and 19
			See 20 as two full groups of 10

Domain	Topic	✓	What to learn
Number	Place value (within 20) (continued)		Find 1 more and 1 less for numbers to 20
			Read the marks on a number line up to 20
			Use a number line to 20 to help with counting
			Estimate roughly where a number sits on a line to 20
			Say which of two numbers up to 20 is bigger
			Put numbers up to 20 in order
Number	Addition and subtraction (within 20)		Add by starting at the bigger number and counting on
			Use known number pairs to add ones quickly
			Find and make pairs of numbers that total 20
			Double a number and know the answer
			Use a double you know to work out a near double
			Use known number pairs to subtract ones
			Take away by counting backwards
			Find the difference between two numbers
			Use 1 known fact to work out related ones
			Find the missing number in an addition or subtraction
Number	Place value (within 50)		Count on from 20 as far as 50
			Count in 10s: 20, 30, 40, 50
			Count a large group by making tens
			Describe a number as so many tens and so many ones
			Split a number into its tens and its ones
			Read the marks on a number line up to 50
			Estimate roughly where a number sits on a line to 50
			Find 1 more and 1 less for numbers to 50
Measurement	Length and height		Compare 2 things by length or height
			Measure length using cubes, hands or other objects

Domain	Topic	✓	What to learn
Measurement	Length and height (continued)		Measure length in centimetres with a ruler
Measurement	Mass and volume		Say which of 2 things is heavier or lighter
			Measure how heavy something is using a balance
			Compare the mass of 2 or more things
			Say whether a container is full, empty or part full
			Compare how much 2 containers hold
			Measure how much a container holds
			Compare capacity using measurements
Number	Multiplication and division		Count in 2s
			Count in 10s
			Count in 5s
			Spot when groups have equal amounts in them
			Add equal groups to find a total
			Arrange objects into rows and columns to show a total
			Double an amount by making two equal groups
			Share a total into groups of a given size
			Share a total equally between a number of groups
Number	Fractions		Spot when a shape or object is split into two equal parts
			Find one half of a shape or object
			Spot when an amount has been split in half
			Find half of an amount of objects
			Spot when a shape or object is split into four equal parts
			Find one quarter of a shape or object
			Spot when an amount has been split into quarters
			Find a quarter of an amount of objects
Geometry	Position and direction		Describe a turn as a whole, half or quarter turn

Domain	Topic	✓	What to learn
Geometry	Position and direction (continued)		Use left and right to describe where something is
			Use forwards and backwards to describe movement
			Use above and below to describe where something is
			Use first, second, third and so on to describe order
Number	Place value (within 100)		Count on from 50 as far as 100
			Count in 10s all the way to 100
			Split a 2-digit number into tens and ones
			Read the marks on a number line up to 100
			Find 1 more and 1 less for numbers to 100
			Compare numbers when the tens are the same and only the ones differ
			Compare any two numbers up to 100
Measurement	Money		See that 1 coin can be worth many pennies
			Recognise each of the coins by sight
			Recognise the bank notes by sight
			Count up an amount made of coins
Measurement	Time		Use before and after to describe when things happen
			Name the days of the week in order
			Name the months of the year in order
			Know how hours, minutes and seconds compare in length
			Read a clock when it shows an o'clock time
			Read a clock when it shows half past the hour

Year 2 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 2 (Key Stage 1), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 2. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Read and write every number up to 20
			Count a big pile by grouping into tens
			Say how many tens and how many ones a number has
			Place a number into a tens and ones chart
			Split a number into its tens and its ones
			Write numbers up to 100 in words
			Split a number into tens and ones in more than one way
			Write a number as its tens plus its ones
			Find the multiples of 10 on a number line to 100
			Find any number on a number line to 100
			Estimate roughly where a number sits on a line
			Compare two groups of objects to see which is more
			Say which of two numbers is larger
			Put a set of numbers in order
			Count in 2s, fives and tens
			Count in 3s
Number	Addition and subtraction		Recall the pairs of numbers that make 10

Domain	Topic	✓	What to learn
Number	Addition and subtraction (continued)		Find all four additions and subtractions from three numbers
			Use 1 known fact to work out related ones
			Find pairs of 10s that make 100
			Add and subtract single ones
			Add by making the next 10 first
			Add 3 single-digit numbers together
			Add on to reach the next multiple of 10
			Add when the answer crosses a 10
			Subtract when the answer crosses a 10
			Subtract from a multiple of 10
			Take a single digit away from a 2-digit number, crossing a 10
			Find 10 more and 10 less than a number
			Add and subtract whole tens
			Add 2 2-digit numbers without crossing a 10
			Add 2 2-digit numbers, crossing a 10
			Subtract 2 2-digit numbers without crossing a 10
			Subtract 2 2-digit numbers, crossing a 10
			Choose whether to add or subtract in a problem
			Decide which of 2 calculations gives more
			Find the missing number in a calculation
Geometry	Shape		Tell flat shapes and solid shapes apart
			Count the sides of a flat shape
			Count the corners of a flat shape
			Draw flat shapes accurately
			Find the line that splits a shape into matching halves
			Complete a shape so both halves match

Domain	Topic	✓	What to learn
Geometry	Shape (continued)		Sort flat shapes by their properties
			Count the flat faces of a solid shape
			Count the edges of a solid shape
			Count the corners of a solid shape
			Sort solid shapes by their properties
			Build a repeating pattern from flat and solid shapes
Measurement	Money		Work out a total in pence
			Work out a total in pounds using notes and coins
			Work out a total in pounds and pence
			Choose which notes and coins to use for an amount
			Make the same amount using different coins
			Say which of 2 amounts of money is more
			Add and subtract amounts of money
			Find the coins that add up to 1 pound
			Work out the change from an amount
			Solve a money problem that takes two steps
Number	Multiplication and division		Spot when groups have equal amounts
			Make groups that all hold the same amount
			Add equal groups to find a total
			Use the times sign to write a multiplication
			Write a multiplication that matches a picture
			Use rows and columns to find a total
			Split a total into groups of a given size
			Share a total equally between groups
			Recall the 2 times table
			Divide a number by 2

Domain	Topic	✓	What to learn
Number	Multiplication and division (continued)		Double a number and halve a number
			Tell odd numbers from even numbers
			Recall the 10 times table
			Divide a number by 10
			Recall the 5 times table
			Divide a number by 5
			Use the 5 and 10 times tables together
Measurement	Length and height		Measure a length in centimetres
			Measure a length in metres
			Say which of 2 things is longer or taller
			Put several lengths in order
			Add and subtract lengths to solve a problem
Measurement	Mass, capacity and temperature		Say which of 2 things is heavier
			Measure how heavy something is in grams
			Measure how heavy something is in kilograms
			Add and subtract masses to solve a problem
			Say which container holds more
			Measure liquid in millilitres
			Measure liquid in litres
			Add and subtract amounts of liquid to solve a problem
			Read a temperature on a thermometer
Number	Fractions		See that a whole can be split into parts
			Tell equal parts from unequal parts
			Spot when something is split into two equal parts
			Find one half of a shape or an amount
			Spot when something is split into four equal parts

Domain	Topic	✓	What to learn
Number	Fractions (continued)		Find one quarter of a shape or an amount
			Spot when something is split into three equal parts
			Find one third of a shape or an amount
			Work back from a part to find the whole
			Name a fraction that is one part of the whole
			Name a fraction that is several parts of the whole
			See that one half and two quarters are the same
			Spot when 3 of 4 equal parts are shaded
			Find three quarters of a shape or an amount
			Count up in fractions until you reach a whole
Measurement	Time		Read a clock at o'clock and half past
			Read a clock at quarter past and quarter to
			Read the minutes after the hour on a clock
			Read the minutes before the next hour
			Read a clock to the nearest 5 minutes
			Know how many minutes are in an hour
			Know how many hours are in a day
Statistics	Statistics		Record what you count using tally marks
			Record what you count in a table
			Show data as a block diagram
			Draw a picture chart where 1 picture means 1
			Read a picture chart where 1 picture means 1
			Draw a picture chart where 1 picture means several
			Read a picture chart where 1 picture means several
Geometry	Position and direction		Use words to describe where something is
			Describe how something moves

Domain	Topic	✓	What to learn
Geometry	Position and direction (continued)		Describe a turn as a whole, half or quarter turn
			Describe movement and turns together
			Make a shape pattern using turns

Year 3 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 3 (Lower Key Stage 2), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 3. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Show any number up to 100
			Split a number up to 100 into tens and ones
			Find a number on a line up to 100
			Understand what 100 is made of
			Show any number up to 1,000
			Split a number into hundreds, tens and ones
			Split a number into hundreds, tens and ones in different ways
			Say how many hundreds, tens and ones a number has
			Find 1, 10 or 100 more or less
			Find a number on a line up to 1,000
			Estimate roughly where a number sits on a line to 1,000
			Say which of two numbers up to 1,000 is larger
			Put numbers up to 1,000 in order
			Count in 50s
Number	Addition and subtraction		Use pairs that make 10 to help with bigger sums
			Add and subtract single ones
			Add and subtract whole tens

Domain	Topic	✓	What to learn
Number	Addition and subtraction (continued)		Add and subtract whole hundreds
			Spot the pattern when adding the same amount
			Add ones when the answer crosses a 10
			Add tens when the answer crosses a hundred
			Subtract ones when the answer crosses a 10
			Subtract tens when the answer crosses a hundred
			Use 1 calculation to work out another
			Add two numbers with no carrying
			Subtract two numbers with no borrowing
			Add two numbers, carrying past a 10
			Add two numbers, carrying past a hundred
			Subtract two numbers, borrowing past a 10
			Subtract two numbers, borrowing past a hundred
			Add a 2-digit number to a 3-digit number
			Take a 2-digit number from a 3-digit number
			Find what to add to a number to reach 100
			Estimate an answer before working it out
			Check an answer by doing the opposite operation
			Decide which method suits the calculation
Number	Multiplication and division A		Find a total by counting equal groups
			Use rows and columns to find a total
			Recall the multiples of 2
			Recall the multiples of 5 and 10
			Tell sharing apart from grouping
			Multiply a number by 3
			Divide a number by 3

Domain	Topic	✓	What to learn
Number	Multiplication and division A (continued)		Recall the 3 times table
			Multiply a number by 4
			Divide a number by 4
			Recall the 4 times table
			Multiply a number by 8
			Divide a number by 8
			Recall the 8 times table
			Use the 2, 4 and 8 times tables together
Number	Multiplication and division B		Multiply and divide by 10
			Use a known fact to work out a related 1
			Explain what happens when you multiply
			Multiply a 2-digit number by a single digit, no carrying
			Multiply a 2-digit number by a single digit, with carrying
			See how a multiplication and a division are linked
			Divide a 2-digit number by a single digit, no remainder
			Divide a 2-digit number by splitting it up first
			Divide a 2-digit number and explain the remainder
			Make an amount a number of times bigger
			Find every way of solving a multiplication problem
Measurement	Length and perimeter		Measure a length in metres and centimetres
			Measure a length in millimetres
			Measure a length in centimetres and millimetres
			Choose the right unit for a length
			Swap between metres and centimetres
			Swap between centimetres and millimetres
			Say which of 2 lengths is longer

Domain	Topic	✓	What to learn
Measurement	Length and perimeter (continued)		Add 2 or more lengths together
			Take 1 length away from another
			Understand that perimeter is the distance all the way round
			Measure the perimeter of a shape
			Work out a perimeter by adding the sides
Number	Fractions A		Understand what the bottom number of a fraction tells you
			Put fractions with a top number of 1 in order
			Understand what the top number of a fraction tells you
			Recognise when the parts make 1 whole
			Put fractions with the same bottom number in order
			Read a fraction off a scale
			Find a fraction on a number line
			Count up in fractions along a number line
			Spot fractions on a number line that are worth the same
			Use bars to show fractions that are worth the same
Measurement	Mass and capacity		Read a measurement off a scale
			Measure mass in grams
			Measure mass in kilograms and grams
			Swap between kilograms and grams
			Say which of 2 masses is heavier
			Add and subtract masses
			Measure liquid in millilitres
			Measure liquid in litres and millilitres
			Swap between litres and millilitres
			Say which container holds more
			Add and subtract amounts of liquid

Domain	Topic	✓	What to learn
Number	Fractions B		Add fractions that have the same bottom number
			Subtract fractions that have the same bottom number
			Split a whole into fractions in different ways
			Find a fraction of a group of objects
			Find several parts of a group of objects
			Explain your reasoning when finding a fraction of an amount
Measurement	Money		Understand that 1 pound is 100 pence
			Swap between pounds and pence
			Add amounts of money
			Subtract amounts of money
			Work out the change from an amount
Measurement	Time		Read Roman numerals up to 12
			Read a clock to the nearest 5 minutes
			Read a clock to the nearest minute
			Read the time on a digital clock
			Use am and pm to say when something happens
			Know how years, months and days relate
			Know how many hours are in a day
			Work out how long something lasted from start and end times
			Work out an end time from a start time and a duration
			Know how seconds and minutes relate
			Choose the right unit for a length of time
			Solve a problem involving time
Geometry	Shape		Understand that an angle measures a turn
			Recognise a right angle
			Say which of 2 angles is bigger

Domain	Topic	✓	What to learn
Geometry	Shape (continued)		Measure and draw lines accurately
			Tell horizontal lines from vertical lines
			Tell parallel lines from perpendicular lines
			Name and describe flat shapes
			Draw shapes with straight sides
			Name and describe solid shapes
			Build solid shapes from straws or nets
Statistics	Statistics		Read a picture chart
			Draw a picture chart
			Read a bar chart
			Draw a bar chart
			Collect data and choose how to show it
			Read a table with rows and columns

Year 4 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 4 (Lower Key Stage 2), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 4. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Show any number up to 1,000
			Split a number up to 1,000 into its parts
			Find a number on a line up to 1,000
			Understand what 1,000 is made of
			Show any number up to 10,000
			Split a number up to 10,000 into its parts
			Split a 4-digit number in more than one way
			Find 1, 10, 100 or 1,000 more or less
			Find a number on a line up to 10,000
			Estimate roughly where a number sits on a line to 10,000
			Say which of two numbers up to 10,000 is larger
			Put numbers up to 10,000 in order
			Read and write Roman numerals
			Round a number to the nearest 10
			Round a number to the nearest hundred
			Round a number to the nearest thousand
			Choose what to round a number to

Domain	Topic	✓	What to learn
Number	Addition and subtraction		Add and subtract ones, tens, hundreds and thousands
			Add 2 4-digit numbers with no carrying
			Add 2 4-digit numbers with 1 carry
			Add 2 4-digit numbers with several carries
			Subtract 2 4-digit numbers with no borrowing
			Subtract 2 4-digit numbers with 1 borrow
			Subtract 2 4-digit numbers with several borrows
			Choose a quicker way to subtract
			Estimate an answer before working it out
			Check an answer using a different method
Measurement	Area		Understand that area is the space a shape covers
			Find an area by counting squares
			Make different shapes with the same area
			Say which of two shapes covers more space
Number	Multiplication and division A		Recall the multiples of 3
			Multiply and divide by 6
			Recall the 6 times table
			Multiply and divide by 9
			Recall the 9 times table
			Use the 3, 6 and 9 times tables together
			Multiply and divide by 7
			Recall the 7 times table
			Recall the 11 times table
			Recall the 12 times table
			Understand what happens when you multiply by 1 or 0
			Understand what happens when you divide by 1 or by itself

Domain	Topic	✓	What to learn
Number	Multiplication and division A (continued)		Multiply three numbers together
Number	Multiplication and division B		Find pairs of numbers that multiply to make a total
			Use factor pairs to make multiplying easier
			Multiply a number by 10
			Multiply a number by 100
			Divide a number by 10
			Divide a number by 100
			Use 1 known fact to work out related ones
			Multiply using jottings and diagrams
			Multiply a 2-digit number by a single digit
			Multiply a 3-digit number by a single digit
			Divide a 2-digit number by a single digit
			Divide a 2-digit number by a single digit with regrouping
			Divide a 3-digit number by a single digit
			Work out how many combinations are possible
			Choose the quickest way to multiply
Measurement	Length and perimeter		Measure a distance in kilometres and metres
			Swap between kilometres and metres
			Find a perimeter by counting on a grid
			Work out the perimeter of a rectangle Perimeter of a rectangle = $2 \times (\text{length} + \text{width})$
			Work out the perimeter of a shape made of rectangles
			Find a missing side length on a shape
			Calculate the perimeter of a shape made of rectangles
			Work out the perimeter of a shape with equal sides Perimeter of a regular polygon = $\text{number of sides} \times \text{side length}$
			Work out the perimeter of any straight-sided shape

Domain	Topic	✓	What to learn
Number	Fractions		Recognise when the parts make 1 whole
			Count in fractions past 1 whole
			Split a number with a whole part and a fraction part
			Place mixed numbers on a number line
			Put mixed numbers in order
			Understand a fraction worth more than 1 whole
			Turn a mixed number into a top-heavy fraction
			Turn a top-heavy fraction into a mixed number
			Spot fractions on a number line that are worth the same
			Find a family of fractions that are all worth the same
			Add 2 or more fractions with the same bottom number
			Add a fraction to a mixed number
			Subtract 1 fraction from another
			Subtract a fraction from a whole number
			Subtract a fraction from a mixed number
Number	Decimals A		Write tenths as a fraction
			Write tenths as a decimal
			Place tenths in a place value chart
			Find tenths on a number line
			Divide a single digit by 10
			Divide a 2-digit number by 10
			Write hundredths as a fraction
			Write hundredths as a decimal
			Place hundredths in a place value chart
			Divide a 1- or 2-digit number by 100
Number	Decimals B		Find the tenths that complete a whole

Domain	Topic	✓	What to learn
Number	Decimals B (continued)		Find the hundredths that complete a whole
			Split a decimal into its parts
			Split a decimal in more than one way
			Say which of 2 decimals is larger
			Put decimals in order
			Round a decimal to the nearest whole number
			Write a half and a quarter as decimals
Measurement	Money		Write an amount of money using a decimal point
			Swap between pounds and pence
			Say which of 2 amounts of money is more
			Estimate the cost of several items
			Add and subtract amounts of money
			Solve a problem involving money
Measurement	Time		Know how years, months, weeks and days relate
			Know how hours, minutes and seconds relate
			Read the same time on a clock face and a digital display
			Write a time using the 24-hour clock
			Read a 24-hour time and say it in words
Geometry	Shape		Understand that an angle measures a turn
			Name an angle as acute, right or obtuse
			Put a set of angles in order of size
			Name and describe the types of triangle
			Name and describe four-sided shapes
			Name shapes by their number of sides
			Find the lines that split a shape into matching halves
			Complete a shape so both halves match

Domain	Topic	✓	What to learn
Statistics	Statistics		Read information from a chart
			Compare, total and find the difference from a chart
			Read a graph that shows change over time
			Draw a graph that shows change over time
Geometry	Position and direction		Give the position of a point using two numbers
			Mark a point on a grid from its coordinates
			Draw a shape on a grid using coordinates
			Slide a shape to a new position on a grid
			Describe how far and in which direction a shape has moved

Year 5 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 5 (Upper Key Stage 2), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 5. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Read and write Roman numerals up to 1,000
			Read and write numbers up to 10,000
			Read and write numbers up to 100,000
			Read and write numbers up to 1,000,000
			Say and write any number up to 1,000,000 in words
			Understand what happens to digits when you multiply by 10
			Find 10, 100 or 1,000 more or less
			Split a large number into its parts
			Find a large number on a number line
			Put numbers up to 100,000 in order
			Put numbers up to 1,000,000 in order
			Round a number to the nearest 10, 100 or 1,000
			Round numbers within 100,000
			Round numbers within 1,000,000
Number	Addition and subtraction		Add and subtract large numbers in your head
			Add numbers with more than 4 digits
			Subtract numbers with more than 4 digits

Domain	Topic	✓	What to learn
Number	Addition and subtraction (continued)		Round to check whether an answer is sensible
			Check an answer by doing the opposite operation
			Solve a problem that takes more than one step
			Compare 2 calculations without working them out
			Find the missing number in a calculation
Number	Multiplication and division A		List the multiples of a number
			Find multiples that two numbers share
			List the factors of a number
			Find factors that two numbers share
			Recognise a prime number
			Recognise a square number
			Recognise a cube number
			Multiply by 10, 100 and 1,000
			Divide by 10, 100 and 1,000
			Multiply and divide by multiples of 10
Number	Fractions A		Find fractions worth the same as a single-part fraction
			Find fractions worth the same as a several-part fraction
			Recognise when 2 fractions are worth the same
			Turn a top-heavy fraction into a mixed number
			Turn a mixed number into a top-heavy fraction
			Put fractions smaller than 1 in order
			Order a set of fractions smaller than 1
			Put fractions larger than 1 in order
			Add and subtract fractions with the same bottom number
			Add fractions that total less than 1
			Add fractions that total more than 1

Domain	Topic	✓	What to learn
Number	Fractions A (continued)		Add a fraction to a mixed number
			Add two mixed numbers
			Subtract 1 fraction from another
			Subtract a fraction from a mixed number
			Subtract a fraction by breaking up a whole
			Subtract one mixed number from another
Number	Multiplication and division B		Multiply a number up to 4 digits by a single digit
			Multiply 2 2-digit numbers using a grid
			Multiply 2 2-digit numbers
			Multiply a 3-digit number by a 2-digit number
			Multiply a 4-digit number by a 2-digit number
			Solve a problem using multiplication
			Divide using the short written method
			Divide a 4-digit number by a single digit
			Divide and explain the remainder
			Choose the quickest way to divide
			Solve a problem using multiplication and division
Number	Fractions B		Multiply a single-part fraction by a whole number
			Multiply a several-part fraction by a whole number
			Multiply a mixed number by a whole number
			Work out a fraction of an amount
			Find a fraction of a quantity in a problem
			Work back from a fraction to find the whole
			Use a fraction to scale an amount up or down
Number	Decimals and percentages		Read and write decimals with 2 decimal places
			Match tenths as fractions and decimals

Domain	Topic	✓	What to learn
Number	Decimals and percentages (continued)		Match hundredths as fractions and decimals
			Swap between any fraction and its decimal
			Write thousandths as a fraction
			Write thousandths as a decimal
			Place thousandths in a place value chart
			Order decimals with the same number of decimal places
			Order any decimals up to 3 decimal places
			Round a decimal to the nearest whole number
			Round a decimal to 1 decimal place
			Understand that percent means parts per hundred
			Write a percentage as a fraction
			Write a percentage as a decimal
			Swap between fractions, decimals and percentages
Measurement	Perimeter and area		Work out the perimeter of a rectangle Perimeter of a rectangle = $2 \times (\text{length} + \text{width})$
			Work out the perimeter of a shape made of rectangles
			Work out the perimeter of any straight-sided shape
			Work out the area of a rectangle Area of a rectangle = $\text{length} \times \text{width}$
			Work out the area of a shape made of rectangles
			Estimate the area of an irregular shape
Statistics	Statistics		Draw a graph that shows change over time
			Read and explain a graph that shows change over time
			Read information from a table
			Read a table with rows and columns
			Read and use a timetable
Geometry	Shape		Understand that angles are measured in degrees

Domain	Topic	✓	What to learn
Geometry	Shape (continued)		Name an angle as acute, obtuse or reflex
			Estimate the size of an angle
			Measure an angle up to 180 degrees
			Draw lines and angles accurately
			Work out missing angles around a point
			Work out missing angles on a straight line
			Find missing lengths and angles in a shape
			Tell regular shapes from irregular ones
			Name and describe solid shapes
Geometry	Position and direction		Read and mark points on a grid
			Solve a problem using coordinates
			Slide a shape to a new position
			Describe a slide using coordinates
			Find the lines that split a shape into matching halves
			Reflect a shape in a horizontal or vertical line
Number	Decimals		Use known facts to add and subtract decimals below 1
			Find the decimal that completes a whole
			Add and subtract decimals that cross a whole
			Add decimals with the same number of decimal places
			Subtract decimals with the same number of decimal places
			Add decimals with different numbers of decimal places
			Subtract decimals with different numbers of decimal places
			Choose the quickest way to add or subtract decimals
			Continue a sequence of decimals
			Multiply a decimal by 10, 100 or 1,000
			Divide a decimal by 10, 100 or 1,000

Domain	Topic	✓	What to learn
Number	Decimals (continued)		Find the missing number in a decimal calculation
Number	Negative numbers		Understand what a negative number means
			Count forwards and backwards through 0
			Count through zero in steps
			Put positive and negative numbers in order
			Find the difference between two numbers either side of 0
Measurement	Converting units		Swap between grams and kilograms, metres and kilometres
			Swap between millimetres and millilitres and larger units
			Choose and convert units of length
			Swap between metric units and miles, pints and pounds
			Swap between units of time
			Work out journey times from a timetable
Measurement	Volume		Understand that volume is measured in cubic centimetres
			Say which of 2 solids takes up more space
			Estimate the volume of a solid
			Estimate how much a container holds

Year 6 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 6 (Upper Key Stage 2), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 6. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Place value		Read and write numbers up to 1,000,000
			Read and write numbers up to 10,000,000
			Say and write any large number in words
			Understand what happens to digits when multiplying by powers of 10
			Find a large number on a number line
			Put any whole numbers in order
			Round any whole number
			Work with numbers below 0
Number	Addition, subtraction, multiplication and division		Add and subtract whole numbers
			Find factors that two numbers share
			Find multiples that two numbers share
			Use quick tests to see what a number divides by
			Recognise the prime numbers up to 100
			Recognise square and cube numbers
			Multiply a number up to 4 digits by a 2-digit number
			Solve a problem using multiplication
			Divide using the short written method

Domain	Topic	✓	What to learn
Number	Addition, subtraction, multiplication and division (continued)		Divide by splitting the divisor into factors
			Divide using the long written method
			Divide using long division and explain the remainder
			Solve a problem using division
			Solve a problem that takes several steps
			Do calculations in the right order
			Work out an answer in your head and estimate
			Use a known fact to work out a harder 1
Number	Fractions A		Simplify a fraction to its lowest terms
			Spot equal fractions on a number line
			Order fractions with different bottom numbers
			Order fractions with different top numbers
			Add and subtract straightforward fractions
			Add and subtract any 2 fractions
			Add two mixed numbers
			Subtract one mixed number from another
Number	Fractions B		Solve a fraction problem that takes several steps
			Multiply a fraction by a whole number
			Multiply 1 fraction by another
			Divide a fraction by a whole number
			Divide any fraction by a whole number
			Choose the right method for a fraction question
			Find a fraction of an amount
			Work back from a fraction to find the whole
Measurement	Converting units		Know the common metric units and what they measure
			Swap between metric units

Domain	Topic	✓	What to learn
Measurement	Converting units (continued)		Add, subtract, multiply and divide with measurements
			Swap between miles and kilometres
			Work with older units such as pints, feet and pounds
Number	Ratio		Decide whether a comparison means adding or multiplying
			Describe a relationship using ratio language
			Write a ratio using the colon symbol
			See how a ratio relates to a fraction
			Read and use a scale drawing
			Enlarge or shrink using a scale factor
			Recognise shapes that are the same but different sizes
			Solve a problem using ratio
			Solve a problem using proportion
			Scale a recipe up or down
Algebra	Algebra		Work out the output of a 1-step machine
			Work out the output of a 2-step machine
			Write a rule using letters
			Put numbers into a rule to find the answer
			Use a formula to work something out
			Turn a situation into an equation
			Solve an equation with one step
			Solve an equation with two steps
			Find pairs of numbers that fit an equation
			Solve a problem with two unknown values
Number	Decimals		Understand the digits after a decimal point
			Understand place value across whole numbers and decimals
			Round a decimal to a given accuracy

Domain	Topic	✓	What to learn
Number	Decimals (continued)		Add and subtract decimals
			Multiply a decimal by 10, 100 or 1,000
			Divide a decimal by 10, 100 or 1,000
			Multiply a decimal by a whole number
			Divide a decimal by a whole number
			Multiply and divide decimals in a real situation
Number	Fractions, decimals and percentages		Swap between a decimal and a fraction
			See a fraction as a division
			Understand what a percentage means
			Turn a fraction into a percentage
			Swap between fractions, decimals and percentages
			Put fractions, decimals and percentages in order
			Find a percentage of an amount in one step
			Find a percentage of an amount in several steps
			Work back from a percentage to find the original
Measurement	Area, perimeter and volume		Find different shapes that cover the same area
			Tell area and perimeter apart
			Find the area of a triangle by counting squares
			Work out the area of a right-angled triangle Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$
			Work out the area of any triangle
			Work out the area of a parallelogram Area of a parallelogram = $\text{base} \times \text{height}$
			Find a volume by counting cubes
			Work out the volume of a cuboid Volume of a cuboid = $\text{length} \times \text{width} \times \text{height}$
Statistics	Statistics		Read and draw a graph showing change over time

Domain	Topic	✓	What to learn
Statistics	Statistics (continued)		Read a bar chart comparing two sets of data
			Read information from a pie chart
			Read a pie chart using percentages
			Draw a pie chart from data
			Work out the mean of a set of numbers Mean = total of the values ÷ how many values there are
Geometry	Shape		Measure an angle and name its type
			Work out a missing angle without measuring
			Find equal angles where two lines cross
			Know that the angles in a triangle total 180 degrees
			Find angles in equilateral and isosceles triangles
			Work out missing angles in a triangle
			Find missing angles in a four-sided shape
			Work out the angles inside any straight-sided shape Interior angles of a polygon add to $(n - 2) \times 180^\circ$
			Name the parts of a circle and link radius to diameter Diameter = $2 \times$ radius
			Draw a shape accurately from given measurements
			Work out which flat net folds into which solid
Geometry	Position and direction		Read and plot points where both numbers are positive
			Read and plot points anywhere on a grid
			Solve a problem using coordinates
			Slide a shape to a new position and describe the move
			Reflect a shape in 1 of the axes

Year 7 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 7 (Key Stage 3), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 7. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Algebra	Sequences		Describe a pattern and say what comes next
			Work out the next few terms in a pattern
			Tell a pattern that grows steadily from 1 that does not
			Continue a pattern that grows by the same amount
			Continue a pattern that grows by a changing amount
			Describe how to get from one term to the next
			Fill in gaps in the middle of a pattern
Algebra	Algebraic notation		Work out the output of a 1-step machine using numbers
			Work out the output of a 1-step machine using letters
			Work out the rule from an input and an output
			Put a number into a 1-step rule
			Work out the output of a 2-step machine using numbers
			Work out the output of a 2-step machine using letters
			Work out a 2-step rule from inputs and outputs
			Put a number into a 2-step rule
Algebra	Expressions and equations		Understand what the equals sign really means
			Use 1 known fact to work out another

Domain	Topic	✓	What to learn
Algebra	Expressions and equations (continued)		Tell terms that can be combined from those that cannot
			Collect matching terms to simplify an expression
			Solve an equation involving adding or subtracting
			Solve an equation involving multiplying or dividing
			Solve an equation that takes two steps
Number	Place value, ordering and rounding		Write whole numbers in figures and in words
			Read the scale on a number line
			Put whole numbers in order
			Understand the value of each digit after a decimal point
			Find a decimal on a number line
			Put decimals in order
			Round to the nearest 10, 100 or 1,000
			Round to the nearest whole number
			Round to a given number of decimal places
			Understand powers of 10
			Write a large number in standard form Standard form: $A \times 10^n$, where $1 \leq A < 10$
			Understand negative powers of 10
			Write a small number in standard form
Number	Four operations		Add and subtract whole numbers
			Add and subtract decimals
			Multiply and divide by 10, 100 and 1,000
			Multiply by nought point 1 and nought point nought 1
			Multiply whole numbers
			Divide whole numbers
			Multiply decimals

Domain	Topic	✓	What to learn
Number	Four operations (continued)		Divide a decimal by a whole number
			Divide by a decimal
			Carry out calculations in the correct order Order of operations: brackets, indices, division and multiplication, then addition and subtraction
Statistics	Averages and range		Find the most common value in a set of data
			Work out the mean of a set of data Mean = total of the values ÷ how many values there are
			Find the middle value of a set of data
			Work out the spread between highest and lowest
			Solve a problem using averages and spread
Number	Rounding and estimation		Round to 1 significant figure
			Round to 2 or more significant figures
			Estimate the answer to a calculation
			Solve a problem using estimation
			Write down the range a rounded value could be
Statistics	Graphing data		Read and draw a chart that uses pictures
			Read and draw a bar chart
			Read a bar chart comparing two sets of data
			Read a bar chart with stacked sections
			Plot points on a grid where both numbers are positive
			Plot 2 variables against each other
			Describe whether 2 variables are linked
			Draw a line through plotted points to show a trend
			Read a graph showing change over time
			Recognise a relationship that is not a straight line
Number	Fractions, decimals and percentages		Show tenths and hundredths in different ways

Domain	Topic	✓	What to learn
Number	Fractions, decimals and percentages (continued)		Place fractions and decimals on the same number line
			Match tenths, hundredths, fifths and quarters
			Work with eighths and thousandths
			Understand what a percentage means
			Swap between simple fractions, decimals and percentages
			Show a fraction as a diagram
			Place a fraction on a number line
			Find fractions that are worth the same
			Put fractions in order
			See a fraction as a division
			Swap between any fraction, decimal and percentage
			Work with values greater than 1 whole
Number	Directed number		Place positive and negative numbers on a number line
			Put positive and negative numbers in order
			Calculate across 0
			Use pairs that cancel to add and subtract
			Add positive and negative numbers
			Subtract positive and negative numbers
			Multiply and divide positive and negative numbers
			Carry out calculations in the correct order with negatives Order of operations: brackets, indices, division and multiplication, then addition and subtraction
Number	Fractions and percentages of amounts		Use a calculator with negative numbers
			Find a fraction of an amount
			Work back from a fraction to find the whole
			Find a percentage of an amount without a calculator

Domain	Topic	✓	What to learn
Number	Fractions and percentages of amounts (continued)		Find a percentage of an amount using a calculator
			Increase or decrease an amount by a percentage
			Work back from a percentage to find the original
			Solve a problem with values greater than 1 whole
Geometry and measures	Perimeter and area		Swap between metric units of length
			Work out the distance around a straight-sided shape
			Work out the distance around a shape made of rectangles
			Work out the area of a rectangle and a parallelogram Area of a rectangle = length $\times$ width
			Work out the area of a triangle
			Work out the area of a trapezium Area of a trapezium = $\frac{1}{2} \times (a + b) \times \text{height}$
			Solve a problem involving distance around and area
			Write an expression for a perimeter or an area
Ratio, proportion and rates of change	Speed, distance and time		Swap between milliseconds, seconds, minutes and hours
			Swap between hours, days, months and years
			Read and use a timetable
			Solve a problem involving dates and the calendar
			Work out a speed from distance and time Speed = distance $\div$ time
			Work out a time or a distance from a speed
			Solve a problem involving speed, distance and time
			Read a graph showing distance against time
			Draw a graph showing distance against time
			Work out a speed from the steepness of a graph
Number	Properties of numbers		List the multiples of a number
			List the factors of a number

Domain	Topic	✓	What to learn
Number	Properties of numbers (continued)		Recognise a prime number
			Write a number as a product of its prime factors
			Recognise square, cube and triangular numbers
			Find square roots and cube roots
			Work with higher powers and roots
			Find the highest factor two numbers share
			Find the lowest multiple two numbers share
			Use a Venn diagram to find shared factors and multiples
			Use factors to make a calculation easier
Number	Add and subtract fractions		Simplify a fraction to its lowest terms
			Swap between mixed numbers and top-heavy fractions
			Add and subtract fractions with the same bottom number
			Add and subtract a fraction and a whole number
			Add and subtract fractions where one bottom number divides the other
			Add and subtract fractions with any bottom numbers
			Add and subtract mixed numbers and top-heavy fractions
			Add and subtract decimals and fractions together
			Add and subtract fractions written with letters
			Substitute into and solve equations containing fractions
Geometry and measures	Angles and polygons		Draw and measure lines and angles
			Read and use the standard notation for shapes
			Work out missing angles around a point
			Work out missing angles on a straight line
			Find equal angles where two lines cross
			Name shapes by their number of sides
			Work out missing angles in a triangle

Domain	Topic	✓	What to learn
Geometry and measures	Angles and polygons (continued)		Work out missing angles in a four-sided shape
			Solve a problem involving angles
			Tell parallel lines from perpendicular lines
			Find the equal angles made by parallel lines
			Work out the angles inside any straight-sided shape Interior angles of a polygon add to $(n - 2) \times 180^\circ$
			Set out a short proof of an angle fact

Year 8 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 8 (Key Stage 3), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 8. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Ratio, proportion and rates of change	Ratio		Understand what a ratio describes
			Split a total into a given ratio
			Find the total when one part is known
			Find the amounts when the difference is known
			Reduce a ratio to its simplest form
			Rewrite a ratio so one side is 1
			See how a ratio and a fraction relate
			Solve a problem using ratio
Ratio, proportion and rates of change	Proportion and scale		Recognise when two quantities grow together
			Use a graph to convert between units
			Convert between currencies
			Read a graph where one quantity grows with another
			Recognise shapes that are the same but different sizes
			Swap between metric units
			Read and use a scale drawing
			Work out real distances from a map
Algebra	Algebraic manipulation		Turn a situation into an expression using letters

Domain	Topic	✓	What to learn
Algebra	Algebraic manipulation (continued)		Tell formulae, expressions, identities and equations apart
			Simplify an expression by collecting terms
			Work with negative numbers in algebra
			Substitute negative numbers into an expression
			Multiply out a single bracket
			Take a common factor outside a bracket
			Multiply out brackets and simplify
			Multiply out two brackets
			Factorise an expression with a squared term
Algebra	Coordinates and graphs		Plot points anywhere on a grid
			Recognise lines that run straight across or straight up
			Build a table of values for an equation
			Recognise the line where both coordinates match
			Recognise lines that pass through the origin
			Link a straight line through the origin to proportion
			Understand what the steepness of a line means Gradient = change in y ÷ change in x
			Recognise a line that slopes downwards
			Recognise lines shifted up or down
			Recognise a line from its equation
			Find the point halfway along a line segment Midpoint = $((x_1 + x_2) \div 2, (y_1 + y_2) \div 2)$
			Solve a problem using coordinates and graphs
			Recognise the curve made by a squared term
Number	Multiply and divide fractions		Multiply a fraction by a whole number
			Multiply 1 fraction by another
			Understand what a reciprocal is

Domain	Topic	✓	What to learn
Number	Multiply and divide fractions (continued)		Divide a whole number by a fraction
			Divide a fraction by a whole number
			Divide a fraction by a single-part fraction
			Divide 1 fraction by another
			Multiply and divide mixed numbers
			Multiply and divide fractions written with letters
Geometry and measures	Symmetry and reflection		Find the lines that split a shape into matching halves
			Find how many times a shape looks the same as it turns
			Reflect a shape in a straight across or straight up line
			Reflect a shape in a sloping line
			Reflect a shape given the equation of the mirror line
			Describe a reflection precisely
Geometry and measures	Area, volume and density		Name flat and solid shapes
			Work out the area of a flat shape
			Work out the area of a shape made from simpler ones
			Recognise a prism and describe it
			Work out the volume of a cube or cuboid Volume of a cuboid = length × width × height
			Swap between metric units of mass and capacity
			Understand how density, mass and volume relate Density = mass ÷ volume; Pressure = force ÷ area
			Solve a problem involving density
Algebra	Equations and inequalities		Solve an equation in 1 or two steps
			Solve an equation with several steps
			Solve an equation containing a fraction
			Turn a situation into an equation and solve it
			Solve an equation with the unknown on both sides

Domain	Topic	✓	What to learn
Algebra	Equations and inequalities (continued)		Understand what an inequality states
			Show an inequality on a number line
			Solve an inequality
			Turn a situation into an inequality and solve it
			Solve an inequality with the unknown on both sides
Number	Percentages		Find a percentage of an amount
			Swap between percentages and decimals
			Use a multiplier to find a percentage
			Work with percentages above 100
			Increase an amount using a multiplier
			Decrease an amount using a multiplier
			Increase and decrease using a multiplier
			Write one number as a fraction or percentage of another
			Write one number as a percentage of another using a calculator
			Work out the percentage change
			Work back to the original amount before a change
			Choose the best method for a percentage problem
Algebra	Indices		Add and subtract terms containing powers
			Multiply and divide terms containing powers
			Add the powers when multiplying $a^m \times a^n = a^{m+n}$
			Subtract the powers when dividing $a^m \div a^n = a^{m-n}$
			Use both power rules together
			Raise a power to another power $(a^m)^n = a^{mn}$
			Understand what a negative power means $a^{-n} = 1 \div a^n$

Domain	Topic	✓	What to learn
Algebra	Indices (continued)		Understand what a fractional power means $a^{(1/n)} = \sqrt[n]{a}$
Number	Standard form		Understand positive and negative powers of 10
			Write a large number in standard form Standard form: $A \times 10^n$, where $1 \leq A < 10$
			Write a small number in standard form
			Enter and read standard form on a calculator
Statistics	Interpret and represent data		Tell the different types of data apart
			Work out averages and the spread of data
			Spot values that look wrong or unusual
			Choose which average best describes the data
			Compare two sets of data using averages and spread
			Find an average from a frequency table
			Show and read data grouped into whole-number classes
			Show and read data grouped into measured classes
			Find the mean and mode from a grouped table
Geometry and measures	Angles in parallel lines and polygons		Recall the basic angle rules and notation
			Recognise the angles formed by parallel lines
			Find equal angles in a Z or F shape
			Work out angles that sit between parallel lines
			Solve a problem using parallel line rules
			Describe the properties of special four-sided shapes
			Find missing lengths and angles in special four-sided shapes
			Work out the angles outside a straight-sided shape Exterior angles of any polygon add to 360°
			Work out the angles inside a straight-sided shape Interior angles of a polygon add to $(n - 2) \times 180^\circ$
			Work out the angles of a shape with all sides equal

Domain	Topic	✓	What to learn
Geometry and measures	Angles in parallel lines and polygons (continued)		Set out a short proof of a geometric fact
Probability	Tables and probability		Use the language of chance correctly
			Place an outcome on a scale from impossible to certain
			Work out the chance of a single outcome
			Use the fact that all chances add up to 1 Probabilities of all outcomes add to 1
			Carry out an experiment and record the outcomes
			List all the possible outcomes of 1 or more events
			Work out a probability from a list of outcomes
			Read a table with rows and columns
			Work out a probability from a two-way table
			Read a branching diagram of outcomes
			Work out a probability from a branching diagram
Geometry and measures	Circles		Name the parts of a circle
			Understand what pi represents $\pi \approx 3.142$, the circumference of any circle divided by its diameter
			Work out the distance around a circle Circumference = $\pi \times \text{diameter} = 2 \times \pi \times \text{radius}$
			Work out the perimeter of part of a circle
			Work out the area of a circle Area of a circle = $\pi \times \text{radius}^2$
			Work out the area of part of a circle
			Use both the area and circumference formulae
			Work out the perimeter of a shape including curves
			Work out the perimeter and area of a shape including curves
Statistics	Graphs and charts		Read and draw picture charts and bar charts
			Read and draw a vertical line chart
			Draw a pie chart from data

Domain	Topic	✓	What to learn
Statistics	Graphs and charts (continued)		Read information from a pie chart
			Read and draw a graph showing change over time
			Choose the best chart for a set of data
			Compare two sets of data using graphs
			Spot a graph that misleads the reader
Algebra	Sequences		Continue a sequence described in words
			Continue a sequence described using letters
			Write a rule for the nth term of a sequence nth term of a linear sequence = $dn + (a - d)$, d the common difference, a the first term
			Continue a sequence from a more complex rule

Year 9 – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 9 (Key Stage 3), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 9. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Number	Properties of number		Find factors, multiples and primes
			Write a number as a product of its prime factors
			Use prime factors to answer questions
			Find the highest common factor and lowest common multiple
			Sort values using overlapping circles
			Use overlapping circles to find common factors and multiples
			Tell whole, real and rational numbers apart
			Understand what a surd is
Number	Percentages		Increase or decrease an amount by a percentage
			Write a change as a percentage
			Work back to the value before a percentage change
			Solve a percentage problem without a calculator
			Solve a percentage problem using a calculator
			Apply a percentage change more than once
			Understand what interest means
			Work out interest paid on the original amount only Simple interest = $(\text{principal} \times \text{rate} \times \text{years}) \div 100$

Domain	Topic	✓	What to learn
Number	Percentages (continued)		Work out interest that builds on itself Compound: $\text{total} = \text{principal} \times (1 + \text{rate} \div 100)^n$
Geometry and measures	Area and volume		Work out which flat net folds into which solid
			Work out the area of a flat shape
			Work out the area and distance around a circle $\text{Circumference} = \pi \times \text{diameter} = 2 \times \pi \times \text{radius}$
			Work out the surface area of a cube or cuboid
			Work out the surface area of a triangular prism
			Work out the surface area of a cylinder $\text{Surface area of a cylinder} = 2\pi r^2 + 2\pi rh$
			Work out the volume of a prism $\text{Volume of a prism} = \text{area of the cross-section} \times \text{length}$
			Work out the volume of a cylinder $\text{Volume of a cylinder} = \pi \times \text{radius}^2 \times \text{height}$
			Work out the volume of a cone, pyramid or sphere
Algebra	Equations, inequalities and formulae		Swap between metric units of area and volume
			Solve an equation or an inequality
			Solve an equation or inequality containing brackets
			Handle inequalities involving negative numbers
			Solve with the unknown on both sides
			Turn a problem into an equation or inequality
			Substitute values into a formula
			Rearrange a formula in one step
			Rearrange a formula in two steps
Number	Fractions		Rearrange a more complicated formula
			Add and subtract fractions
			Multiply and divide fractions
			Find a fraction of an amount

Domain	Topic	✓	What to learn
Ratio, proportion and rates of change	Rates		Work out speed, distance or time Speed = distance ÷ time
			Read a graph showing distance against time
			Read a graph showing a container filling
			Understand a rate of change and its units
			Swap between compound units
Number	Standard form		Write a number in standard form Standard form: $A \times 10^n$, where $1 \leq A < 10$
			Put numbers written in standard form in order
			Multiply and divide numbers in standard form
			Add and subtract numbers in standard form
Number	Maths and money		Understand how a bank account works
			Understand what VAT is and how it is added
			Compare the ways you can pay for something
			Compare the ways you can save money
			Understand pay, deductions and take-home pay
			Understand what an investment is and its risks
			Understand a mortgage and what it costs
			Work out the running costs of a home or business
			Plan a budget that balances
			Understand a loan and what it costs to repay
			Work out costs when spending abroad
			Understand what insurance covers and costs
Algebra	Straight line graphs		Recognise lines across, up, and the diagonals
			Work out the steepness of a line Gradient = change in y ÷ change in x
			Find where a line crosses the vertical axis

Domain	Topic	✓	What to learn
Algebra	Straight line graphs (continued)		Read a line's equation from its steepness and crossing point $y = mx + c$, where m is the gradient and c the y-intercept
			Rearrange an equation to read off the line
			Work out the equation of a line from its graph
			Explain what the steepness means in a real situation
			Show an inequality as a region on a graph
Ratio, proportion and rates of change	Ratio and proportion		Recognise when two quantities grow together
			Use a graph to convert between quantities
			Recognise when one quantity falls as another rises
			Read a graph where one quantity falls as another rises
			Solve a ratio problem from a total or a part
			Solve a ratio problem using algebra
Geometry and measures	Constructions and congruence		Draw and measure angles accurately
			Draw a triangle from 2 angles and a side, or two sides and an angle
			Draw a triangle from three side lengths
			Construct a line that cuts an angle in half
			Construct a line that cuts another in half at right angles
			Construct a line at right angles through a point
			Draw more complex shapes accurately
			Spot shapes that are identical
			Prove 2 triangles are identical
Geometry and measures	Similarity		Recognise an enlargement and similar shapes
			Find missing lengths and angles in similar shapes
			Solve a problem using similar triangles
			Understand the ratio of sides in a right-angled triangle
Algebra	Algebraic manipulation		Multiply out brackets and simplify

Domain	Topic	✓	What to learn
Algebra	Algebraic manipulation (continued)		Take a common factor outside a bracket
			Multiply out two brackets
			Multiply out more complex pairs of brackets
			Recognise and use an identity
			Factorise an expression with a squared term
			Solve an equation with a squared term
			Multiply out three brackets
Geometry and measures	Pythagoras' theorem		Solve an equation involving squares and square roots
			Identify the longest side of a right-angled triangle
			Test whether a triangle has a right angle
			Find the longest side of a right-angled triangle
			Find any missing side of a right-angled triangle
			Find the distance between two points on a grid
			Follow a proof of the right-angled triangle rule
			Use the rule inside a solid shape
Algebra	Non-linear graphs		Substitute values into an expression with a squared term
			Draw the curve of a squared equation
			Draw the curve of a more complex squared equation
			Read information from a curved graph
			Recognise graphs that curve away from the axes
			Draw the curve of a cubed equation
			Read information from a cubed graph
			Find where a curve crosses the axes and where it turns
Probability	Sets and probability		Describe a collection of values as a set
			Find the values two sets have in common
			Find all the values in either set

Domain	Topic	✓	What to learn
Probability	Sets and probability (continued)		Find the values not in a set
			Work out the chance of a single outcome
			Use a diagram to work out a probability
			Work out a probability from experimental results
			Predict how often an outcome should happen
			Work out probabilities when one event does not affect another
			Work out probabilities from overlapping circles
Geometry and measures	Transformations		Enlarge a shape by a whole-number scale factor
			Enlarge a shape from a fixed point
			Enlarge a shape by a fractional scale factor
			Enlarge a shape by a negative scale factor
			Describe an enlargement precisely
			Turn a shape about a fixed point
			Describe a rotation precisely
			Slide a shape to a new position
			Describe a slide precisely
			Reflect a shape in a line
			Work out the result of several moves in a row
Algebra	Simultaneous equations		Use one known value to find another
			Understand what a pair of simultaneous equations means
			Solve a pair of equations by drawing their graphs
			Solve a pair of equations by adding or subtracting them
			Rearrange an equation before solving a pair
			Adjust 1 equation so the pair can be solved
			Adjust both equations so the pair can be solved
			Solve a pair of equations by substituting 1 into the other

Domain	Topic	✓	What to learn
Geometry and measures	Trigonometry		Name the sides of a right-angled triangle
			Use the tangent ratio to find a missing side $\tan \theta = \text{opposite} \div \text{adjacent}$
			Use sine and cosine to find a missing side $\sin \theta = \text{opposite} \div \text{hypotenuse}$; $\cos \theta = \text{adjacent} \div \text{hypotenuse}$
			Use the ratios to find a missing angle
			Choose the right method for a right-angled triangle problem
			Recall the ratios for common angles
			Use the ratios inside a solid shape

Year 10 Foundation – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 10 Foundation (Key Stage 4), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 10 Foundation. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Algebra	Algebraic manipulation		Put numbers into an expression to find its value
			Collect matching terms together
			Simplify an expression
			Add and subtract the powers when multiplying and dividing
			Raise a power to another power $(a^m)^n = a^{mn}$
			Multiply out a single bracket
			Take a common factor outside a bracket
Algebra	Equations, inequalities and formulae		Solve an equation
			Solve an equation containing a fraction
			Solve an equation with the unknown on both sides
			Understand what an inequality states
			Solve an inequality
			Rearrange a simple formula
			Rearrange a familiar formula
			Rearrange a more complicated formula
Algebra	Quadratic expressions and equations		Multiply out two brackets
			Factorise an expression with a squared term and positive signs

Domain	Topic	✓	What to learn
Algebra	Quadratic expressions and equations (continued)		Factorise an expression with a squared term
			Factorise the difference between two squares $a^2 - b^2 = (a + b)(a - b)$
			Solve an equation with a squared term equal to 0
			Solve an equation with a squared term by factorising
			Draw the curve of a squared equation shifted up or down
Number	Percentages		Find a percentage of an amount
			Increase or decrease an amount by a percentage
			Apply a percentage change more than once
			Write one number as a fraction or percentage of another
			Write a change as a percentage
			Work back to the value before a percentage change
			Work out interest paid on the original amount only Simple interest = $(\text{principal} \times \text{rate} \times \text{years}) \div 100$
			Work out interest that builds on itself Compound: total = $\text{principal} \times (1 + \text{rate} \div 100)^n$
Ratio, proportion and rates of change	Ratio and scale		Choose the best method for a percentage problem
			Recognise ratios that mean the same thing
			Split a total into a given ratio
			Find the total when a part or difference is known
			See how a ratio and a fraction relate
			Combine 2 ratios into 1
			Split an amount in a ratio using algebra
Number	Work with fractions		Use a ratio as a scale
			Find a fraction of an amount
			Increase or decrease an amount by a fraction
			Work back from a fraction to find the whole

Domain	Topic	✓	What to learn
Number	Work with fractions (continued)		Swap between equivalent fractions and mixed numbers
			Add and subtract fractions
			Multiply fractions
			Divide fractions
			Solve a problem using fractions
Number	Non-calculator methods		Understand the value of each digit
			Put numbers and decimals in order
			Add and subtract whole numbers and decimals
			Multiply and divide whole numbers and decimals
			Add, subtract, multiply and divide negative numbers
			Carry out calculations in the correct order Order of operations: brackets, indices, division and multiplication, then addition and subtraction
			Use 1 calculation to work out a related 1
Algebra	Straight line graphs		Solve a problem that takes several steps
			Draw the graph of a straight line
			Read a solution off a straight line graph
			Work out the steepness of a line Gradient = change in y ÷ change in x
			Read a line's equation from its steepness and crossing point $y = mx + c$, where m is the gradient and c the y-intercept
			Work out the equation of a line from its graph
			Find the point halfway along a line segment Midpoint = $((x_1 + x_2) \div 2, (y_1 + y_2) \div 2)$
			Find a line's equation from one point and its steepness
			Find a line's equation from two points
Probability	Probability		Read a straight line graph in a real situation
			Work out the chance of a single outcome

Domain	Topic	✓	What to learn
Probability	Probability (continued)		Use the fact that all chances add up to 1 Probabilities of all outcomes add to 1
			List all the possible outcomes
			Work out a probability from experimental results
			List the outcomes of 1 or more events
			Read a table with rows and columns
			Read a branching diagram of outcomes
			Work out probabilities when one event does not affect another
			Use a tree diagram for events that do not affect each other
			Use a tree diagram when one event affects the next
Number	Rounding and estimation		Round to a given number of decimal places
			Round to a given number of significant figures
			Estimate the answer to a calculation
			Use a calculator efficiently and check the display
			Write down the range a rounded value could be
Geometry and measures	Perimeter, area and volume		Name flat and solid shapes
			Work out the distance around a flat shape
			Work out the area of a flat shape
			Work out the area of a shape made from simpler ones
			Name the parts of a circle
			Work out the distance around a circle Circumference = $\pi \times \text{diameter}$ = $2 \times \pi \times \text{radius}$
			Work out the area of a circle Area of a circle = $\pi \times \text{radius}^2$
			Work out the volume of a prism Volume of a prism = area of the cross-section $\times$ length
			Work out which flat net folds into which solid
			Work out the surface area of a prism

Domain	Topic	✓	What to learn
Statistics	Interpret and represent data		Work out averages and the spread of data
			Find an average from a frequency table
			Find the mean from a grouped table
			Find all the averages from a grouped table
			Compare two sets of data
			Tell the different types of data apart
			Choose a fair sample from a population
			Plot 2 variables against each other
			Use a trend line to predict a value
Algebra	Non-linear graphs		Draw the curve of a squared equation
			Find where a curve crosses the axes
			Draw the curve of a cubed equation
			Read approximate solutions off a graph
Geometry and measures	Angles		Work out angles around a point, on a line and where lines cross
			Work out missing angles in a triangle
			Work out missing angles in a four-sided shape
			Work out the angles outside a straight-sided shape Exterior angles of any polygon add to 360°
			Work out the angles inside a straight-sided shape Interior angles of a polygon add to $(n - 2) \times 180^\circ$
			Solve a problem involving angles in shapes
			Find equal angles made by parallel lines
			Work out angles that sit between parallel lines
			Set out a proof of a geometric fact
Statistics	Graphs and diagrams		Read and draw a chart that uses pictures
			Read and draw vertical line and bar charts
			Read a bar chart comparing or stacking data

Domain	Topic	✓	What to learn
Statistics	Graphs and diagrams (continued)		Draw a pie chart from data
			Read information from a pie chart
			Read a graph showing change over time
			Draw a graph joining the midpoints of grouped data
			Show data using a stem-and-leaf diagram
Geometry and measures	Vectors		Understand what a vector describes
			Read and write vectors in the standard notation
			Multiply a vector by a number
			Add 2 vectors together
			Add and subtract vectors
			Solve a problem using vectors
Number	Factors, powers and surds		Find factors, multiples and primes
			Write a number as a product of its prime factors
			Find the highest common factor and lowest common multiple
			Recognise square and cube numbers
			Work out powers and roots
			Understand what a negative power means $a^{-n} = 1 \div a^n$
			Tell rational numbers from irrational ones, including surds
			Simplify an expression containing a surd
			Multiply out brackets containing surds
Geometry and measures	Pythagoras and trigonometry		Find the longest side of a right-angled triangle
			Find any missing side of a right-angled triangle
			Name the sides of a right-angled triangle
			Understand the ratio of sides in a right-angled triangle
			Use the tangent ratio to find a missing side $\tan \theta = \text{opposite} \div \text{adjacent}$

Domain	Topic	✓	What to learn
Geometry and measures	Pythagoras and trigonometry (continued)		Use sine and cosine to find a missing side $\sin \theta = \text{opposite} \div \text{hypotenuse}$; $\cos \theta = \text{adjacent} \div \text{hypotenuse}$
			Choose the right ratio to find a missing side
			Use the ratios to find a missing angle
			Recall the exact ratios for common angles
Algebra	Simultaneous equations		Use one known value to find another
			Understand what a pair of simultaneous equations means
			Solve a pair of equations by drawing their graphs
			Solve a pair of equations by adding or subtracting them
			Rearrange an equation before solving a pair
			Adjust 1 equation so the pair can be solved
			Adjust both equations so the pair can be solved
			Solve a pair of equations by substituting 1 into the other

Year 10 Higher – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 10 Higher (Key Stage 4), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 10 Higher. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Algebra	Algebraic manipulation		Simplify an expression
			Add, subtract and multiply the powers
			Multiply out a single bracket
			Take a common factor outside a bracket
Algebra	Equations, inequalities and formulae		Solve an equation
			Solve an equation containing a fraction
			Solve an equation with the unknown on both sides
			Understand what an inequality states
			Solve an inequality
			Write the solution to an inequality using set notation
			Rearrange a simple formula
			Rearrange a familiar formula
			Rearrange a more complicated formula
			Rearrange a formula where the subject appears twice
Algebra	Quadratic expressions and equations		Multiply out two brackets
			Multiply out three brackets
			Factorise an expression with a squared term

Domain	Topic	✓	What to learn
Algebra	Quadratic expressions and equations (continued)		Factorise a harder expression with a squared term
			Factorise the difference between two squares $a^2 - b^2 = (a + b)(a - b)$
			Solve an equation with a squared term equal to 0
			Solve an equation with a squared term by factorising
			Solve a harder equation by factorising
			Rewrite an expression as a square plus a number $x^2 + bx + c = (x + b \div 2)^2 - (b \div 2)^2 + c$
			Rewrite a harder expression as a square plus a number
			Solve an equation by rewriting it as a square
			Solve an equation using the quadratic formula Quadratic formula: $x = (-b \pm \sqrt{b^2 - 4ac}) \div 2a$
Number	Percentages		Find a percentage of an amount
			Increase or decrease an amount by a percentage
			Apply a percentage change more than once
			Write one number as a fraction or percentage of another
			Write a change as a percentage
			Work back to the value before a percentage change
			Work out interest paid on the original amount only Simple interest = $(\text{principal} \times \text{rate} \times \text{years}) \div 100$
			Work out interest that builds on itself Compound: $\text{total} = \text{principal} \times (1 + \text{rate} \div 100)^n$
			Choose the best method for a percentage problem
Ratio, proportion and rates of change	Ratio and scale		Recognise ratios that mean the same thing
			Split a total from a whole, a part or a difference
			See how a ratio and a fraction relate
			Combine 2 ratios into 1
			Split an amount in a ratio using algebra

Domain	Topic	✓	What to learn
Ratio, proportion and rates of change	Ratio and scale (continued)		Solve a ratio problem using algebra
			Use a ratio as a scale
Number	Work with fractions		Add and subtract fractions
			Multiply and divide fractions
			Solve a problem using fractions
			Add and subtract fractions written with letters
			Multiply fractions written with letters
			Divide fractions written with letters
			Simplify a fraction with letters by factorising
			Add and subtract more complex fractions with letters
			Multiply and divide more complex fractions with letters
			Solve an equation containing fractions with letters
Number	Non-calculator methods		Carry out calculations in the correct order Order of operations: brackets, indices, division and multiplication, then addition and subtraction
			Use 1 calculation to work out a related 1
			Solve a problem that takes several steps
			Turn a repeating decimal into a fraction
			Turn a more complex repeating decimal into a fraction
Algebra	Straight line graphs		Draw the graph of a straight line
			Read a line's equation from its steepness and crossing point $y = mx + c$, where m is the gradient and c the y-intercept
			Work out the equation of a line from its graph
			Show the solution to 1 inequality on a graph
			Show the solution to several inequalities on a graph
			Find the point halfway along a line segment Midpoint = $((x_1 + x_2) \div 2, (y_1 + y_2) \div 2)$

Domain	Topic	✓	What to learn
Algebra	Straight line graphs (continued)		Find a line's equation from one point and its steepness
			Find a line's equation from two points
			Find the equation of a line at right angles to another
			Read a straight line graph in a real situation
Probability	Probability		Work out the chance of a single outcome
			Use the fact that all chances add up to 1 Probabilities of all outcomes add to 1
			List and count the possible outcomes
			Work out a probability from experimental results
			List the outcomes of 1 or more events
			Read two-way tables and branching diagrams
			Work out probabilities when one event does not affect another
			Use a tree diagram for events that do not affect each other
			Use a tree diagram when one event affects the next
Number	Rounding and estimation		Round to decimal places and significant figures
			Estimate the answer to a calculation
			Use a calculator efficiently and check the display
			Write down the range a rounded value could be
			Work out the largest and smallest a value could be
Geometry and measures	Perimeter, area and volume		Work out the distance around a flat shape
			Work out the area of a flat shape
			Work out the area and distance around a circle Circumference = $\pi \times \text{diameter}$ = $2 \times \pi \times \text{radius}$
			Work out the length of an arc and the perimeter of a slice Arc length = $(\text{angle} \div 360) \times \text{circumference}$
			Work out the area of a slice of a circle Area of a sector = $(\text{angle} \div 360) \times \text{area of the circle}$

Domain	Topic	✓	What to learn
Geometry and measures	Perimeter, area and volume (continued)		Work out the volume of a prism Volume of a prism = area of the cross-section × length
			Work out the volume of a cylinder Volume of a cylinder = $\pi \times \text{radius}^2 \times \text{height}$
			Work out which flat net folds into which solid
			Work out the surface area of a prism
			Work out the surface area of a cylinder Surface area of a cylinder = $2\pi r^2 + 2\pi rh$
Statistics	Interpret and represent data		Work out averages and the spread of data
			Find an average from a frequency table
			Find the mean from a grouped table
			Find all the averages from a grouped table
			Compare two sets of data
			Tell the different types of data apart
			Choose a fair sample from a population
			Estimate a population size by tagging and re-sampling
			Plot 2 variables against each other
Algebra	Non-linear graphs		Use a trend line to predict a value
			Draw the curve of a squared equation
			Find where a curve crosses the axes
			Find the highest or lowest point of a curve
			Draw the curve of a cubed equation
			Read approximate solutions off a graph
			Estimate the steepness of a curve at a point
			Estimate the area beneath a curve
			Recognise and use the equation of a circle Equation of a circle centred on the origin: $x^2 + y^2 = r^2$
			Find the equation of a line touching a circle

Domain	Topic	✓	What to learn
Geometry and measures	Angles		Work out angles around a point, on a line and where lines cross
			Work out missing angles in triangles and four-sided shapes
			Work out the angles outside a straight-sided shape Exterior angles of any polygon add to 360°
			Work out the angles inside a straight-sided shape Interior angles of a polygon add to $(n - 2) \times 180^\circ$
			Solve a problem involving angles in shapes
			Find the equal and paired angles made by parallel lines
			Solve an angle problem using algebra
			Set out a proof of a geometric fact
Statistics	Graphs and diagrams		Read and draw a pie chart
			Read a graph showing change over time
			Draw a graph joining the midpoints of grouped data
			Show data using a stem-and-leaf diagram
			Draw a histogram for unequal groups
			Read information from a histogram
			Draw a running total graph
			Read a running total graph to find the median and quartiles
			Draw a box plot from a summary of the data
			Compare two sets of data using box plots
Geometry and measures	Vectors		Understand what a vector describes
			Read and write vectors in the standard notation
			Multiply a vector by a number
			Add 2 vectors together
			Add and subtract vectors
			Describe a journey through a shape using vectors
			Use vectors within four-sided shapes

Domain	Topic	✓	What to learn
Geometry and measures	Vectors (continued)		Recognise when 2 vectors are parallel
Number	Factors, powers and surds		Write a number as prime factors and find the HCF and LCM
			Work out powers, roots and negative powers
			Understand what a fractional power means $a^{1/n} = \sqrt[n]{a}$
			Add, subtract, multiply and divide surds
			Simplify a surd
			Multiply out a single bracket containing surds
			Clear a surd from the bottom of a fraction
			Multiply out two brackets containing surds
			Clear a more complex surd from the bottom of a fraction
			Solve a problem involving surds
Geometry and measures	Pythagoras and trigonometry		Find any missing side of a right-angled triangle
			Use the ratios to find a missing side
			Use the ratios to find a missing angle
			Recall the exact ratios for common angles
			Use the ratios inside a solid shape
			Work out the area of a triangle without a right angle Area of a triangle = $\frac{1}{2}ab \sin C$
			Use the sine rule to find a missing side Sine rule: $a \div \sin A = b \div \sin B = c \div \sin C$
			Use the sine rule to find a missing angle
			Use the cosine rule to find a missing side Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$
			Use the cosine rule to find a missing angle
Algebra	Simultaneous equations		Solve a pair of equations by drawing their graphs
			Solve a pair of equations by adding or subtracting them
			Adjust 1 equation so the pair can be solved

Domain	Topic	✓	What to learn
Algebra	Simultaneous equations (continued)		Adjust both equations so the pair can be solved
			Solve a pair of equations by substituting 1 into the other
			Solve a problem using simultaneous equations
			Solve a straight and a curved equation using graphs
			Solve a straight and a curved equation by setting them equal
			Solve a straight and a curved equation by substituting

Year 11 Foundation – Mathematics

UK National Curriculum 2026

This checklist is based on the UK National Curriculum for Mathematics for Year 11 Foundation (Key Stage 4), as set out in the statutory guidance: National curriculum in England: mathematics programmes of study, updated 28 September 2021 (in force as of 2026). It outlines the expected learning for Year 11 Foundation. Each item represents an expected outcome or concept within the curriculum and has been carefully curated by Ivy Maths to provide a clear, structured reference for coverage, recognition, framework and progression.

Domain	Topic	✓	What to learn
Ratio, proportion and rates of change	Ratio and proportion		Solve a problem using ratio
			Recognise when two quantities grow together
			Work out which option gives better value
			Use a graph to convert between units
			Convert between currencies
			Recognise when one quantity falls as another rises
			Write an equation linking two quantities that grow together Direct proportion: $y = kx$. Inverse: $y = k \div x$
			Read graphs where quantities rise or fall together
Geometry and measures	Area and volume		Draw a solid shape on isometric paper
			Draw a solid shape viewed from the front, side and above
			Work out the volume of a cylinder Volume of a cylinder = $\pi \times \text{radius}^2 \times \text{height}$
			Work out the volume of a sphere Volume of a sphere = $\frac{4}{3} \times \pi \times \text{radius}^3$
			Work out the volume of a cone or pyramid Volume of a cone = $\frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$; pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$
			Work out the surface area of a sphere Surface area of a sphere = $4 \times \pi \times \text{radius}^2$

Domain	Topic	✓	What to learn
Geometry and measures	Area and volume (continued)		Work out the surface area of a cylinder Surface area of a cylinder = $2\pi r^2 + 2\pi rh$
			Work out the surface area of a pyramid
			Work out the surface area of a cone
			Swap between metric units of area
			Swap between metric units of volume
Geometry and measures	Similarity and congruence		Spot shapes that are the same but different sizes
			Find missing lengths and angles in similar shapes
			Spot similar triangles
			Solve a problem using similar shapes
			Prove that 2 triangles are similar
			Tell similar shapes from identical ones
			Prove 2 triangles are identical
Algebra	Sequences and proof		Set out a proof that 2 triangles are identical
			Continue a sequence that grows by adding or by multiplying
			Continue other kinds of sequence
			Continue a sequence from a rule written in letters
			Write a rule for the nth term of a sequence nth term of a linear sequence = $dn + (a - d)$, d the common difference, a the first term
			Write a general number using algebra
Number	Standard form		Build an argument and find a counterexample
			Write a large number in standard form Standard form: $A \times 10^n$, where $1 \leq A < 10$
			Write a small number in standard form
			Correct a number that is not quite in standard form
			Multiply and divide numbers in standard form

Domain	Topic	✓	What to learn
Number	Standard form (continued)		Add and subtract numbers in standard form
Geometry and measures	Work with circles		Work out the area and distance around a circle Circumference = $\pi \times \text{diameter} = 2 \times \pi \times \text{radius}$
			Work out a fraction of a circle's area
			Work out the area of a slice of a circle Area of a sector = $(\text{angle} \div 360) \times \text{area of the circle}$
			Work out a fraction of a circle's perimeter
			Work out the length of an arc and the perimeter of a slice Arc length = $(\text{angle} \div 360) \times \text{circumference}$
			Work out the area and perimeter of shapes including curves
			Solve a problem involving circles
Probability	Set notation and Venn diagrams		Sort values using overlapping circles
			Read and write the standard notation for sets
			Work out a probability from overlapping circles
Algebra	Functions and graphs		Work out the output of a function machine
			Write an expression or formula from a function machine
			Recognise and draw the curve of a squared equation
			Recognise and draw the curve of a cubed equation
			Recognise and draw graphs that curve away from the axes
			Recognise a graph from its equation and sketch it
Algebra	Equations and formulae		Solve an equation
			Turn a situation into an equation and solve it
			Solve an equation with the unknown on both sides
			Solve an inequality
			Turn a situation into an inequality and solve it
			Solve more complicated equations and inequalities
			Solve a pair of simultaneous equations

Domain	Topic	✓	What to learn
Algebra	Equations and formulae (continued)		Solve a problem using simultaneous equations
Ratio, proportion and rates of change	Rates		Swap between hours and minutes
			Work out speed, distance or time Speed = distance ÷ time
			Read a graph showing distance against time
			Draw a graph showing distance against time
			Work out density and pressure Density = mass ÷ volume; Pressure = force ÷ area
			Swap between compound units
Geometry and measures	Angles, bearings and trigonometry		Work out angles in lines and shapes
			Solve a problem using parallel line rules
			Solve an angle problem using algebra
			Link compass points to angles
			Understand what a bearing describes
			Measure and read a bearing
			Use bearings in a scale drawing
			Work out a bearing using angle rules
			Choose the right method for a right-angled triangle problem
Geometry and measures	Constructions and Loci		Solve a bearings problem using right-angled triangle methods
			Use a ruler, protractor and compasses accurately
			Draw a triangle accurately
			Draw a many-sided shape accurately
			Construct a line that cuts an angle in half
			Construct a line that cuts another in half at right angles
			Construct a line at right angles through a point
			Draw all the points a fixed distance from a point or line
			Draw all the points the same distance from two points

Domain	Topic	✓	What to learn
Geometry and measures	Constructions and Loci (continued)		Draw all the points the same distance from two lines
			Solve a problem involving regions and distances
Geometry and measures	Transformations		Enlarge a shape by a whole-number scale factor
			Enlarge a shape by a fractional scale factor
			Find lines of symmetry and order of rotational symmetry
			Reflect a shape in a line
			Turn a shape about a fixed point
			Slide a shape to a new position
			Describe a transformation precisely
			Work out the result of several moves in a row

Year 11 Higher – Mathematics

UK National Curriculum 2026

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Domain	Topic	✓	What to learn
Ratio, proportion and rates of change	Ratio and proportion		Solve a problem using ratio
			Work out which option gives better value
			Use a graph to convert between units
			Convert between currencies
			Write an equation for two quantities that grow together Direct proportion: $y = kx$. Inverse: $y = k \div x$
			Write a harder equation for quantities that grow together
			Recognise when one quantity falls as another rises
			Write an equation for quantities that rise as the other falls
			Read graphs where quantities rise or fall together
Geometry and measures	Area and volume		Draw a solid shape viewed from the front, side and above
			Work out the volume of a sphere Volume of a sphere = $\frac{4}{3} \times \pi \times \text{radius}^3$
			Work out the volume of a cone or pyramid Volume of a cone = $\frac{1}{3} \times \pi \times \text{radius}^2 \times \text{height}$; pyramid = $\frac{1}{3} \times \text{base area} \times \text{height}$
			Work out the surface area of a sphere or cone Surface area of a sphere = $4 \times \pi \times \text{radius}^2$
			Work out the volume and surface area of a cut-off cone
			Swap between metric units of area and volume

Domain	Topic	✓	What to learn
Geometry and measures	Similarity and congruence		Find missing lengths and angles in similar shapes
			Spot similar triangles
			Solve a problem using similar shapes
			Prove that 2 triangles are similar
			Work out how area changes when a shape is scaled
			Work out how volume changes when a shape is scaled
			Solve a problem involving area and volume of similar shapes
			Tell identical shapes apart from similar ones
			Set out a proof that 2 triangles are identical
Algebra	Sequences and proof		Describe and continue a sequence
			Continue a sequence whose terms contain letters
			Continue a sequence whose terms contain surds
			Continue a sequence from a rule written in letters
			Write a rule for the nth term of a sequence nth term of a linear sequence = $dn + (a - d)$, d the common difference, a the first term
			Write a rule for a sequence with a squared term
			Write a general number using algebra
			Build a proof using algebra
Number	Standard form		Write a number in standard form Standard form: $A \times 10^n$, where $1 \leq A < 10$
			Add, subtract, multiply and divide in standard form
			Solve a problem using standard form
Geometry and measures	Circle theorems		Recognise the angles formed inside a circle
			Use the rule linking angles at the centre and the edge
			Use the rule for an angle in a half circle
			Use the rule for angles standing on the same arc

Domain	Topic	✓	What to learn
Geometry and measures	Circle theorems (continued)		Use the rule for a four-sided shape inside a circle
			Use the rule for a line from the centre to a chord
			Use the rule for the angle between a radius and a tangent
			Use the rule for two tangents from the same point
			Use the rule linking a tangent and the opposite angle
			Solve a problem using the circle rules
Probability	Set notation and Venn diagrams		Read and write the standard notation for sets
			Sort values using overlapping circles
			Solve a problem using overlapping circles
			Work out a probability once something is already known
Geometry and measures	Vectors		Solve a problem using vectors
			Use ratios alongside vectors
			Show that three points lie on a straight line
			Build a geometric proof using vectors
Algebra	Functions and graphs		Read and use function notation
			Apply 1 function after another
			Find the function that undoes another
			Recognise graphs with squared and cubed terms
			Recognise graphs that curve away from the axes
			Recognise a graph that grows by repeated multiplying
			Recognise the wave graphs of sine, cosine and tangent
			Recognise a graph from its equation and sketch it
			Shift a graph up, down, left or right
			Reflect a graph in 1 of the axes
			Stretch and combine changes to a graph
Algebra	Equations and formulae		Turn a situation into an equation and solve it

Domain	Topic	✓	What to learn
Algebra	Equations and formulae (continued)		Turn a situation into an inequality and solve it
			Solve with the unknown on both sides
			Solve more complicated equations and inequalities
			Solve an equation with a squared term
			Solve an inequality with a squared term
			Understand what repeating a process does
			Solve an equation by repeating a process
			Solve a pair of simultaneous equations
			Solve a straight and a curved equation together
			Solve a pair of equations that contain letters as constants
Ratio, proportion and rates of change	Rates		Work out speed, distance or time Speed = distance ÷ time
			Read a graph showing distance against time
			Read a graph showing speed against time
			Work out density and pressure Density = mass ÷ volume; Pressure = force ÷ area
			Swap between compound units
Geometry and measures	Angles, bearings and trigonometry		Understand what a bearing describes
			Measure and read a bearing
			Use bearings in a scale drawing
			Work out a bearing using angle rules
			Choose the right method for a right-angled triangle problem
			Solve a bearings problem using right-angled triangle methods
			Use the sine and cosine rules Cosine rule: $a^2 = b^2 + c^2 - 2bc \cos A$
			Solve a bearings problem using the sine and cosine rules
Geometry and measures	Constructions and Loci		Draw a triangle accurately

Domain	Topic	✓	What to learn
Geometry and measures	Constructions and Loci (continued)		Draw a many-sided shape accurately
			Construct lines that cut an angle or a line in half
			Construct a line at right angles through a point
			Draw all the points a fixed distance from a point or line
			Draw all the points the same distance from two points
			Draw all the points the same distance from two lines
			Solve a problem involving regions and distances
Geometry and measures	Transformations		Enlarge a shape by a whole-number scale factor
			Enlarge a shape by a fractional scale factor
			Enlarge a shape by a negative scale factor
			Reflect a shape in a line
			Turn a shape about a fixed point
			Slide a shape to a new position
			Describe a transformation precisely
			Work out the result of several moves in a row
			Find the points that do not move

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This curriculum outlines the expected development of Mathematics from Year 1 through to Year 11, aligned to the UK National Curriculum and organised for practical use.

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