KS3 Mathematics Skills Map – What Comes First?

Click a skill to see what pupils need first, what it leads on to and where it continues at GCSE, or a strand name for that strand's page.

Number →

- **N1** Place Value
- **N2** Ordering Numbers
- **N3** Factors, Multiples and Primes
- **N4** The Four Operations
- **N5** Order of Operations
- **N6** Inverse Operations
- **N7** Powers and Roots
- **N8** Standard Form
- **N9** Fractions and Decimals
- **N10** Percentages
- **N11** Fractions and Percentages as Operators
- **N12** Units of Measure
- **N13** Rounding
- **N14** Estimation and Error Intervals
- **N15** Using a Calculator
- **N16** Sets of Numbers

Probability →

- **P1** The Probability Scale
- **P2** Probability Experiments
- **P3** Probabilities Sum to One
- **P4** Sets and Venn Diagrams
- **P5** Sample Spaces

Algebra →

- **A1** Algebraic Notation
- **A2** Substitution
- **A3** Algebraic Vocabulary
- **A4** Collecting Like Terms
- **A5** Expanding Brackets
- **A6** Factorising
- **A7** Formulae and Rearranging
- **A8** Forming Expressions and Formulae
- **A9** Linear Equations
- **A10** Coordinates
- **A11** Linear and Quadratic Graphs
- **A12** y = mx + c
- **A13** Solving Equations with Graphs
- **A14** Real-life Graphs
- **A15** Generating Sequences
- **A16** Arithmetic Sequences and nth Term
- **A17** Geometric and Other Sequences

Ratio, proportion & rates of change →

- **R1** Converting Units
- **R2** Scale Factors, Diagrams and Maps
- **R3** One Quantity as a Fraction of Another
- **R4** Ratio Notation
- **R5** Dividing in a Ratio
- **R6** Ratio as a Fraction
- **R7** Ratios, Fractions and Linear Functions
- **R8** Percentage Change
- **R9** Direct and Inverse Proportion
- **R10** Compound Units

Statistics →

- **S1** Tables, Charts and Diagrams
- **S2** Averages and Range
- **S3** Comparing Distributions
- **S4** Scatter Graphs

Geometry & measures →

- **G1** Geometric Notation
- **G2** Measuring and Scale Drawings
- **G3** Constructions
- **G4** Basic Angle Facts
- **G5** Angles in Parallel Lines
- **G6** Angles in Polygons
- **G7** Properties of 2D Shapes
- **G8** Triangle Notation and Congruence
- **G9** Transformations
- **G10** Congruence and Enlargement
- **G11** Perimeter and Area
- **G12** Circles and Composite Shapes
- **G13** Volume of Prisms
- **G14** Properties of 3D Shapes
- **G15** Geometric Reasoning and Proof
- **G16** Pythagoras' Theorem
- **G17** Trigonometry

Number

16 skills. Click a skill to see what pupils need first.

- **N1** Place Value
- **N2** Ordering Numbers
- **N3** Factors, Multiples and Primes
- **N4** The Four Operations
- **N5** Order of Operations
- **N6** Inverse Operations
- **N7** Powers and Roots
- **N8** Standard Form
- **N9** Fractions and Decimals
- **N10** Percentages
- **N11** Fractions and Percentages as Operators
- **N12** Units of Measure
- **N13** Rounding
- **N14** Estimation and Error Intervals
- **N15** Using a Calculator
- **N16** Sets of Numbers

⌂ All skills

Algebra →

Algebra

17 skills. Click a skill to see what pupils need first.

- **A1** Algebraic Notation
- **A2** Substitution
- **A3** Algebraic Vocabulary
- **A4** Collecting Like Terms
- **A5** Expanding Brackets
- **A6** Factorising
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- **A14** Real-life Graphs
- **A15** Generating Sequences
- **A16** Arithmetic Sequences and nth Term
- **A17** Geometric and Other Sequences

⌂ All skills

← Number

Ratio →

Ratio, proportion & rates of change

10 skills. Click a skill to see what pupils need first.

- **R1** Converting Units
- **R2** Scale Factors, Diagrams and Maps
- **R3** One Quantity as a Fraction of Another
- **R4** Ratio Notation
- **R5** Dividing in a Ratio
- **R6** Ratio as a Fraction
- **R7** Ratios, Fractions and Linear Functions
- **R8** Percentage Change
- **R9** Direct and Inverse Proportion
- **R10** Compound Units

Geometry & measures

17 skills. Click a skill to see what pupils need first.

- **G1** Geometric Notation
- **G2** Measuring and Scale Drawings
- **G3** Constructions
- **G4** Basic Angle Facts
- **G5** Angles in Parallel Lines
- **G6** Angles in Polygons
- **G7** Properties of 2D Shapes
- **G8** Triangle Notation and Congruence
- **G9** Transformations
- **G10** Congruence and Enlargement
- **G11** Perimeter and Area
- **G12** Circles and Composite Shapes
- **G13** Volume of Prisms
- **G14** Properties of 3D Shapes
- **G15** Geometric Reasoning and Proof
- **G16** Pythagoras' Theorem
- **G17** Trigonometry

⌂ All skills

← Ratio

Probability →

Probability

5 skills. Click a skill to see what pupils need first.

P1 The Probability Scale

P2 Probability Experiments

P3 Probabilities Sum to One

P4 Sets and Venn Diagrams

P5 Sample Spaces

Statistics

4 skills. Click a skill to see what pupils need first.

S1 Tables, Charts and Diagrams

S2 Averages and Range

S3 Comparing Distributions

S4 Scatter Graphs

⌂ All skills

← Probability

N1 Place Value

Key Stage 3

Understand and use place value for decimals, measures and integers of any size.

To be successful, pupils need

A starting point. This skill builds on Key Stage 2 work rather than another KS3 skill.

N1
Place Value

Continues at GCSE
N2 The Four Operations

This skill leads on to

- **N2** Ordering Numbers
- **N4** The Four Operations
- **N8** Standard Form
- **N9** Fractions and Decimals
- **N12** Units of Measure
- **N13** Rounding

N2 Ordering Numbers

Key Stage 3

Order positive and negative integers, decimals and fractions; use the number line as a model for ordering the real numbers; use the symbols =, ≠, <, >, ≤ and ≥.

To be successful, pupils need

N1 Place Value
Number

N2
Ordering Numbers

Continues at GCSE
N1 Ordering Numbers

This skill leads on to

N4 The Four Operations

N16 Sets of Numbers

A10 Coordinates

P1 The Probability Scale

N3 Factors, Multiples and Primes

Key Stage 3

Use primes, factors (divisors), multiples, common factors and multiples, HCF, LCM and prime factorisation, including product notation and the unique factorisation property.

To be successful, pupils need

A starting point. This skill builds on Key Stage 2 work rather than another KS3 skill.

N3
Factors, Multiples and Primes

Continues at GCSE
N4 Factors, Multiples and Primes

This skill leads on to

- **N4** The Four Operations
- **N9** Fractions and Decimals
- **A6** Factorising
- **R4** Ratio Notation

N4 The Four Operations

Key Stage 3

Use the four operations, including formal written methods, with integers, decimals, proper and improper fractions and mixed numbers, all both positive and negative.

To be successful, pupils need

- **N1** Place Value — **Number**
- **N2** Ordering Numbers — **Number**
- **N3** Factors, Multiples and Primes — **Number**

N4
The Four Operations

Continues at GCSE
N2 The Four Operations

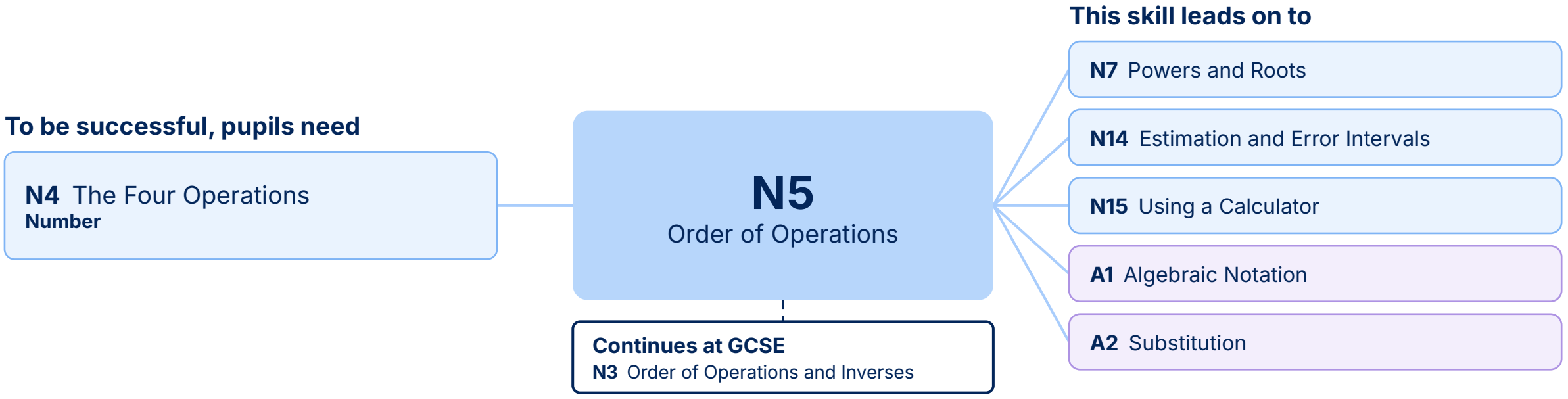
This skill leads on to

- **N5** Order of Operations
- **N6** Inverse Operations
- **N7** Powers and Roots
- **N9** Fractions and Decimals
- **N11** Fractions and Percentages as Operators
- **A15** Generating Sequences
- **R1** Converting Units
- **R5** Dividing in a Ratio
- **R10** Compound Units
- **P3** Probabilities Sum to One
- **S2** Averages and Range

N5 Order of Operations

Key Stage 3

Use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals.



N6 Inverse Operations

Key Stage 3

Recognise and use relationships between operations, including inverse operations.

To be successful, pupils need

N4 The Four Operations
Number

N6
Inverse Operations

This skill leads on to

A9 Linear Equations

Continues at GCSE
N3 Order of Operations and Inverses

N7 Powers and Roots

Key Stage 3

Use integer powers and real roots (square, cube and higher); recognise powers of 2, 3, 4 and 5; tell exact roots apart from their decimal approximations.

To be successful, pupils need

N4 The Four Operations
Number

N5 Order of Operations
Number

N7
Powers and Roots

Continues at GCSE
N6 Powers and Roots
N7 Calculating with Roots and Indices

This skill leads on to

N8 Standard Form

N16 Sets of Numbers

A17 Geometric and Other Sequences

G16 Pythagoras' Theorem

N8 Standard Form

Key Stage 3

Interpret and compare numbers in standard form $A \times 10^n$, where $1 \leq A < 10$ and n is a positive or negative integer or zero.

To be successful, pupils need

N1 Place Value
Number

N7 Powers and Roots
Number

N8
Standard Form

Continues at GCSE
N9 Standard Form

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

N9 Fractions and Decimals

Key Stage 3

Work interchangeably with terminating decimals and their corresponding fractions, such as 3.5 and 7/2, or 0.375 and 3/8.

To be successful, pupils need

- **N1** Place Value — **Number**
- **N3** Factors, Multiples and Primes — **Number**
- **N4** The Four Operations — **Number**

N9
Fractions and Decimals

Continues at GCSE
N10 Fractions and Decimals

This skill leads on to

- **N10** Percentages
- **N16** Sets of Numbers
- **R3** One Quantity as a Fraction of Another
- **P1** The Probability Scale

N10 Percentages

Key Stage 3

Define percentage as parts per hundred; interpret percentages and percentage changes as fractions or decimals and multiplicatively; express and compare quantities as percentages, including over 100%.

To be successful, pupils need

N9 Fractions and Decimals
Number

N10
Percentages

Continues at GCSE
R9 Percentages

This skill leads on to

N11 Fractions and Percentages as Operators

R8 Percentage Change

N11 Fractions and Percentages as Operators

Key Stage 3

Interpret fractions and percentages as operators.

To be successful, pupils need

N4 The Four Operations
Number

N10 Percentages
Number

N11
Fractions and Percentages as Operators

Continues at GCSE
N12 Fractions and Percentages as Operators

This skill leads on to

R8 Percentage Change

S1 Tables, Charts and Diagrams

N12 Units of Measure

Key Stage 3

Use standard units of mass, length, time, money and other measures, including with decimal quantities.

To be successful, pupils need

N1 Place Value
Number

N12
Units of Measure

This skill leads on to

R1 Converting Units

Continues at GCSE
N13 Units and Compound Measures
G14 Units of Measure

N13 Rounding

Key Stage 3

Round numbers and measures to an appropriate degree of accuracy, such as a number of decimal places or significant figures.

To be successful, pupils need

N1 Place Value
Number

N13
Rounding

Continues at GCSE
N15 Rounding and Error Intervals

This skill leads on to

N14 Estimation and Error Intervals

N15 Using a Calculator

N14 Estimation and Error Intervals

Key Stage 3

Use rounding to estimate answers; express possible resulting errors using inequality notation $a < x \leq b$.

To be successful, pupils need

N5 Order of Operations
Number

N13 Rounding
Number

N14
Estimation and Error Intervals

Continues at GCSE
N14 Estimation
N15 Rounding and Error Intervals

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

N15 Using a Calculator

Key Stage 3

Use a calculator and other technologies to calculate results accurately, then interpret them appropriately.

To be successful, pupils need

N5 Order of Operations
Number

N13 Rounding
Number

N15
Using a Calculator

Continues at GCSE
N14 Estimation

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

N16 Sets of Numbers

Key Stage 3

Appreciate the infinite nature of the sets of integers, real and rational numbers.

To be successful, pupils need

- **N2** Ordering Numbers — **Number**
- **N7** Powers and Roots — **Number**
- **N9** Fractions and Decimals — **Number**

N16
Sets of Numbers

Continues at GCSE
N8 Exact Calculations

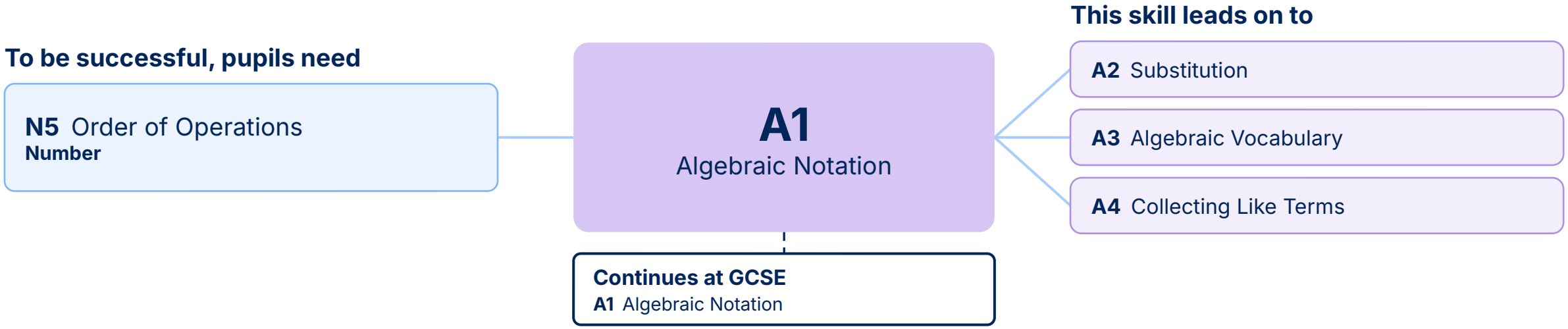
This skill leads on to

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A1 Algebraic Notation

Key Stage 3

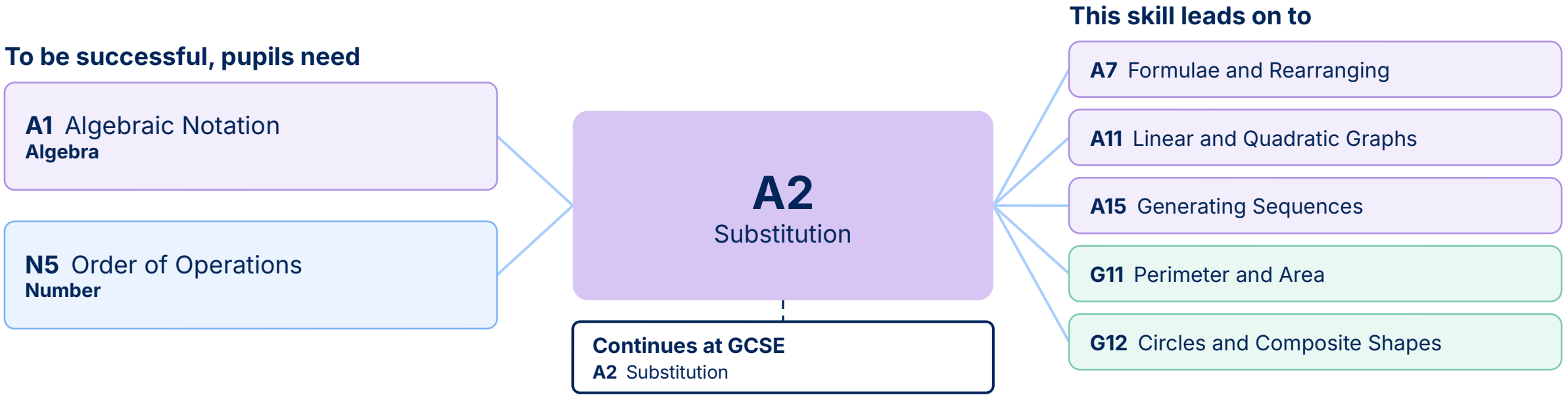
Use and interpret algebraic notation: ab, 3y, a^2, a^3, a^2b, a/b, coefficients written as fractions rather than decimals, and brackets.



A2 Substitution

Key Stage 3

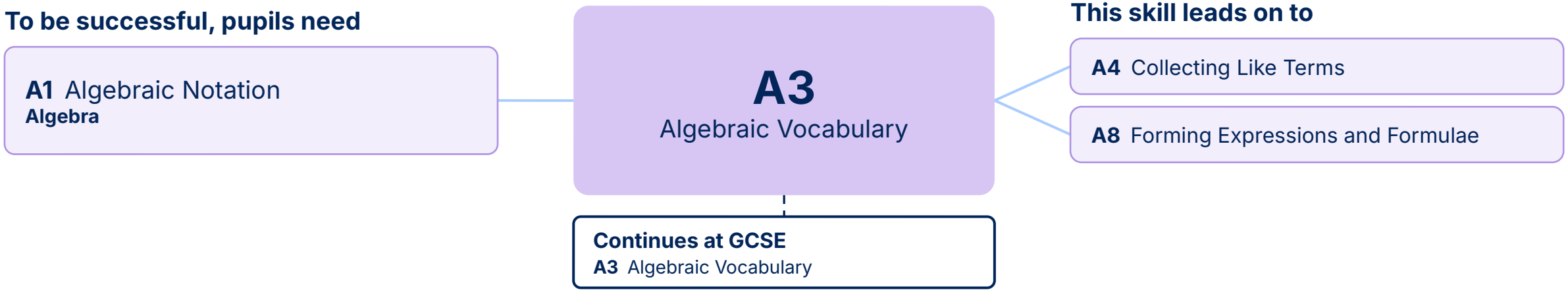
Substitute numerical values into formulae and expressions, including scientific formulae.



A3 Algebraic Vocabulary

Key Stage 3

Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors.



A4 Collecting Like Terms

Key Stage 3

Simplify algebraic expressions to keep them equivalent by collecting like terms.

To be successful, pupils need

A1 Algebraic Notation
Algebra

A3 Algebraic Vocabulary
Algebra

A4
Collecting Like Terms

Continues at GCSE
A4 Simplifying and Factorising

This skill leads on to

A5 Expanding Brackets

A8 Forming Expressions and Formulae

A9 Linear Equations

A5 Expanding Brackets

Key Stage 3

Multiply a single term over a bracket and expand products of two or more binomials.

To be successful, pupils need

A4 Collecting Like Terms
Algebra

A5
Expanding Brackets

Continues at GCSE
A4 Simplifying and Factorising

This skill leads on to

A6 Factorising

A9 Linear Equations

A6 Factorising

Key Stage 3

Simplify and manipulate expressions by taking out common factors.

To be successful, pupils need

A5 Expanding Brackets
Algebra

N3 Factors, Multiples and Primes
Number

A6
Factorising

Continues at GCSE
A4 Simplifying and Factorising

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

A7 Formulae and Rearranging

Key Stage 3

Understand and use standard mathematical formulae; rearrange formulae to change the subject.

To be successful, pupils need

A2 Substitution
Algebra

A9 Linear Equations
Algebra

A7
Formulae and Rearranging

Continues at GCSE
A5 Formulae and Rearranging

This skill leads on to

A12 y = mx + c

G17 Trigonometry

A8 Forming Expressions and Formulae

Key Stage 3

Model situations or procedures by translating them into algebraic expressions or formulae, and by using graphs.

To be successful, pupils need

A3 Algebraic Vocabulary
Algebra

A4 Collecting Like Terms
Algebra

A8
Forming Expressions and Formulae

Continues at GCSE
A21 Forming and Solving Equations

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

A9 Linear Equations

Key Stage 3

Use algebraic methods to solve linear equations in one variable, including all forms that need rearrangement.

To be successful, pupils need

- **A4** Collecting Like Terms — **Algebra**
- **A5** Expanding Brackets — **Algebra**
- **N6** Inverse Operations — **Number**

A9 Linear Equations

Continues at GCSE
A17 Linear Equations

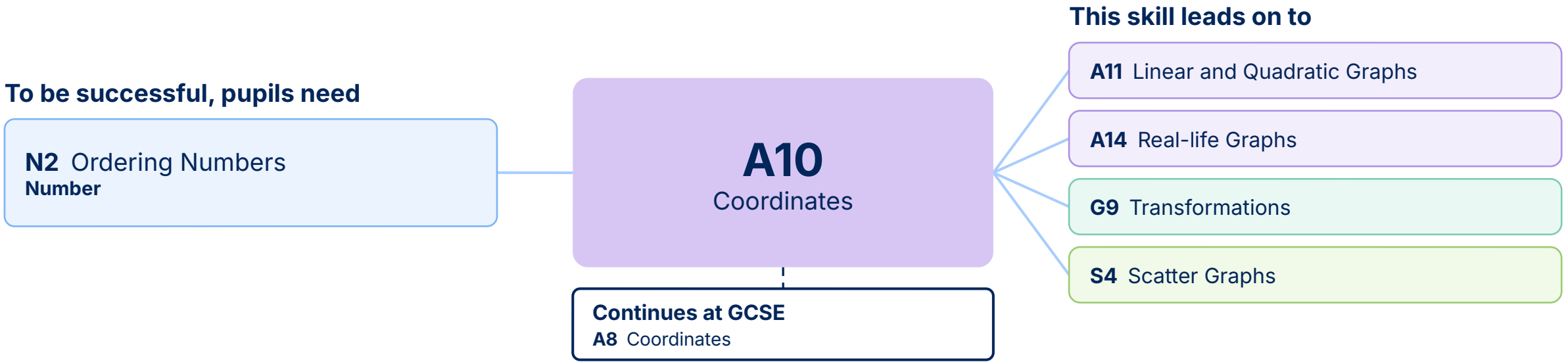
This skill leads on to

- **A7** Formulae and Rearranging
- **A16** Arithmetic Sequences and nth Term
- **G16** Pythagoras' Theorem

A10 Coordinates

Key Stage 3

Work with coordinates in all four quadrants.



A11 Linear and Quadratic Graphs

Key Stage 3

Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling; interpret relationships algebraically and graphically.

To be successful, pupils need

A10 Coordinates
Algebra

A2 Substitution
Algebra

A11
Linear and Quadratic Graphs

Continues at GCSE
A9 Straight-line Graphs
A12 Recognising and Sketching Graphs

This skill leads on to

A12 y = mx + c

A13 Solving Equations with Graphs

A14 Real-life Graphs

R9 Direct and Inverse Proportion

A12 y = mx + c

Key Stage 3

Reduce a linear equation in two variables to the form y = mx + c; calculate and interpret gradients and intercepts numerically, graphically and algebraically.

To be successful, pupils need

A11 Linear and Quadratic Graphs
Algebra

A7 Formulae and Rearranging
Algebra

A12
y = mx + c

Continues at GCSE
A9 Straight-line Graphs
A10 Gradients and Intercepts

This skill leads on to

A13 Solving Equations with Graphs

R7 Ratios, Fractions and Linear Functions

A13 Solving Equations with Graphs

Key Stage 3

Use linear and quadratic graphs to estimate values of y for given x and vice versa, and to find approximate solutions of simultaneous linear equations.

To be successful, pupils need

A11 Linear and Quadratic Graphs
Algebra

A12 y = mx + c
Algebra

A13
Solving Equations with Graphs

Continues at GCSE
A17 Linear Equations
A18 Quadratic Equations
A19 Simultaneous Equations

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

A14 Real-life Graphs

Key Stage 3

Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.

To be successful, pupils need

A10 Coordinates
Algebra

A11 Linear and Quadratic Graphs
Algebra

A14
Real-life Graphs

Continues at GCSE
A14 Graphs in Real Contexts

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

A15 Generating Sequences

Key Stage 3

Generate terms of a sequence from either a term-to-term or a position-to-term rule.

To be successful, pupils need

A2 Substitution
Algebra

N4 The Four Operations
Number

A15
Generating Sequences

Continues at GCSE
A23 Generating Sequences

This skill leads on to

A16 Arithmetic Sequences and nth Term

A17 Geometric and Other Sequences

A16 Arithmetic Sequences and nth Term

Key Stage 3

Recognise arithmetic sequences and find the nth term.

To be successful, pupils need

A15 Generating Sequences
Algebra

A9 Linear Equations
Algebra

A16
Arithmetic Sequences and nth Term

Continues at GCSE
A25 nth Term

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

A17 Geometric and Other Sequences

Key Stage 3

Recognise geometric sequences and appreciate other sequences that arise.

To be successful, pupils need

A15 Generating Sequences
Algebra

N7 Powers and Roots
Number

A17
Geometric and Other Sequences

Continues at GCSE
A24 Special Sequences

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

R1 Converting Units

Key Stage 3

Change freely between related standard units, for example time, length, area, volume/capacity and mass.

To be successful, pupils need

N12 Units of Measure
Number

N4 The Four Operations
Number

R1
Converting Units

Continues at GCSE
R1 Converting Units

This skill leads on to

R2 Scale Factors, Diagrams and Maps

R10 Compound Units

R2 Scale Factors, Diagrams and Maps

Key Stage 3

Use scale factors, scale diagrams and maps.

To be successful, pupils need

R4 Ratio Notation
Ratio, proportion & rates of change

R1 Converting Units
Ratio, proportion & rates of change

R2
Scale Factors, Diagrams and Maps

Continues at GCSE
R2 Scale Factors, Diagrams and Maps

This skill leads on to

G2 Measuring and Scale Drawings

G10 Congruence and Enlargement

R3 One Quantity as a Fraction of Another

Key Stage 3

Express one quantity as a fraction of another, where the fraction is less than 1 or greater than 1.

To be successful, pupils need

N9 Fractions and Decimals
Number

R3
One Quantity as a Fraction of Another

Continues at GCSE
R3 One Quantity as a Fraction of Another

This skill leads on to

R6 Ratio as a Fraction

R4 Ratio Notation

Key Stage 3

Use ratio notation, including reducing a ratio to its simplest form.

To be successful, pupils need

N3 Factors, Multiples and Primes
Number

R4
Ratio Notation

Continues at GCSE
R4 Ratio Notation

This skill leads on to

R2 Scale Factors, Diagrams and Maps

R5 Dividing in a Ratio

R6 Ratio as a Fraction

R5 Dividing in a Ratio

Key Stage 3

Divide a quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio.

To be successful, pupils need

R4 Ratio Notation
Ratio, proportion & rates of change

N4 The Four Operations
Number

R5
Dividing in a Ratio

Continues at GCSE
R5 Dividing in a Ratio

This skill leads on to

R9 Direct and Inverse Proportion

R6 Ratio as a Fraction

Key Stage 3

Understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction.

To be successful, pupils need

R3 One Quantity as a Fraction of Another
Ratio, proportion & rates of change

R4 Ratio Notation
Ratio, proportion & rates of change

R6
Ratio as a Fraction

Continues at GCSE
R6 Ratio as a Fraction

This skill leads on to

R7 Ratios, Fractions and Linear Functions

R9 Direct and Inverse Proportion

G17 Trigonometry

R7 Ratios, Fractions and Linear Functions

Key Stage 3

Relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions.

To be successful, pupils need

R6 Ratio as a Fraction
Ratio, proportion & rates of change

A12 y = mx + c
Algebra

R7
Ratios, Fractions and Linear Functions

Continues at GCSE
R8 Ratios, Fractions and Linear Functions

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

R8 Percentage Change

Key Stage 3

Solve problems involving percentage increase, decrease and original value, and simple interest in financial mathematics.

To be successful, pupils need

N10 Percentages
Number

N11 Fractions and Percentages as Operators
Number

R8
Percentage Change

Continues at GCSE
R9 Percentages

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

R9 Direct and Inverse Proportion

Key Stage 3

Solve problems involving direct and inverse proportion, including graphical and algebraic representations.

To be successful, pupils need

R5 Dividing in a Ratio
Ratio, proportion & rates of change

R6 Ratio as a Fraction
Ratio, proportion & rates of change

A11 Linear and Quadratic Graphs
Algebra

R9
Direct and Inverse Proportion

Continues at GCSE
R10 Direct and Inverse Proportion

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

R10 Compound Units

Key Stage 3

Use compound units such as speed, unit pricing and density to solve problems.

To be successful, pupils need

R1 Converting Units
Ratio, proportion & rates of change

N4 The Four Operations
Number

R10
Compound Units

Continues at GCSE
R11 Compound Units

This skill leads on to

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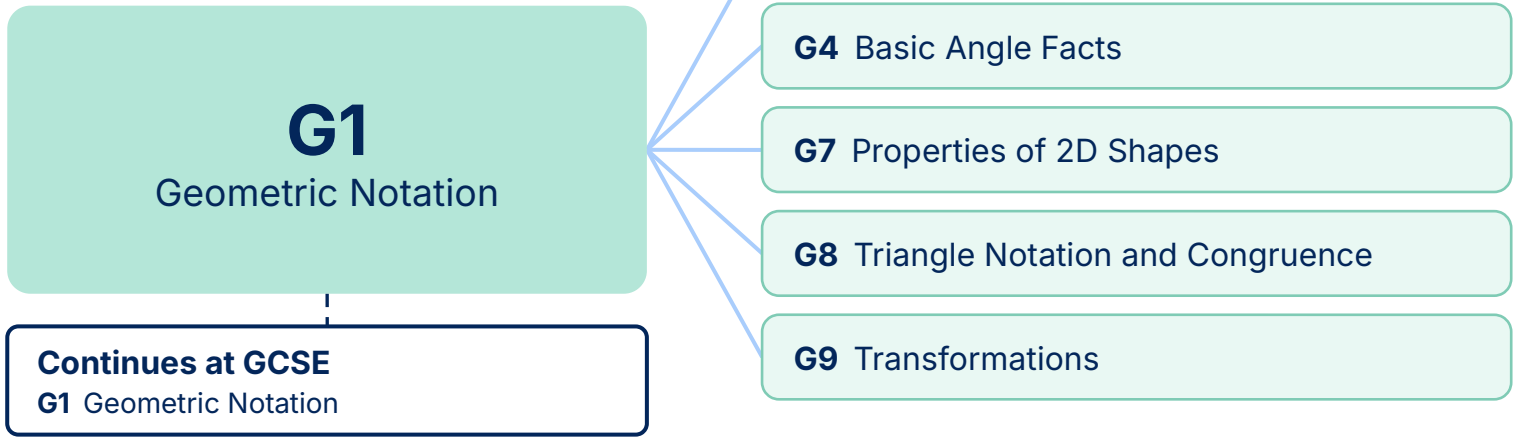
G1 Geometric Notation

Key Stage 3

Describe, sketch and draw points, lines, parallel and perpendicular lines, right angles, regular polygons and symmetric polygons using conventional terms and notation.

To be successful, pupils need

A starting point. This skill builds on Key Stage 2 work rather than another KS3 skill.



G2 Measuring and Scale Drawings

Key Stage 3

Draw and measure line segments and angles in geometric figures, including interpreting scale drawings.

To be successful, pupils need

G1 Geometric Notation
Geometry & measures

R2 Scale Factors, Diagrams and Maps
Ratio, proportion & rates of change

G2
Measuring and Scale Drawings

Continues at GCSE
G15 Measuring, Scale Drawings and Bearings

This skill leads on to

G3 Constructions

G3 Constructions

Key Stage 3

Use ruler and compass constructions: perpendicular bisector, perpendicular from or at a point, angle bisector; know the perpendicular distance is the shortest distance to a line.

To be successful, pupils need

G2 Measuring and Scale Drawings
Geometry & measures

G3
Constructions

Continues at GCSE
G2 Constructions and Loci

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

G4 Basic Angle Facts

Key Stage 3

Apply the properties of angles at a point, angles on a straight line and vertically opposite angles.

To be successful, pupils need

G1 Geometric Notation
Geometry & measures

G4
Basic Angle Facts

Continues at GCSE
G3 Angle Facts and Polygons

This skill leads on to

G5 Angles in Parallel Lines

G6 Angles in Polygons

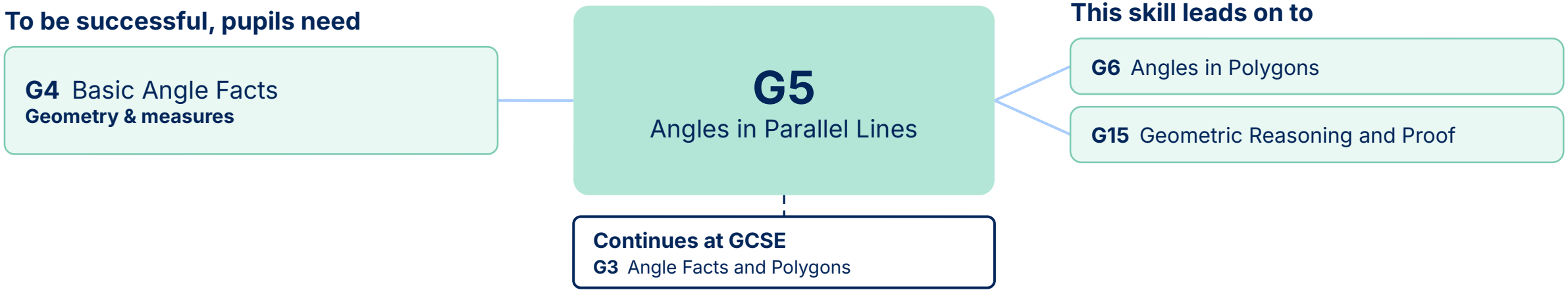
G8 Triangle Notation and Congruence

S1 Tables, Charts and Diagrams

G5 Angles in Parallel Lines

Key Stage 3

Understand and use the relationship between parallel lines and alternate and corresponding angles.



G6 Angles in Polygons

Key Stage 3

Derive and use the angle sum of a triangle; deduce the angle sum of any polygon and derive properties of regular polygons.

To be successful, pupils need

G4 Basic Angle Facts
Geometry & measures

G5 Angles in Parallel Lines
Geometry & measures

G6
Angles in Polygons

Continues at GCSE
G3 Angle Facts and Polygons

This skill leads on to

G7 Properties of 2D Shapes

G15 Geometric Reasoning and Proof

G7 Properties of 2D Shapes

Key Stage 3

Derive and illustrate properties of triangles, quadrilaterals, circles and other plane figures, such as equal lengths and angles.

To be successful, pupils need

G1 Geometric Notation
Geometry & measures

G6 Angles in Polygons
Geometry & measures

G7
Properties of 2D Shapes

Continues at GCSE
G4 Properties of 2D Shapes

This skill leads on to

G11 Perimeter and Area

G14 Properties of 3D Shapes

G8 Triangle Notation and Congruence

Key Stage 3

Use the standard conventions for labelling the sides and angles of triangle ABC; know and use the criteria for congruence of triangles.

To be successful, pupils need

G1 Geometric Notation
Geometry & measures

G4 Basic Angle Facts
Geometry & measures

G8
Triangle Notation and Congruence

Continues at GCSE
G5 Congruence Criteria

This skill leads on to

G10 Congruence and Enlargement

G15 Geometric Reasoning and Proof

G9 Transformations

Key Stage 3

Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures.

To be successful, pupils need

G1 Geometric Notation
Geometry & measures

A10 Coordinates
Algebra

G9
Transformations

Continues at GCSE
G7 Transformations

This skill leads on to

G10 Congruence and Enlargement

G10 Congruence and Enlargement

Key Stage 3

Identify and construct congruent triangles; construct similar shapes by enlargement, with and without coordinate grids.

To be successful, pupils need

G8 Triangle Notation and Congruence
Geometry & measures

G9 Transformations
Geometry & measures

R2 Scale Factors, Diagrams and Maps
Ratio, proportion & rates of change

G10
Congruence and Enlargement

Continues at GCSE
G7 Transformations
G19 Congruence and Similarity

This skill leads on to

G17 Trigonometry

G11 Perimeter and Area

Key Stage 3

Derive and apply formulae for the perimeter and area of triangles, parallelograms and trapezia; find perimeters of 2D shapes.

To be successful, pupils need

G7 Properties of 2D Shapes
Geometry & measures

A2 Substitution
Algebra

G11
Perimeter and Area

Continues at GCSE
G16 Area and Volume

This skill leads on to

G12 Circles and Composite Shapes

G13 Volume of Prisms

G12 Circles and Composite Shapes

Key Stage 3

Calculate and solve problems involving the circumference and area of circles and the areas of composite shapes.

To be successful, pupils need

G11 Perimeter and Area
Geometry & measures

A2 Substitution
Algebra

G12
Circles and Composite Shapes

Continues at GCSE
G17 Circles, Composite Shapes and Solids

This skill leads on to

G13 Volume of Prisms

G13 Volume of Prisms

Key Stage 3

Derive and apply formulae for the volume of cuboids (including cubes) and other prisms (including cylinders).

To be successful, pupils need

G11 Perimeter and Area
Geometry & measures

G12 Circles and Composite Shapes
Geometry & measures

G14 Properties of 3D Shapes
Geometry & measures

G13
Volume of Prisms

Continues at GCSE
G16 Area and Volume

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

G14 Properties of 3D Shapes

Key Stage 3

Use the faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3D.

To be successful, pupils need

G7 Properties of 2D Shapes
Geometry & measures

G14
Properties of 3D Shapes

Continues at GCSE
G12 Properties of 3D Shapes

This skill leads on to

G13 Volume of Prisms

G15 Geometric Reasoning and Proof

Key Stage 3

Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, and use known results to obtain simple proofs.

To be successful, pupils need

- **G5** Angles in Parallel Lines — **Geometry & measures**
- **G6** Angles in Polygons — **Geometry & measures**
- **G8** Triangle Notation and Congruence — **Geometry & measures**

G15 Geometric Reasoning and Proof

Continues at GCSE
G6 Geometric Reasoning

This skill leads on to

- **G16** Pythagoras' Theorem

G16 Pythagoras' Theorem

Key Stage 3

Derive and use Pythagoras' theorem to solve problems involving right-angled triangles.

To be successful, pupils need

- **N7** Powers and Roots
  Number
- **G15** Geometric Reasoning and Proof
  Geometry & measures
- **A9** Linear Equations
  Algebra

G16
Pythagoras' Theorem

Continues at GCSE
G20 Pythagoras and Trigonometry

This skill leads on to

- **G17** Trigonometry

G17 Trigonometry

Key Stage 3

Use trigonometric ratios in similar triangles to solve problems involving right-angled triangles.

To be successful, pupils need

- **G16** Pythagoras' Theorem
  Geometry & measures
- **G10** Congruence and Enlargement
  Geometry & measures
- **R6** Ratio as a Fraction
  Ratio, proportion & rates of change
- **A7** Formulae and Rearranging
  Algebra

G17
Trigonometry

Continues at GCSE
G20 Pythagoras and Trigonometry

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

P1 The Probability Scale

Key Stage 3

Describe the likelihood of outcomes using appropriate language and the 0–1 probability scale.

To be successful, pupils need

N2 Ordering Numbers
Number

N9 Fractions and Decimals
Number

P1
The Probability Scale

Continues at GCSE
P3 The Probability Scale

This skill leads on to

P2 Probability Experiments

P3 Probabilities Sum to One

P2 Probability Experiments

Key Stage 3

Record, describe and analyse the frequency of outcomes of simple experiments involving randomness, fairness, and equally and unequally likely outcomes.

To be successful, pupils need

P1 The Probability Scale
Probability

S1 Tables, Charts and Diagrams
Statistics

P2
Probability Experiments

Continues at GCSE
P1 Frequency Tables and Trees
P5 Sample Size and Probability

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

P3 Probabilities Sum to One

Key Stage 3

Understand that the probabilities of all possible outcomes sum to 1.

To be successful, pupils need

P1 The Probability Scale
Probability

N4 The Four Operations
Number

P3
Probabilities Sum to One

Continues at GCSE
P4 Probabilities Sum to One

This skill leads on to

P5 Sample Spaces

P4 Sets and Venn Diagrams

Key Stage 3

Enumerate sets and unions and intersections of sets systematically, using tables, grids and Venn diagrams.

To be successful, pupils need

A starting point. This skill builds on Key Stage 2 work rather than another KS3 skill.

P4
Sets and Venn Diagrams

This skill leads on to

P5 Sample Spaces

Continues at GCSE
P6 Venn Diagrams and Tree Diagrams

P5 Sample Spaces

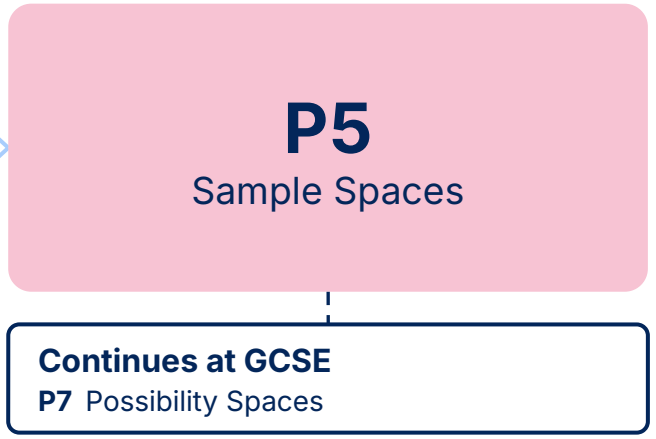
Key Stage 3

Generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes, and use them to calculate theoretical probabilities.

To be successful, pupils need

P3 Probabilities Sum to One
Probability

P4 Sets and Venn Diagrams
Probability



This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

S1 Tables, Charts and Diagrams

Key Stage 3

Construct and interpret frequency tables, bar charts, pie charts and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data.

To be successful, pupils need

N11 Fractions and Percentages as Operators
Number

G4 Basic Angle Facts
Geometry & measures

S1
Tables, Charts and Diagrams

Continues at GCSE
S2 Tables, Charts and Diagrams

This skill leads on to

P2 Probability Experiments

S2 Averages and Range

S3 Comparing Distributions

S4 Scatter Graphs

S2 Averages and Range

Key Stage 3

Use the mean, mode and median as measures of central tendency, and the range and outliers as measures of spread.

To be successful, pupils need

N4 The Four Operations
Number

S1 Tables, Charts and Diagrams
Statistics

S2
Averages and Range

Continues at GCSE
S4 Averages, Spread and Comparing Data

This skill leads on to

S3 Comparing Distributions

S3 Comparing Distributions

Key Stage 3

Describe, interpret and compare distributions of a single variable using graphs of discrete, continuous and grouped data, averages and spread.

To be successful, pupils need

S1 Tables, Charts and Diagrams
Statistics

S2 Averages and Range
Statistics

S3
Comparing Distributions

Continues at GCSE
S4 Averages, Spread and Comparing Data

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.

S4 Scatter Graphs

Key Stage 3

Describe simple relationships between two variables (bivariate data) in observational and experimental contexts, and illustrate them using scatter graphs.

To be successful, pupils need

A10 Coordinates
Algebra

S1 Tables, Charts and Diagrams
Statistics

S4
Scatter Graphs

Continues at GCSE
S6 Scatter Graphs and Correlation

This skill leads on to

No other KS3 skill builds directly on this one. It is an end point at this level and is developed further at GCSE.