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# Curriculum Mapping Guide

# International Baccalaureate (IB)

## Middle Years Programme (MYP)
## 2020/2021 Mathematics Curriculum

## Why Blutick?

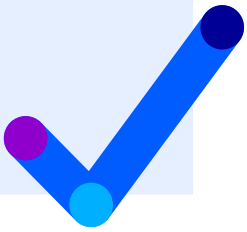
Every student deserves to feel confident using mathematics. So we've designed a learning platform that builds confidence and understanding, combining responsive AI with real teacher content.

Blutick engages with students at every line of working, offering personalised feedback and encouragement. It helps teachers understand how their students are performing, giving them the insights they need to focus their time where it's most needed. It's transforming the mathematics classroom for 11-16 year olds and their teachers all over the world.

Blutick content is organised into four mathematical areas and each area is then divided into sub-sections:

- Number (11 sections)
- Algebra (7 sections)
- Geometry (13 sections)
- Statistics and Probability (6 sections)

Each sub-section is also broken down into smaller steps, and each step comes with questions (to three levels), videos, worked examples, questions to complete and a quiz.



## How to use this curriculum mapping guide

We have mapped the International Baccalaureate (IB) Middle Years Programme (MYP) 2020/2021 Mathematics Curriculum to the Blutick curriculum. The IB Curriculum we have used is for schools starting in either September 2020 or January 2021.

The MYP curriculum provides a framework of topics and skills organised into four branches at three different levels: MYP years 1–3, MYP years 4–5 at a standard level, and MYP years 4–5 at an extended level. Students in years 4 and 5 can work at two levels of challenge: **standard mathematics** and **extended mathematics**.

- **Standard mathematics** aims to give all students a sound knowledge of mathematical principles while allowing them to develop the skills needed to meet the objectives of MYP mathematics.
- **Extended mathematics** consists of the standard mathematics framework supplemented by additional topics and skills. This level provides the foundation for students who wish to pursue further studies in mathematics: for example, Higher Level mathematics courses as part of the Diploma Programme. Extended mathematics provides greater breadth and depth to the standard mathematics framework.

The 4 branches of the IB curriculum are:

- Numerical and abstract reasoning (Number and Algebra)
- Thinking with models
- Geometry (spatial reasoning and trigonometry)
- Reasoning with data

Schools use the framework for mathematics as a tool for curriculum mapping when designing and planning their mathematics courses. The framework also includes suggestions for enrichment topics; these are optional and are not included in eAssessments, and are therefore not included in this curriculum mapping guide.

The following pages give a summary, followed by a breakdown of content mapped to the Blutick content for Years 1-3, Years 4-5 standard curriculum and Years 4-5 extended curriculum within each branch.

# Summary

## Years 1-3 and Years 4-5 Standard International Baccalaureate Curriculum

80% of the International Baccalaureate MYP Mathematics Curriculum Years 1-3 and Years 4- 5 Standard Curriculum can be mapped against the Blutick curriculum, either directly or through subject specific links, with a further 6% of components in current development. There is 8% within the IB curriculum that have no links in Blutick due to software limitations and 6% where no content is currently available.

In summary, Blutick offers **86% coverage** (current and planned developments within 6 months) of the International Baccalaureate MYP Mathematics Curriculum Years 1-5 following the standard curriculum.

## Years 1-3 and Years 4-5 Extended International Baccalaureate Curriculum

73% of the International Baccalaureate MYP Mathematics Curriculum Years 1- 3 and Years 4- 5 Extended Curriculum can be mapped against the Blutick curriculum, either directly or through subject specific links, with a further 9% of components in current development. There is 6% within the IB curriculum that have no links in Blutick due to software limitations and 12% where no content is currently available.

In summary, Blutick offers **82% coverage** (current and planned developments within 6 months) of the International Baccalaureate MYP Mathematics Curriculum Years 1-5 following the extended curriculum.

## Years 1-3 International Baccalaureate Curriculum

85% of the International Baccalaureate MYP Mathematics Years 1- 3 Curriculum can be mapped against the Blutick curriculum, either directly or through subject specific links, with a further 5% of components in current development. There is 7% within the IB curriculum that have no links in Blutick due to software limitations and 3% where no content is currently available.

## Years 4-5 International Baccalaureate Curriculum

76% of the International Baccalaureate MYP Mathematics Years 4- 5 standard Curriculum can be mapped against the Blutick curriculum, either directly or through subject specific links, with a further 6% of components in current development. There is 9% within the IB curriculum that have no links in Blutick due to software limitations and 9% where no content is currently available.

## Years 4-5 Extended International Baccalaureate Curriculum

54% of the International Baccalaureate MYP Mathematics Curriculum Years 4- 5 Extended Curriculum can be mapped against the Blutick curriculum, either directly or through subject specific links, with a further 15% of components in current development. There is 4% within the IB curriculum that have no links in Blutick due to software limitations and 27% where no content is currently available.

## Key

| | |
|---|---|
| Components that have direct links with Blutick content | bright green |
| Components that are not yet available but are in development | dark green |
| Components that do not directly link with Blutick curriculum, but have subject specific links | yellow |
| Components that have no links, due to software limitations (e.g. gathering of data) | blue |
| Components that have no current content available | purple |

## Numerical and Abstract Reasoning: Number

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Forms of numbers (fractions, decimals and percentages) and transforming between them | Direct link | Number: Fractions<br>Number: Decimals<br>Number: Percentages |
| Factors of numbers | Direct link | Number: Properties of Integers |
| Integers | Direct link | Number: Properties of Integers |
| Number operations | Direct link | Number: Arithmetic Operations<br>Number: Order of Operations |
| Prime numbers and prime factors | Direct link | Number: Properties of Integers |
| Greatest/highest common factor, lowest common multiple | Direct link | Number: Properties of Integers |
| Recurring decimals | Direct link | Number: Decimals |
| Number lines and simple inequalities | Direct link | Algebra: Equations and Inequalities |
| Ratios | Direct link | Number: Ratio and Proportion |
| Exponents and powers | Direct link | Number: Powers and Roots |
| Squares and square roots | Direct link | Number: Powers and Roots |
| Time zones, clocks and timetables | No content currently available | |
| | | |
| **Years 4-5 (standard)** | | |
| Absolute values | No content currently available | |
| Representing and solving inequalities, including compound and double inequalities | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Equations and Inequalities | Algebra: Equations and Inequalities |
| Irrational numbers | Direct link | Number: Surds<br>Number: Powers and Roots |
| Surds, roots and radicals, including simplifying | Direct link | Number: Surds |
| Standard form (scientific notation) | Direct link | Number: Powers and Roots |

| | | |
|---|---|---|
| Laws of exponents, including integer and negative exponents | Direct link | Number: Powers and Roots<br>Algebra: Simplifying Expressions |
| Number systems notation | No content currently available | |
| Direct and inverse proportion | Direct link | Number: Ratio and Proportion |
| Number sequences (prediction, description) | Direct link | Number: Functions and Sequences |
| | | |
| **Years 4-5 (extended)** | | |
| Laws of exponents, including fractional/rational exponents | Direct link | Number: Powers and Roots<br>Algebra: Simplifying Expressions |
| Logarithms, including laws of logarithms and the use of technology to find values | No content currently available | |
| Upper and lower bounds | Direct link | Number: Rounding and Estimation |

## Numerical and Abstract Reasoning: Algebra

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Operating with algebraic expressions | Direct link | Algebra: Evaluating Expressions<br>Algebra: Simplifying Expressions |
| Forming equations | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found throughout our section on Algebra | Algebra: Evaluating Expressions<br>Algebra: Simplifying Expressions<br>Algebra: Equations and Inequalities |
| Transposing and solving simple equations | Direct link | Algebra: Equations and Inequalities |
| Substitution into expressions | Direct link | Algebra: Evaluating Expressions |
| Expanding brackets | Direct link | Algebra: Expanding Brackets |
| Factorizing algebraic expressions | Direct link | Algebra: Factorising |
| Using formulae | Direct link | Algebra: Evaluating Expressions |
| Flowcharts and simple algorithms | No because of current software limitations, however a great one for teachers to follow up | |
| | | |
| **Years 4-5 (standard)** | | |
| Factorizing quadratic expressions | Direct link | Algebra: Factorising |
| Solving quadratic equations | Direct link | Algebra: Equations and Inequalities |
| Changing the subject of an equation | Direct link | Algebra: Formulae |
| | | |
| **Years 4-5 (extended)** | | |
| Arithmetic and geometric sequences | Direct link | Number: Functions and Sequences |

## Thinking with Models

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Not considered age appropriate | | |
| | | |
| **Years 4-5 (standard)** | | |
| Mappings | No content currently available | |
| Function notation | Direct link | Number: Functions and Sequences |
| Linear functions | Direct link | Number: Functions and Sequences |
| y = mx + c (see also spatial reasoning) | Direct link | Algebra: Using Graphs |
| Parallel and perpendicular lines (see also spatial reasoning) | Direct link | Algebra: Using Graphs |
| Systems of equations/ simultaneous equations | Direct link | Algebra: Equations and Inequalities |
| Quadratic functions | Direct link | Number: Functions and Sequences |
| Algorithms | No because of current software limitations, however a great one for teachers to follow up | |
| | | |
| **Years 4-5 (extended)** | | |
| Representation and shape of more complex functions | Coming soon, currently in development | |
| Transformation of quadratic functions | Direct link | Algebra: Using Graphs (examples offered cover translations) |
| Rational functions | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Functions and Sequences | Number: Functions and Sequences (examples offered inverse functions) |
| Graphing trigonometric functions | Coming soon, currently in development | |
| Linear programming, including inequalities | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Equations and Inequalities | Algebra: Equations and Inequalities |
| Networks—edges and arcs, nodes/ vertices, paths | No content currently available | |
| Calculating network pathways | No content currently available | |
| Weighted networks | No content currently available | |
| Domain and range | No content currently available | |

## Geometry: Spatial Reasoning

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Classifying shapes and angles | Coming soon, currently in development | |
| Calculations with angle properties | Direct link | Geometry: Basic Angle Facts |
| Parallel lines and transversals | Direct link | Geometry: Basic Angle Facts |
| Perimeter (circumference), area and volume | Direct link | Geometry: Perimeter & Area |
| Surface area and nets | Direct link | Geometry: Volume & Surface Area (excluding nets) |
| Coordinates | Coming soon, currently in development | |
| Symmetry and reflection | Direct link | Geometry: Transformations |
| | | |
| **Years 4-5 (standard)** | | |
| Metric conversions | Direct link | Geometry: Units & Measurement |
| Volume of regular polyhedra | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Volume & Surface Area | Geometry: Volume & Surface Area |
| Similarity and congruence | Direct link | Geometry: Congruent & Similar Triangles |
| Coordinate geometry, including distance, midpoint and gradient formulae | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Using Graphs | Algebra: Using Graphs (excluding distance and midpoint) |
| Movement on a plane— isometric transformations, enlargements and tessellations | Direct link | Geometry: Transformations (excluding tessellations) |
| y = mx + c, gradients and intercepts (see also functions and models) | Direct link | Algebra: Using Graphs |
| Gradient of parallel lines | Direct link | Algebra: Using Graphs |
| Circle geometry | Direct link | Geometry: Perimeter & Area<br>Geometry: Circle Theorems |
| Rotation around a given point | Direct link | Geometry: Transformations |

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|---|---|---|
| **Years 4-5 (extended)** | | |
| Volume and capacity (additional shapes) | Direct link | Geometry: Volume & Surface Area (examples offered cover cuboids, prisms, cones and spheres) |
| Enlargement around a given point | Direct link | Geometry: Transformations |
| Enlargement by a rational factor | Direct link | Geometry: Transformations |
| Gradients of perpendicular lines | Direct link | Algebra: Using Graphs |
| Identical representation of transformations | No content currently available | |

## Geometry: Trigonometry

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Not considered age-appropriate | | |
| | | |
| **Years 4-5 (standard)** | | |
| Triangle properties | Coming soon, currently in development | |
| Bearings | Direct link | Geometry: Units & Measurement |
| Pythagoras' theorem | Direct link | Geometry: Pythagoras & Trigonometry |
| Trigonometric ratios in right- angled triangles | Direct link | Geometry: Pythagoras & Trigonometry |
| | | |
| **Years 4-5 (extended)** | | |
| Converse of Pythagoras' theorem | Direct link | Geometry: Pythagoras & Trigonometry |
| Sine rule and cosine rule, including applications (link to trigonometric functions) | Direct link | Geometry: Further Trigonometry |

## Reasoning with Data

| Curriculum Statement | Blutick | Blutick link |
|---|---|---|
| **Years 1-3** | | |
| Simple discrete data and classifications | Direct link | Stats & Probability: Statistical Calculations |
| Data collection and generation (including surveys) | No because of current software limitations, however a great one for teachers to follow up | |
| Graphical representations (including: pie charts, bar charts, stem and leaf plots, pictograms) | Direct link | Stats & Probability: Statistical Charts |
| Data visualizations and infographics | Direct link | Stats & Probability: Statistical Charts |
| Data processing: measure of central tendency (mean, mode and median) for discrete and grouped data | Direct link | Stats & Probability: Statistical Calculations |
| Measures of dispersion: range | Direct link | Stats & Probability: Statistical Calculations |
| Limitations and context in statistical enquiry | No because of current software limitations, however a great one for teachers to follow up | |
| Qualitative handling of probability | Direct link | Stats & Probability: Introduction to Probability |
| Probability of simple events | Direct link | Stats & Probability: Introduction to Probability<br>Stats & Probability: Sample Spaces |
| Sample spaces | Direct link | Stats & Probability: Sample Spaces |
| Probability scale, including significance of number | Direct link | Stats & Probability: Introduction to Probability |
| Theoretical probability and experimental probability | Direct link | Stats & Probability: Introduction to Probability |
| | | |
| **Years 4-5 (standard)** | | |
| Sampling techniques | No because of current software limitations, however a great one for teachers to follow up | |
| Data manipulation and misinterpretation | No because of current software limitations, however a great one for teachers to follow up | |
| Graphical representations (including: bivariate graphs, scatter graphs, box plots, cumulative frequency graphs) | Direct link | Stats & Probability: Statistical Charts |
| Lines of best fit | Coming soon, currently in development | |

| | | |
|---|---|---|
| Data processing: quartiles and percentiles | Blutick does not have a specific question to match this statement, however, links to this mathematical area can be found in our section on Statistical Calculations | Stats & Probability: Statistical Calculations |
| Measures of dispersion: interquartile range | Direct link | Stats & Probability: Statistical Calculations |
| Correlation, qualitative handling | Coming soon, currently in development | |
| Relative frequency | Direct link | Stats & Probability: Introduction to Probability |
| Response rates | No because of current software limitations, however a great one for teachers to follow up | |
| Sets, including notation and operations up to three sets | No content currently available | |
| Probability with Venn diagrams, tree diagrams and sample spaces | Direct link | Stats & Probability: Introduction to Probability<br>Stats & Probability: Sample Spaces<br>Stats & Probability: Probability Methods |
| Mutually exclusive events | Direct link | Stats & Probability: Rules of Probability |
| Combined events | Direct link | Stats & Probability: Rules of Probability |
| | | |
| **Years 4-5 (extended)** | | |
| Measure of dispersion: standard deviation | No content currently available | |
| Correlation, quantitative handling, using technology | No because of current software limitations, however a great one for teachers to follow up | |
| Histograms for continuous fixed interval groups | Coming soon, currently in development | |
| Addition and multiplication rule—conditional probability | Coming soon, currently in development | |
| Probability calculations | Direct link | Stats & Probability: Rules of Probability |
| Dependent and independent events | Direct link | Stats & Probability: Rules of Probability |

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# Contact us

info@blutick.com

+44 330 043 1213