

UNIT 1 - FOUNDATION ALGEBRA

MATHEMATICS 2.2

Content

- Foundations for algebra
- Solving equations
- Functions
- Linear functions
- Systems of equations
- Systems of inequalities
- Exponents
- Exponential functions

Resources & ICT

- Textbook
- Worksheets
- Calculators
- Online resources from the BM website
- www.myimaths.com
- www.wolframalpha.com

Types of assessment

- Exercises from textbooks and worksheets
- Relevant questions from SAT papers
- Formative assessment of homework and test results
- Structured questioning during lessons
- Judgments based on class participation and effort

Students to Know

- The meaning of advanced mathematical symbols
- How to interpret algebraic information
- Practical applications of basic techniques

Students to Understand

- How to approach problems using a variety of techniques
- When to apply a variety of different methods
- How algebra can be used to solve real life problems
- The necessary standard to attain marks in a SAT exam question

Students to be able to Do

- Simplify expressions
- Solve linear equations
- Draw and interpret information relating to linear functions
- Solve simultaneous equations
- Use their calculators effectively
- Understand mathematical vocabulary

Cross curricular links

- Science; using formula, solving equations and algebraic manipulation
- Physics; speed-time and distance-time graphs
- Physics and Chemistry; experimental data modelled with straight line equations
- ICT; variables and generalisation of numeric quantities

Differentiation incl. EAL

- Extension tasks for gifted students
- Puzzle competitions
- Emphasis on vocabulary (especially for non native speakers of English)
- Group work and Academic Champions to encourage peer learning

Learning styles activities

- Students encouraged to approach tasks using different methods
- Individual guidance to improve understanding
- Lessons taught using a range of techniques



© John Kennedy

Global citizenship, internationalism, local environment

- Links to countries where the mathematics at hand was first developed
- Discussion of mathematics in topical stories
- Sharing of ideas from students with different mathematical backgrounds



BRILLANTMONT
International School

September-November - 9 weeks

UNIT 2 - FURTHER ALGEBRA

MATHEMATICS 2.2

Content

- Polynomials
- Factorising expressions
- Drawing quadratic functions
- Solving quadratic equations
- Radical expressions
- Solving equations involving radicals
- Data analysis and probability

Resources & ICT

- Textbook
- Worksheets
- Calculators
- Online resources from the BM website
- www.myimaths.com
- www.wolframalpha.com

Types of assessment

- Exercises from textbooks and worksheets
- Relevant questions from SAT papers
- Formative assessment of homework and test results
- Structured questioning during lessons
- Judgments based on class participation and effort

Students to Know

- Structure of polynomial expressions
- How a function is related to its graphical representation
- Techniques to draw and solve quadratic expressions
- How to use and interpret graphs
- Properties of expressions involving radicals

Students to Understand

- How to approach problems using a variety of techniques
- How to find equation of a quadratic and how it relates to the graph
- How to draw a function (including quadratics) from its equation
- The necessary standard to attain marks in an SAT exam question

Students to be able to Do

- Add and subtract polynomials
- Factorise polynomials
- Solve quadratic equations
- Use algebraic techniques to a variety of problems
- Solve problems involving radicals

Cross curricular links

- Science; using formula, solving equations and algebraic manipulation
- Physics; equations of motion
- Physics and Chemistry; experimental data modelled with more complex equations
- ICT; variables and generalisation of numeric quantities

Differentiation incl. EAL

- Extension tasks for gifted students
- Puzzle competitions
- Emphasis on vocabulary (especially for non native speakers of English)
- Group work and Academic Champions to encourage peer learning

Learning styles activities

- Students encouraged to approach tasks using different methods
- Individual guidance to improve understanding
- Lessons taught using a range of techniques



© John Kennedy

Global citizenship, internationalism, local environment

- Links to countries where the mathematics at hand was first developed
- Discussion of mathematics in topical stories
- Sharing of ideas from students with different mathematical backgrounds



BRILLANTMONT
International School

December-January - 7 weeks

UNIT 3 - FOUNDATION GEOMETRY

Content

- Geometry basics
- Angles
- Parallel and perpendicular lines
- Congruent triangles
- Relationships within triangles
- Similarity

Resources & ICT

- Textbook
- Worksheets
- Calculators
- Online resources from the BM website
- www.myimaths.com
- www.wolframalpha.com

Types of assessment

- Exercises from textbooks and worksheets
- Relevant questions from SAT papers
- Formative assessment of homework and test results
- Structured questioning during lessons
- Judgments based on class participation and effort

Students to Know

- Which formulae to use in appropriate situations
- Geometry vocabulary
- Relationships between angles in different contexts
- Properties of congruent and similar triangles
- Properties of parallel, perpendicular and bisecting lines

Students to Understand

- Deductive reasoning and how to use logical steps to solve problems
- How properties of lines, triangles and other shapes help solve problems
- The necessary standard to attain marks in a SAT exam question

Students to be able to Do

- Interpret questions
- Solve a variety of geometrical problems
- How to use algebra to solve geometry problems
- Answer exam standard questions

Cross curricular links

- Architecture and Engineering; geometry in buildings and structures
- Art & Photography; geometrical designs
- ICT; computer graphics

Differentiation incl. EAL

- Extension tasks for gifted students
- Puzzle competitions
- Emphasis on vocabulary (especially for non native speakers of English)
- Group work and Academic Champions to encourage peer learning

Learning styles activities

- Students encouraged to approach tasks using different methods
- Individual guidance to improve understanding
- Lessons taught using a range of techniques



© John Kennedy

Global citizenship, internationalism, local environment

- Links to countries where the mathematics at hand was first developed
- Discussion of mathematics in topical stories
- Sharing of ideas from students with different mathematical backgrounds



UNIT 4 - FURTHER GEOMETRY

Content

- Right angled triangles
- Trigonometry
- Quadrilaterals
- Transformations
- Properties of circles
- Measurement of figures and solids
- Probability

Resources & ICT

- Textbook
- Worksheets
- Calculators
- Online resources from the BM website
- www.myimaths.com
- www.wolframalpha.com

Types of assessment

- Exercises from textbooks and worksheets
- Relevant questions from SAT papers
- Formative assessment of homework and test results
- Structured questioning during lessons
- Judgments based on class participation and effort

Students to Know

- Which formulae to use in appropriate situations
- Geometry vocabulary
- Trigonometrical formulae
- Properties of quadrilaterals, transformations, circles and 3D shapes

Students to Understand

- Deductive reasoning and how to use logical steps to solve problems
- How properties of quadrilaterals, transformations and other shapes help solve problems
- The necessary standard to attain marks in a SAT exam question

Students to be able to Do

- Interpret questions
- Solve a variety of geometrical problems
- How to use algebra to solve geometry problems
- Answer exam standard questions

Cross curricular links

- Architecture and Engineering; geometry in buildings and structures
- Art & Photography; geometrical designs
- ICT; 3D computer graphics and transformations of shapes

Differentiation incl. EAL

- Extension tasks for gifted students
- Puzzle competitions
- Emphasis on vocabulary (especially for non native speakers of English)
- Group work and Academic Champions to encourage peer learning

Learning styles activities

- Students encouraged to approach tasks using different methods
- Individual guidance to improve understanding
- Lessons taught using a range of techniques



© John Kennedy

Global citizenship, internationalism, local environment

- Links to countries where the mathematics at hand was first developed
- Discussion of mathematics in topical stories
- Sharing of ideas from students with different mathematical backgrounds

