

Central Hub Brighton – Curriculum Topic Information Sheet

Subject	Year	Term
Maths	KS3 A and B (Year 8/9)	Spring 1

Topic/s

Brackets, Equations and Inequalities; Sequences; Indices

Content (Intent)

Prior Learning (Topic/s):

Prior Learning (for above Topics) KS2/3 (Primary/Secondary National Curriculum) that include:

- Whole Numbers and Decimals
- Mental calculations and the four operations
- Working with unknowns (early algebra)
- Following patterns in diagrams or number sequences
- Square Numbers – recognise as a number multiplied by itself

Future Learning (Topic/s) and Links and next steps for current topics

Future Learning (Topics on Overview)

Fractions and Percentages; Standard Index Form; Number sense

Links and next steps for Brackets, Equations and Inequalities:

- Students will need these skills when collecting like terms and solving equations later in the curriculum
- Challenge students to simplify expressions that include squared or cubed terms, for example $7a^2 + 3a - 5a^2$
- Students could solve problems involving all four operations
- Challenge students to expand and simplify more complex expressions, for example $2(a + 3) + 3(a + 5)$ or $x(x + 5)$
- Challenge students to factorise expressions where the common factor is a variable, for example $x^2 + 3x$, moving on to more complex expressions such as $3y^2 - 12y$, if appropriate
- Challenge students to form and solve word problems using a bar model
- Students could solve equations with non-integer coefficients
- Students could form and solve equations in context, for example perimeter
- Challenge students to explore equations involving decimals
- Students could form and solve equations from given information
- Challenge students to solve equations in non-standard forms such as $12 = 3(4 + x)$, or equations involving additional steps such as $3(c + 2) - 5 = 10$
- Challenge students to solve more complex equations with more steps, for example $2x + 1 \div 3 = 5$ and $2x \div 3 + 1 = 5$
- Challenge students to form and solve equations with several steps, including the use of brackets

Links and next steps for Sequences:

- Challenge students to explore square or cube numbers
- Students could investigate the relationship between square and triangular numbers
- Challenge students to generate sequences with a 2-step rule, for example double the previous term, then add 3
- Students could explore sequences of fractions, decimals or negative numbers
- Students could generate and explore sequences with more complex algebraic rules, for example n^2 , $3(n + 4)$ or $1 \div n$

Links and next steps for Indices:

- Students could explore squaring and cubing negative numbers

What Knowledge or Skills will be Taught? (Implementation)	How will your Understanding be Assessed and Recorded (Impact)
Knowledge	On Going Assessment
<p>Main scheme steps for Brackets, Equations and Inequalities:</p> <ul style="list-style-type: none"> • Form algebraic expressions • Use directed number with algebra • Multiply out a single bracket • Factorise into a single bracket • Expand multiple single brackets and simplify • Expand a pair of binomials H • Solve equations, including with brackets • Form and solve equations with brackets • Understand and solve simple inequalities • Form and solve inequalities • Solve equations and inequalities with unknowns on both sides H • Form and solve equations and inequalities with unknowns on both sides H • Identify and use formulae, expressions, identities and equations <p>Support scheme steps for Brackets, Equations and Inequalities:</p> <ul style="list-style-type: none"> • Add and subtract with directed numbers • Collect like terms • Multiply and divide with directed numbers • Expand a single bracket • Factorise into a single bracket • Use bar models • Solve 1-step equations • Solve 2-step equations • Solve equations with brackets • Solve equations with fractions • Solve equations in context <p>Main scheme steps for Sequences:</p> <ul style="list-style-type: none"> • Generate sequences given a rule in words • Generate sequences given a simple algebraic rule • Generate sequences given a complex algebraic rule • Find the rule for the nth term of a linear sequence H <p>Support scheme steps for Sequences:</p> <ul style="list-style-type: none"> • Sequences • Generate a sequence given a rule in words • Generate a sequence given a simple algebraic rule <p>Main scheme steps for Indices:</p> <ul style="list-style-type: none"> • <p>Support Steps for Indices:</p> <ul style="list-style-type: none"> • Understand index notation • Simplify expressions • Collect like terms • Evaluate expressions 	<p>Ongoing Assessment</p> <ul style="list-style-type: none"> • Q&A throughout the lesson and in the plenary • Mini-whiteboards • Self and Peer assessment • Feedback and Challenge Time
Skills	Formal Assessment

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<ul style="list-style-type: none"> • Apply the four operations • Work with • Using mental methods and a calculator • Using concrete resources to reinforce learning • Work with • Use a ruler and pencil to draw charts and graphs 	<ul style="list-style-type: none"> • Formal Assessment End of term White Rose Maths
SEMh Curriculum Knowledge & Skills	Assessment of SEMh Development
<p>To include:</p> <ul style="list-style-type: none"> • Positive and functional relationships with peers and adults • Classroom skills • Safe working • Group working skills • Self Esteem: confidence in one’s own worth and abilities; self-respect • Social Skills: ability to communicate, empathise, build a rapport with peers and staff, problem-solve and accept accountability • Emotional Resilience: self-belief, self-control, emotional awareness of self and others, sense of humour <p>Full details can be found within our SEMh Curriculum</p>	<ul style="list-style-type: none"> • Acorns assessment with keyworker • On-going dynamic assessment

How Can Families Help at Home?

Use websites to help reinforce learning and practice skills learnt at school:

Corbettmaths.com

BBCBitesize.co.uk

Practise times tables on a regular basis – Pixl times table App or similar

Encourage your child to use numeracy in their wider world, at home and out of school; and to explore and research Maths for themselves in their everyday lives.

Helpful Further Reading/Discussion (including Reading and Vocabulary Lists)

Reading	Vocabulary Lists
<p>Students should regularly read through Maths problem solving questions to practice interpreting the information which will enable them to pinpoint the Maths skills and knowledge they require to answer the questions.</p> <p>Using Maths revision guides will enable students to become familiar with the meanings of key words which will develop their literacy skills to access further Maths.</p>	<p>Brackets, Equation, Algebra, Formula, Identity, Inequality, Greater than, Less than, Equal, Sequence, Pattern, Fibonacci, Square numbers, Triangle numbers, Geometric sequence, Index, Power, squared, cubed, Fibonacci</p>