

Curriculum Overview for Mathematics

Year 9

A8: Linear Inequalities <p>Declarative knowledge:</p> <ul style="list-style-type: none"> • Know the inequality symbols • Know the axes on a graph (H) • Know how to read a number line <p>Procedural knowledge:</p> <ul style="list-style-type: none"> • Represent a single inequality on a number line • Read an inequality from a number line • Represent a restrictive inequality on a number line • Read a restrictive inequality from a number line • Solve a linear inequality • State integer solutions to a linear inequality • Solve a restricted inequality <p>Contextual knowledge:</p> <ul style="list-style-type: none"> • Solve an inequality where division/multiplication of a negative is required • Solve a system of linear inequalities • Form an inequality from a description • Represent simple inequalities graphically 		Reading like a Mathematician Subject specific vocabulary definitions and choral response Reading reasoning and problem-solving questions
		Inequality $<$ - less than $>$ - greater than \leq - less than or equal to \geq - greater than or equal to $=$ - equal to \neq - not equal to Number Line Linear Inequality Solution Set Integer Solutions System of Inequalities Cartesian Grid Shading Open Circle Closed Circle Forming an Inequality Graphical Representation
		End of unit assessment with feedback lesson to address misconceptions Content from this unit will be included in the formal endpoint assessment
		1 hour of Sparx Maths homework needs to be completed every week Revision for formal assessment using provided revision booklet

NP12: Standard Form
Declarative knowledge:

- Place value of integers and decimals
- Multiplying and dividing by powers of 10
- Addition and subtraction with integers and decimals
- Multiplication and division with integers and decimals
- Calculating with powers and roots
- Using the correct order of operations
- Simplifying indices with multiplication, division and brackets
- Inequality notation

Procedural knowledge:

- Write large numbers in standard form
- Convert large numbers from standard form
- Write small numbers in standard form
- Convert small numbers from standard form
- Recognise when numbers are in correct standard form
- Adjust numbers that are not in correct standard form to correct standard form
- Write numbers given in standard form and ordinary form in order
- Multiply standard form without a calculator
- Divide standard form without a calculator
- Add and subtract standard form without a calculator by converting to ordinary form
- Calculate with standard form with a calculator

Contextual knowledge:

- Work with standard form conversions with measures
- Create standard form from fractions
- Create standard form from an integer raised to a power
- Adjust numbers that have been written with division instead of multiplication
- Add and subtract with standard form by adjusting the exponents
- Solve worded problems involving calculations with standard form



Reading like a Mathematician
 Subject specific vocabulary definitions and choral response
 Reading reasoning and problem-solving questions



Standard form
 Large number
 Small number
 Ordinary form
 Convert to standard form
 Convert from standard form
 Power of 10
 Positive power of 10
 Negative power of 10
 Adjust to correct standard form
 Ordering numbers
 Add and subtract standard form
 Calculator standard form



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A9: Contextual Graphs

Disciplinary knowledge

- Identify x- and y-axes
- Recall calculating the gradient of a linear graph
- Recall finding the y-intercept of a graph
- Recognise units of measurement for speed, distance and time

Procedural knowledge

- Read values from a graph
- Interpret the gradient of a contextual graph
- Interpret the y-intercept of a contextual graph
- Construct contextual graphs from a table of values
- Construct speed-time graphs
- Construct distance-time graphs

Contextual knowledge

- Convert values using a conversion graph, such as currency
- Construct contextual graphs from a formula
- Interpret speed from a speed-time graph
- Interpret distance from a distance-time graph
- Reason and problem-solve with contextual graphs



Reading like a Mathematician
 Subject specific vocabulary definitions and choral response
 Reading reasoning and problem-solving questions

x-axis, y-axis, gradient, linear, y-intercept, distance, time, speed, miles per hour (mph), kilometers per hour (km/h), speed-time, distance-time, formula

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SP3: Introduction to Probability

Disciplinary knowledge

- Know the language of probability
- Know the notation of probability
- Know the probabilities of mutually exclusive events sum to 1

Procedural knowledge

- Use systematic listing (product rule for counting)
- Record, describe and analyse the frequency of outcomes of simple probability experiments
- Calculate theoretical probability
- Construct theoretical sample spaces
- Calculate the probability of 'and' events
- Calculate the probability of 'or' events



Reading like a Mathematician
 Subject specific vocabulary definitions and choral response
 Reading reasoning and problem-solving questions

Systematic, relative frequency, outcome, event, fair, biased, mutually exclusive, independent, set, universal set, intersection, elements

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Contextual knowledge

- Represent possible outcomes on a frequency tree
- Represent possible outcomes on a tree diagram
- Represent possible outcomes on a two-way table
- Represent possible outcomes on a simple Venn diagram
- Use sample space diagrams to calculate probability
- (H) Draw and interpret tree diagrams and associated probabilities for dependent events
- (H) Calculate complex probability problems involving forming and solving algebraic equations
- (H) Calculate 'given that' problems



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At this point Year 9 will complete a pre-GCSE check.