

Year 7 Aspiring Higher (Set (9-8), (9-7), (9-6))



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Assessment 1a – End of half term 1

This assessment is on number skills.

Students are assessed on their basic arithmetic skills using the four operations of addition, subtraction, multiplication and division on both positive and negative whole numbers. Students are assessed on their ability to order numbers, both positive and negative and to identify and round using significant figures. They are taught how to use rounding to estimate answers

Students look at the properties and types of numbers, including their factors and multiples, power notation and square/cube roots; with a special focus on prime numbers and prime factorisation. In addition students are required to understand how to evaluate a mathematical expression by doing the calculations in the correct order.

	😊	😐	😞	Maths Watch
Calculations with Positive and Negative Numbers				
I can use written methods to add and subtract positive whole numbers				N14a,N14b
I can use written methods to multiply two or three digit whole numbers				N28a
I understand the rules for adding and subtracting negative numbers				N19a
I understand the rules for multiplying and dividing negative numbers				N19b
I can multiply and divide whole numbers and decimal numbers by 10, 100, 1000				N17a,N17b
I can evaluate expressions using the laws of BIDMAS				N20
Understanding the properties of numbers				
I can find the multiples of a number				N11
I can find the highest common factor of pairs of numbers				N31a
I can find the lowest common multiple of pairs of numbers				N31b
I can use divisibility tests to check if a number is divisible by 2, 3, 4, 5, 6 and 10				
I can identify prime numbers (numbers with exactly 2 factors)				N10
I can use divisibility tests to check if a number is divisible by 2, 3, 4, 5, 6 and 10				N30a
I can write numbers as prime numbers multiplied together (the product of its prime factors)				N30b
I know the square numbers up to 100				N25
I know the first ten triangle numbers: 1, 3, 6, 10, 15, 21, 28, 36, 45, 55				
I can evaluate numbers to higher powers Eg 2^4 or 10^5 without a calculator				GCSE 29
Understand significant figures and rounding				
I can round whole numbers to the nearest ten, hundred or thousand				N27a
I can round decimal numbers to the nearest whole number				N27b
I can round decimal numbers to 1 or 2 decimal places				N27b
I can identify significant figures				N38
I can round to 1, 2 or 3 significant figures				N38
I can round numbers to assist in approximating a calculation				N43a,N43b
I can use my knowledge of square numbers to estimate calculations involving square roots and cube roots				N25

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Assessment 1b – End of half term 2



This assessment is on simplifying and manipulating algebraic expressions and on fractions.

Students are taught the difference between a term, expression and formula and are shown how to simplify expressions by collecting terms and expressions by using index laws. Students are also shown how to expand and factorise single brackets and how to write and evaluate expressions using the correct order of operations (BIDMAS).

For fractions, students look at how to carry out arithmetic with all 4 maths operations and the relationship between fractions and decimals. They will work with mixed numbers and use equivalent fractions to compare and order fractions.

	😊	😐	😞	Maths Watch
Simplifying and Manipulating Algebraic Expressions				
I can identify the variables in a formula				A2
I can substitute positive and negative numbers into a formula accurately				A10
I understand the terms: expression, term, equation, formula and identity				A2
I understand the difference between an equation, a formula and an identity				A2
I understand that $2 \times a$ can be written as $2a$				A2
I understand that $a \div 2$ can be written as $\frac{a}{2}$				A2
I understand the difference between $2a$ and a^2				A2
I can construct expressions from worded descriptions using addition, subtraction and multiplication and division, using brackets where appropriate				A4
I can simplify linear expressions by collecting like terms Eg Simplify: $2a + 3 - 3b + 4a + b + 2$				A6
I can multiply together two simple expressions: Eg Simplify: $2a \times 3b$				A7a
I can use indices to simplify expressions involving repeated multiplication				
I can divide two simple expressions: Eg Simplify: $6a^3 \div 2a^2$				A7b
I can expand single brackets				A8
I can expand and simplify an expression containing several single brackets				A8
I can factorise an expression into a single bracket				A9
Fractions				
I can use fraction notation to describe parts of shapes or wholes				N23a
I can find equivalent fractions				N23b
I can use equivalent fractions to compare and order fractions				xxxx
I can simplify fractions				N23c
I can recognise fractions bigger than one and write them as a mixed-number				N35
I can add and subtract fractions with the same denominator				N36



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I can add and subtract fractions with different denominators (including cases with more than 2 fractions)				N36																		
I can multiply fractions				N42a																		
I can divide fractions				N42b																		
I can multiply or divide a whole number by a fraction				N41																		
I can add, subtract, multiply and divide mixed numbers				N41,N42a/b																		
Is able to find the reciprocal of simple numbers/fractions mentally, e.g. 10 and				GCSE 76																		
I know the following basic equivalences: <table border="1" data-bbox="411 517 751 808"> <thead> <tr> <th>Fraction</th> <th>Decimal</th> </tr> </thead> <tbody> <tr> <td>$\frac{1}{2}$</td> <td>0.5</td> </tr> <tr> <td>$\frac{1}{4}$</td> <td>0.25</td> </tr> <tr> <td>$\frac{3}{4}$</td> <td>0.75</td> </tr> <tr> <td>$\frac{1}{8}$</td> <td>0.125</td> </tr> <tr> <td>$\frac{1}{10}$</td> <td>0.1</td> </tr> <tr> <td>$\frac{1}{100}$</td> <td>0.01</td> </tr> <tr> <td>$\frac{1}{3}$</td> <td>0.3333,,,</td> </tr> <tr> <td>$\frac{2}{3}$</td> <td>0.6666...</td> </tr> </tbody> </table>	Fraction	Decimal	$\frac{1}{2}$	0.5	$\frac{1}{4}$	0.25	$\frac{3}{4}$	0.75	$\frac{1}{8}$	0.125	$\frac{1}{10}$	0.1	$\frac{1}{100}$	0.01	$\frac{1}{3}$	0.3333,,,	$\frac{2}{3}$	0.6666...				N32
Fraction	Decimal																					
$\frac{1}{2}$	0.5																					
$\frac{1}{4}$	0.25																					
$\frac{3}{4}$	0.75																					
$\frac{1}{8}$	0.125																					
$\frac{1}{10}$	0.1																					
$\frac{1}{100}$	0.01																					
$\frac{1}{3}$	0.3333,,,																					
$\frac{2}{3}$	0.6666...																					
I can use the basic equivalences to find related equivalences without a calculator				N32																		
I can write a fraction as a decimal by using division				N32																		
I can write a decimal with up to 3 decimal places as a fraction				N32																		
I can order fractions, decimals and percentages by converting them to the same form for comparison				85																		

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Assessment 2a – End of half term 3

This assessment is on calculations, sequences and plotting graphs.

A sequence in mathematics is a number pattern. Students need to be able to recognise different kinds of sequences; in particular Arithmetic, Geometric and Fibonacci style sequences. They will be assessed on their ability to describe sequences using a term-to-term rule and a position-to-term ('n'th term rule), with a particular focus on finding and using the position-to-term rule for Arithmetic Sequences.

Students will then learn to plot sequences on coordinate axes involving all 4 quadrants with a focus on plotting linear sequences and the formal notation connected with linear equations.

The calculations part of the assessment reviews the work from term 1a: basic arithmetic skills involving all four operations, but focuses on decimal numbers. Students will solve problems involving the addition, subtraction, multiplication and division of decimal numbers.

	😊	😐	😞	Maths Watch
Sequences				
I can find the next term in a sequence by recognising the pattern so far				A11a
I can recognise Arithmetic sequences				A11a
I can recognise Geometric sequences				163
I can recognise Fibonacci style sequences				141
I can recognise the following special sequences: Square numbers, Triangular numbers, Cube numbers				N25
I can use the correct notation to describe the term-to-term rule for a sequence				
I can describe the term-to-term sequence rule for a sequence				A11a
I can use the position-to-term ('n'th term rule) to find a particular term or terms in a sequence				A11b
I can find the position to term rule ('n'th term) rule for an Arithmetic sequence				A11c
I can recognise an Arithmetic sequence in a real life problem				A11c
I can represent sequences on coordinate axes				
Coordinates and Graphs				
I can read coordinates in all four quadrants				A1a,A1b
I can plot coordinates in all four quadrants				A1a,A1b
I can find the midpoint of two coordinates				133
I can draw my own coordinate axes to plot coordinates and graphs				
I can read values from a line graph that has been drawn for me				
I can read values from a straight line graph to solve a real-life problem				
I understand that I can use the inputs and outputs of a number machine/function to create coordinate pairs that can be plotted as a graph				N26
I can plot a graph of a linear equation using a table of values. Eg Plot the graph of $y = 2x + 1$				A14c
I can recognise the types of equation that will create a straight line when plotted as a graph				A14c
Decimal Arithmetic				



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I can put lists of positive and negative numbers in order of size				N2a
I can use the symbols = , ≠ , < , > , ≤ , ≥ to compare numbers				A20a
I can order decimal numbers up to 2 decimal places				N2b
I can round whole numbers to the nearest ten, hundred or thousand				N27
I can round decimal numbers to the nearest whole number				N27b
I can round decimal numbers to 1 or 2 decimal places				N27b
I can use written methods to add and subtract whole and decimal numbers				N13a/b,N14a/b
I can use written methods to multiply whole and decimal numbers				N15a/b
I can use written methods to divide whole and decimal numbers				N16,N29a/b
I can add and subtract negative whole and decimal numbers				N19a
I can multiply and divide negative whole and decimal numbers				N19b
I can evaluate expressions using the laws of BIDMAS				N20

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Assessment 2b – End of half term 4

This assessment is on probability and geometry

For probability students will be assessed on their understanding of how to calculate the probability that a single event happens using both theoretical and experimental techniques. They will be expected to be aware that experimental techniques are generally more accurate if more trials are conducted. For more complex probabilities involving two events, students will be taught to list outcomes in a systematic way.

Geometry is the study of shapes and their properties. Students will look at the names and properties of polygons, with a focus on their symmetry. They will also look at how to find the area and perimeter of 2d shapes and the relationship between them.

	😊	😐	😞	Maths Watch
Properties of Shape				
I can describe triangles as being either equilateral, isosceles or scalene				G16
I can describe quadrilaterals as being either a: square, rectangle, parallelogram, trapezium, rhombus or dart				G14
I can draw in lines of symmetry in a 2d shape				G3
I can the order of rotational symmetry of a shape				G7
Area and Perimeter				
I understand that area is used to measure the space inside a 2d shape				G9
I can estimate the area of a shape by dividing it into squares and counting				G9
I can calculate the area of a square and a rectangle				G20a
I can calculate the area of a triangle				G20c
I can calculate the area of shapes made from several rectangles/triangles				G24
I can calculate the area of a parallelogram				G20b
I can calculate the area of a trapezium				G20d
I can find the perimeter of shapes				G8a/b
I understand that shapes with a large perimeter may not always have a large area				
Probability				
I understand that probabilities take a value between 0 and 1 and can use the probability scale				P1
I understand that probabilities are always given as a fraction, decimal or percentage				P1
I can estimate the likelihood of an outcome (the relative probability) using experimental data				P7
I understand that when using an experiment to estimate probabilities the more trials that are conducted the greater the accuracy in the results				P7
I can calculate the probability of a single or combined event happening by listing equally likely events				P2a
I can calculate the probability of a single event happening by interpreting a frequency table				P2a
I can use the fact that probabilities sum to 1				P4,P5
I can use the fact that of the probability of an event happening is p, the probability that it will not happen is 1-p				

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Assessment 3a – End of half term 5

This assessment is on algebra and geometry.

The equations part of the assessment builds on the work on writing expressions from term 1a and assesses the student's ability to solve equations. Initially this is through using inverse operations before using more advanced techniques based on 'the balancing' method to rearrange equations.

Students are expected to have a protractor so that they can measure and draw angles accurately. This unit assesses students on angle facts connected with the sum of the internal angles of triangles and quadrilaterals as well as the properties of parallel lines. They are expected to use mathematical reasoning to solve problems without measuring with a protractor.

	😊	😐	☹️	Maths Watch
Solving Equations				
I can evaluate an expression by substituting values				A10
I can solve single step equations Eg $x + 5 = 9$, $3x = 27$, $x - 3 = 8$, $\frac{x}{3} = 4$				A12
I can solve linear equations where the unknown is on one side Eg $3x + 2 = 14$				A12
I can write an equation to describe a 'think of a number' type problem Eg I think of a number, n, double it and subtract 3. Write an expression for the new answer				A17
I can solve linear equations where the unknown appears on both sides of the equation Eg $3x - 1 = x + 7$				A19b
I can use trial and improvement to find the solution to more complex, equations				A16, A25
I can rearrange an equation to make a new variable the subject				A13a, A13b
Angles				
I can use a protractor to measure an angle of any size to the nearest degree				G10b
I can use a protractor to draw an angle of any size to the nearest degrees				G10c
I can classify angles as either acute, obtuse, reflex or right angled				G10a
I can describe triangles as being either equilateral, isosceles or scalene				G16
I can describe quadrilaterals as being either a: square, rectangle, parallelogram, trapezium, rhombus or dart				G14
I know and can use fact the total of the angles around a point add up to 360°				G13
I know and can use fact the total of the angles around a point on a straight line add up to 180°				G13
I know and can use fact the total of the angles in a triangle always add up to 180°				G13, G16, G17
I know and can use fact the total of the angles in a quadrilateral always add up to 360°				G14
I can identify parallel lines				G18
I can identify perpendicular lines				
I can identify vertically opposite angles				G18
I can use the fact that vertically opposite angles are equal to find missing angles around a point				G18
I can identify corresponding angles				G18
I can use the fact that corresponding angles are equal to find missing angles on a diagram with parallel lines				G18
I can identify alternate angles				G18

I can use the fact that alternate angles are equal to find missing angles on a diagram with parallel lines			G18
I can identify co-interior angles			G18
I can use the fact that co-interior angles are equal to find missing angles on a diagram with parallel lines			G18



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Assessment 3a – End of half term 6

This assessment is on statistics and ratio.

Statistics is the study and use of data. Students are assessed on their ability to collect and manipulate data in an unbiased form ready for mathematical processing. Students need to be able to use averages to compare data sets and need to understand why there are several types of average available to use. In addition to this students need to be able to interpret data presented as graphs and draw the most appropriate graph to illustrate data. Students should be able to provide reasons for their choices regarding the types of average used and the types of graphs selected.

The topic on ratio introduces the idea of ratio and looks at the differences between ratio and fraction notation. Students will solve problems relating to sharing into given ratios.

	😊	😐	😞	Maths Watch
Averages and Range				S7
I can find the mean of a list of numbers				S6
I can find the mode of a list of numbers				S6
I can find the median of a list of numbers				S6
I can find the mode for data presented in a frequency table				S10a
I can find the median for data presented in a frequency table				S10a
I can find the mean for data presented in a frequency table				S10a
I can estimate the mean, mode and median for data in a table that has been grouped				S10b
I understand why we have three different ways to calculate an average and can choose the most appropriate one in a given context				62
I can use either the mean, mode or median to compare the size of two sets of data				62
Given the mean/mode/median for a set of data I can solve problems that require me to work backwards to find the original data values				62
Representing Discrete Data as a Graph				
I can read and interpret a bar chart				S2a
I can read and interpret a dual chart				S2b
I can read a compound bar chart				S2
I can draw a bar chart				
I can draw a dual bar chart				
I can draw a compound bar chart				
I can read a pie chart				S9
I can construct a pie chart				S9
I understand the advantage/disadvantages of drawing a bar chart or pie chart to represent discrete data				
Ratio				
I can describe the relationship between two or more parts of a whole as a ratio				R1a,R1b
I can find equivalent ratios and simplify ratios including different units or ratios written as decimals				R5a
I can write a ratio in the form 1:m or m:1				R6
I understand the relationship between writing amounts as a ratio and a fraction				103

I can share an amount into two or three parts in a given ratio			R5b
I can use a ratio to find the value of one part when another part is known			R5ab



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