

GCSE (9–1)

Comparison Guide

MATHEMATICS

Comparison with the
Cambridge iGCSE

January 2015



We will inform centres about any changes to the specification. We will also publish changes on our website. The latest version of our specification will always be the one on our website (www.ocr.org.uk) and this may differ from printed versions.

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A COMPARISON OF THE CAMBRIDGE IGCSE MATHEMATICS AND THE NEW OCR GCSE (9–1) MATHEMATICS QUALIFICATIONS

At this time of change and transition, schools may wish to reflect and re-consider their choice of specifications and awarding bodies. We are aware that such choices are never easy and that teachers try very hard to select specifications that enable their learners to succeed. A number of schools in the past opted for IGCSEs to benefit their learners and because they afforded more breadth and flexibility.

However, in view of the curriculum reforms for courses starting in 2015 to be first examined in 2017, IGCSE centres may wish to transfer to alternate specifications that will carry performance points, including OCR's GCSE (9–1) Mathematics qualification.

CIE and OCR both work together within our parent company Cambridge Assessment and in order to help you at this time of transition, we set out below a comparison of our Key Stage 4 Mathematics qualifications. The comparison focuses mainly on areas of skills, specification content and assessment.

There are, obviously, clear similarities and some differences between IGCSE and GCSE Mathematics.

- Both specifications aim to provide students with:
 - sound mathematical knowledge
 - understanding of a range of mathematical techniques
 - an ability to deal with mathematical problems.
- There is significant content overlap between the specifications and a small amount of material unique to each, for instance:
 - matrices are included within IGCSE, but not within GCSE
 - a wider knowledge of trigonometry is expected in GCSE than in IGCSE.

It is important to be clear that Ofqual have stipulated certain requirements for the reformed GCSEs that cannot be deviated from, which will be common to the specifications of all awarding bodies. For example:

- assessment by external exam only
- a new grading scale using the numbers 9–1 to identify levels of performance (with 9 being the top level)
- GCSE Mathematics will have a Foundation and a Higher tier
- GCSEs will be linear, with assessment to be taken in the summer at the end of the course
- a re-sit opportunity will be available in November for Mathematics, available only for learners who will be 16 years of age by August 31 of that year.



NEW GCSE AND IGCSE COMPARISON

(In the **Ref.** column, **Green** references are IGCSE, **Black** references are new OCR GCSE)

Content shown in **BLACK** text is in IGCSE and is expected of all students at GCSE

Content shown in **RED** text is in IGCSE Extended content and is expected of Higher tier students at GCSE

Content shown in **BLUE** text is in IGCSE but not in GCSE

Content shown in **PURPLE** text is in GCSE but not in IGCSE



Ref.	Number – Core Curriculum	Number – Extended curriculum
1.1 1.02a 1.02b 1.02c 3.03a	Identify and use natural numbers, integers (positive, negative and zero), prime numbers, square numbers, common factors and common multiples, rational and irrational numbers (e.g. π , $\sqrt{2}$), real numbers.	Identify and use natural numbers, integers (positive, negative and zero), prime numbers, square numbers, common factors and common multiples, rational and irrational numbers (e.g. π , $\sqrt{2}$), real numbers.
1.2 11.02c	Extended curriculum only.	<p>Note that formal knowledge of Set Notation is not required for GCSE Mathematics.</p> <p>Use language, notation and Venn diagrams to describe sets and represent relationships between sets.</p> <p>Definition of sets e.g. $A = \{x: x \text{ is a natural number}\}$ $B = \{(x, y): y = mx + c\}$ $C = \{x: a \leq x \leq b\}$ $D = \{a, b, c, \dots\}$</p>
1.3 3.01b	Calculate squares, square roots, cubes and cube roots of numbers.	Calculate squares, square roots, cubes and cube roots of numbers.
1.4 1.01a	Use directed numbers in practical situations.	Use directed numbers in practical situations.
1.5 2.01a 2.02a 2.03a	Use the language and notation of simple vulgar and decimal fractions and percentages in appropriate contexts. Recognise equivalence and convert between these forms.	Use the language and notation of simple vulgar and decimal fractions and percentages in appropriate contexts. Recognise equivalence and convert between these forms.
1.6 1.02a 2.04a 2.04b	Order quantities by magnitude and demonstrate familiarity with the symbols $=, \neq, >, <, \geq, \leq$	Order quantities by magnitude and demonstrate familiarity with the symbols $=, \neq, >, <, \geq, \leq$
1.7 1.02b 1.03a 3.01a 3.01c 3.02a 3.02b	Understand the meaning and rules of indices. Use the standard form $A \times 10^n$ where n is a positive or negative integer, and $1 \leq A < 10$.	Understand the meaning and rules of indices. Use the standard form $A \times 10^n$ where n is a positive or negative integer, and $1 \leq A < 10$.



Ref.	Number – Core Curriculum	Number – Extended curriculum
1.8 1.01a 1.03a 2.01b 2.02b 2.02c	Use the four rules for calculations with whole numbers, decimals and vulgar (and mixed) fractions, including correct ordering of operations and use of brackets.	Use the four rules for calculations with whole numbers, decimals and vulgar (and mixed) fractions, including correct ordering of operations and use of brackets.
1.9 3.01b 4.01a 4.01b	Make estimates of numbers, quantities and lengths, give approximations to specified numbers of significant figures and decimal places and round off answers to reasonable accuracy in the context of a given problem.	Make estimates of numbers, quantities and lengths, give approximations to specified numbers of significant figures and decimal places and round off answers to reasonable accuracy in the context of a given problem.
1.10 4.01c	Give appropriate upper and lower bounds for data given to a specified accuracy.	Give appropriate upper and lower bounds for data given to a specified accuracy. <i>Obtain appropriate upper and lower bounds to solutions of simple problems given data to a specified accuracy.</i>
1.11 5.01a 5.01b 5.01c 5.01d 5.02a 5.02b 10.01b	Demonstrate an understanding of ratio and proportion. Use common measures of rate. Calculate average speed.	Demonstrate an understanding of ratio and proportion. Increase and decrease a quantity by a given ratio. Use common measures of rate. Calculate average speed.
1.12 2.03b 2.03c	Calculate a given percentage of a quantity. Express one quantity as a percentage of another. Calculate percentage increase or decrease.	Calculate a given percentage of a quantity. Express one quantity as a percentage of another. Calculate percentage increase or decrease. Carry out calculations involving reverse percentages.
1.13 1.04a 4.01a 4.01b	(Efficient calculator use is implicit in GCSE Mathematics) Use a calculator efficiently. Apply appropriate checks of accuracy.	(Efficient calculator use is implicit in GCSE Mathematics) Use a calculator efficiently. Apply appropriate checks of accuracy.



Ref.	Number – Core Curriculum	Number – Extended curriculum
1.14 10.01a	Calculate times in terms of the 24-hour and 12-hour clock. Read clocks, dials and timetables.	Calculate times in terms of the 24-hour and 12-hour clock. Read clocks, dials and timetables.
1.15 5.02a 7.04a 10.01a	Calculate using money and convert from one currency to another.	Calculate using money and convert from one currency to another.
1.16 2.03c 5.03a 12.02a	Use given data to solve problems on personal and household finance involving earnings, simple interest and compound interest. Extract data from tables and charts.	Use given data to solve problems on personal and household finance involving earnings, simple interest and compound interest. Extract data from tables and charts.
1.17 5.03a	<i>Extended curriculum only.</i>	Use exponential growth and decay in relation to population and finance.
4.01b		Use the symbol \approx appropriately. e.g. $\sqrt{\frac{2.9}{0.051 \times 0.62}} \approx 10$
3.03b		Simplify expressions with surds, including rationalising denominators. e.g. $\sqrt{12} = 2\sqrt{3}$ $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ $\frac{1}{\sqrt{3}+1} = \frac{\sqrt{3}-1}{2}$



Ref.	Algebra and graphs – Core curriculum	Algebra and graphs – Extended curriculum
2.1 6.01a 6.02a 6.02b 6.02c 6.02d	Use letters to express generalised numbers and express basic arithmetic processes algebraically. Substitute numbers for words and letters in formulae. Transform simple formulae. Construct simple expressions and set up simple equations.	Use letters to express generalised numbers and express basic arithmetic processes algebraically. Substitute numbers for words and letters in complicated formulae. <i>Construct and transform complicated formulae and equations.</i>
2.2 1.01a 6.01d 6.01e 6.01f	Manipulate directed numbers. Use brackets and extract common factors.	Manipulate directed numbers. Use brackets and extract common factors. Expand products of algebraic expressions. Factorise where possible expressions of the form: $ax + bx + kay + kby$ $a^2x^2 - b^2y^2$ $a^2 + 2ab + b^2$ $ax^2 + bx + c$
2.3 6.01c 6.01e 6.01g	<i>Extended curriculum only.</i>	<i>Manipulate algebraic fractions.</i> <i>Factorise and simplify rational expressions.</i>
2.4 3.01a 3.01b 3.01c 6.01c	Use and interpret positive, negative and zero indices. Use the rules of indices.	Use and interpret positive, negative and zero indices. Use the rules of indices. <i>Use and interpret fractional indices.</i>



Ref.	Algebra and graphs – Core curriculum	Algebra and graphs – Extended curriculum
2.5 6.01e 6.01f 6.02d 6.03a 6.03b 6.03c 6.04a	Solve simple linear equations in one unknown. Solve simultaneous linear equations in two unknowns.	Solve simple linear equations in one unknown. Solve simultaneous linear equations in two unknowns. Solve quadratic equations by factorisation, completing the square or by use of the formula. Solve simple linear inequalities.
2.6 6.04b 7.02a	<i>Extended curriculum only.</i>	Represent inequalities graphically and use this representation in the solution of simple linear programming problems.
2.7 6.06a 6.06b	Continue a given number sequence. Recognise patterns in sequences and relationships between different sequences. Find the n th term of sequences.	Continue a given number sequence. Recognise patterns in sequences and relationships between different sequences. Find the n th term of sequences.
2.8 5.02a 5.02b	<i>Extended curriculum only.</i>	Express direct and inverse variation in algebraic terms and use this form of expression to find unknown quantities.
2.9 7.01b 7.04a 7.04b 7.04c	Interpret and use graphs in practical situations including travel graphs and conversion graphs. Draw graphs from given data.	Interpret and use graphs in practical situations including travel graphs and conversion graphs. Draw graphs from given data. Apply the idea of rate of change to easy kinematics involving distance-time and speed-time graphs, acceleration and deceleration. Calculate distance travelled as area under a linear speed-time graph.



Ref.	Algebra and graphs – Core curriculum	Algebra and graphs – Extended curriculum
2.10 5.03a 6.02b 6.03d 7.01b 7.01c 7.01d	Construct tables of values for functions of the form $ax + b$, $\pm x^2 + ax + b$, $\frac{a}{x}$ ($x \neq 0$), where a and b are integral constants. Draw and interpret such graphs. Solve linear and quadratic equations approximately by graphical methods.	Construct tables of values and draw graphs for functions of the form ax^n where a is a rational constant, and $n = -2, -1, 0, 1, 2, 3$, and simple sums of not more than three of these and for functions of the form a^x , where a is a positive integer. Solve associated equations approximately by graphical methods. Draw and interpret graphs representing exponential growth and decay problems.
2.11 7.04b	<i>Extended curriculum only.</i>	Estimate gradients of curves by drawing tangents.
2.12 6.05a	<i>Extended curriculum only.</i>	Note that knowledge of function notation is not required in GCSE Mathematics Use function notation, e.g. $f(x) = 3x - 5$, $f: x \rightarrow 3x - 5$, to describe simple functions. Find inverse functions $f^{-1}(x)$. Form composite functions as defined by $gf(x) = g(f(x))$.
6.01b	Simplify algebraic expressions by collecting like terms. e.g. $2a + 3a = 5a$	
6.02d	Recall and use: Circumference of a circle $2\pi r = \pi d$ Area of a circle πr^2 Pythagoras' theorem $a^2 + b^2 = c^2$ Trigonometry formulae $\sin \theta = \frac{o}{h}$, $\cos \theta = \frac{a}{h}$, $\tan \theta = \frac{o}{a}$	Recall and use: The quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Sine rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ Cosine rule $a^2 = b^2 + c^2 - 2bc \cos A$ Area of a triangle $\frac{1}{2}ab \sin C$



Ref.	Algebra and graphs – Core curriculum	Algebra and graphs – Extended curriculum
6.02e	Use: $v = u + at$ $s = ut + \frac{1}{2}at^2$ $v^2 = u^2 + 2as$ where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from position when $t = 0$ and t is time taken.	
6.03e		Find approximate solutions to equations using systematic sign-change methods (for example, decimal search or interval bisection) when there is no simple analytical method of solving them. Specific methods will not be requested in the assessment.
7.01e		Recognise and sketch the graphs of $y = \sin x$, $y = \cos x$ and $y = \tan x$
7.01f		Recognise and use the equation of a circle with centre at the origin.
7.03a		Identify and sketch translations and reflections of a given graph (or the graph of a given equation). [Knowledge of function notation will not be required] [<i>see also Functions, 6.05a</i>] e.g. Sketch the graph of $y = \sin x + 2$ $y = (x + 2)^2 - 1$ $y = -x^2$



Ref.	Geometry – Core curriculum	Geometry – Extended curriculum
3.1 8.01a 8.01b 8.01c 8.01d 9.02a 9.02b 9.04a 10.01c	<p>Use and interpret the geometrical terms: point, line, parallel, bearing, right angle, acute, obtuse and reflex angles, perpendicular, similarity and congruence.</p> <p>Use and interpret vocabulary of triangles, quadrilaterals, circles, polygons and simple solid figures including nets.</p>	<p>Use and interpret the geometrical terms: point, line, parallel, bearing, right angle, acute, obtuse and reflex angles, perpendicular, similarity and congruence.</p> <p>Use and interpret vocabulary of triangles, quadrilaterals, circles, polygons and simple solid figures including nets.</p>
3.2 8.01e 8.01f 8.02a 8.02b	<p>Measure lines and angles.</p> <p>Construct a triangle given the three sides using ruler and pair of compasses only.</p> <p>Construct other simple geometrical figures from given data using ruler and protractor as necessary.</p> <p>Construct angle bisectors and perpendicular bisectors using straight edge and pair of compasses only.</p>	<p>Measure lines and angles.</p> <p>Construct a triangle given the three sides using ruler and pair of compasses only.</p> <p>Construct other simple geometrical figures from given data using ruler and protractor as necessary.</p> <p>Construct angle bisectors and perpendicular bisectors using straight edge and pair of compasses only.</p>
3.3 8.01e 10.01c	<p>Read and make scale drawings.</p>	<p>Read and make scale drawings.</p>
3.4 9.04a 9.04c	<p>Calculate lengths of similar figures.</p>	<p>Calculate lengths of similar figures.</p> <p>Use the relationships between areas of similar triangles, with corresponding results for similar figures and extension to volumes and surface areas of similar solids.</p>
3.5 8.04c 8.05e 8.05f 8.06a	<p>Recognise rotational and line symmetry (including order of rotational symmetry) in two dimensions.</p>	<p>Recognise rotational and line symmetry (including order of rotational symmetry) in two dimensions.</p> <p>Recognise symmetry properties of the prism (including cylinder) and the pyramid (including cone).</p> <p>Use the following symmetry properties of circles:</p> <ul style="list-style-type: none"> • equal chords are equidistant from the centre • the perpendicular bisector of a chord passes through the centre • tangents from an external point are equal in length.



Ref.	Geometry – Core curriculum	Geometry – Extended curriculum
3.6 8.03a 8.03b 8.03c 8.03d 8.04a 8.04b 8.05a 8.05b 8.05c 8.05d 8.05e 8.05f 8.05h	Calculate unknown angles using the following geometrical properties: <ul style="list-style-type: none"> • angles at a point • angles at a point on a straight line and intersecting straight lines • angles formed within parallel lines • angle properties of triangles and quadrilaterals • angle properties of regular polygons • angle in a semi-circle • angle between tangent and radius of a circle. 	Calculate unknown angles using the following geometrical properties: <ul style="list-style-type: none"> • angles at a point • angles at a point on a straight line and intersecting straight lines • angles formed within parallel lines • angle properties of triangles and quadrilaterals • angle properties of regular polygons • angle in a semi-circle • angle between tangent and radius of a circle. • angle properties of irregular polygons • angle at the centre of a circle is twice the angle at the circumference • angles in the same segment are equal • angles in opposite segments are supplementary; cyclic quadrilaterals.
3.7 8.02a 8.02b 8.02d	Use the following loci and the method of intersecting loci for sets of points in two dimensions which are: <ul style="list-style-type: none"> • at a given distance from a given point • at a given distance from a given straight line • equidistant from two given points • equidistant from two given intersecting straight lines. 	Use the following loci and the method of intersecting loci for sets of points in two dimensions which are: <ul style="list-style-type: none"> • at a given distance from a given point • at a given distance from a given straight line • equidistant from two given points • equidistant from two given intersecting straight lines.
8.02c	Construct the perpendicular from a point to a line. Construct the perpendicular to a line at a point. Know that the perpendicular distance from a point to a line is the shortest distance to the line.	
8.05g		The alternate segment theorem Apply and prove: for a point P on the circumference, the angle between the tangent and a chord through P equals the angle subtended by the chord in the opposite segment.



Ref.	Mensuration – Core curriculum	Mensuration – Extended curriculum
4.1 10.01a	Use current units of mass, length, area, volume and capacity in practical situations and express quantities in terms of larger or smaller units.	Use current units of mass, length, area, volume and capacity in practical situations and express quantities in terms of larger or smaller units.
4.2 10.02a 10.02c 10.03a 10.03b 10.03c 10.03e	Carry out calculations involving the perimeter and area of a rectangle, triangle, parallelogram and trapezium and compound shapes derived from these.	Carry out calculations involving the perimeter and area of a rectangle, triangle, parallelogram and trapezium and compound shapes derived from these.
4.3 10.02b 10.03d	Carry out calculations involving the circumference and area of a circle.	Carry out calculations involving the circumference and area of a circle. Solve problems involving the arc length and sector area as fractions of the circumference and area of a circle.
4.4 10.04a 10.04b 10.04c	Carry out calculations involving the volume of a cuboid, prism and cylinder and the surface area of a cuboid and a cylinder.	Carry out calculations involving the volume of a cuboid, prism and cylinder and the surface area of a cuboid and a cylinder. Carry out calculations involving the surface area and volume of a sphere, pyramid and cone.
4.5 10.03e 10.04b	Carry out calculations involving the areas and volumes of compound shapes.	Carry out calculations involving the areas and volumes of compound shapes.
8.06b	Interpret plans and elevations of simple 3D solids. Construct plans and elevations of simple 3D solids, and representations (e.g. using isometric paper) of solids from plans and elevations.	



Ref.	Co-ordinate geometry – Core curriculum	Co-ordinate geometry – Extended curriculum
5.1 7.01a 8.01g	Demonstrate familiarity with Cartesian co-ordinates in two dimensions.	Demonstrate familiarity with Cartesian co-ordinates in two dimensions.
5.2 7.02a	Find the gradient of a straight line.	Find the gradient of a straight line. Calculate the gradient of a straight line from the co-ordinates of two points on it.
5.3	<i>Extended curriculum only.</i>	Calculate the length and the co-ordinates of the midpoint of a straight line from the co-ordinates of its end points.
5.4 7.02a	Interpret and obtain the equation of a straight line graph in the form $y = mx + c$.	Interpret and obtain the equation of a straight line graph in the form $y = mx + c$.
5.5 7.02b	Determine the equation of a straight line parallel to a given line.	Determine the equation of a straight line parallel to a given line.
5.6 7.02b	<i>Extended curriculum only.</i>	Find the gradient of parallel and perpendicular lines.



Ref.	Trigonometry – Core curriculum	Trigonometry – Extended curriculum
6.1 10.01c	Interpret and use three-figure bearings.	Interpret and use three-figure bearings.
6.2 10.05a 10.05b	Apply Pythagoras' theorem and the sine, cosine and tangent ratios for acute angles to the calculation of a side or of an angle of a right-angled triangle.	Apply Pythagoras' theorem and the sine, cosine and tangent ratios for acute angles to the calculation of a side or of an angle of a right-angled triangle. Solve trigonometrical problems in two dimensions involving angles of elevation and depression. Extend sine and cosine values to angles between 90° and 180°.
6.3 10.03a 10.05d 10.05e	<i>Extended curriculum only.</i>	Solve problems using the sine and cosine rules for any triangle and the formula area of triangle = $\frac{1}{2}ab \sin C$
6.4 10.05b	<i>Extended curriculum only.</i>	Solve simple trigonometrical problems in three dimensions including angle between a line and a plane.
10.05c	Know the exact values of $\sin \theta$ and $\cos \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ$ and 90° . Know the exact value of $\tan \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ$ and 60° .	



Ref.	Matrices and transformations – Core curriculum	Matrices and transformations – Extended curriculum
7.1 9.03a 9.03b	Describe a translation by using a vector represented by e.g. $\begin{pmatrix} x \\ y \end{pmatrix}$, \vec{AB} or a . Add and subtract vectors. Multiply a vector by a scalar.	Describe a translation by using a vector represented by e.g. $\begin{pmatrix} x \\ y \end{pmatrix}$, \vec{AB} or a . Add and subtract vectors. Multiply a vector by a scalar.
7.2 9.01a 9.01b 9.01c 9.04b	Reflect simple plane figures in horizontal or vertical lines. Rotate simple plane figures about the origin, vertices or midpoints of edges of the figures, through multiples of 90° . Construct given translations and enlargements of simple plane figures. Recognise and describe reflections, rotations, translations and enlargements.	Reflect simple plane figures in horizontal or vertical lines. Rotate simple plane figures about the origin, vertices or midpoints of edges of the figures, through multiples of 90° . Construct given translations and enlargements of simple plane figures. Recognise and describe reflections, rotations, translations and enlargements.
7.3 9.03b	<i>Extended curriculum only.</i>	Calculate the magnitude of a vector $\begin{pmatrix} x \\ y \end{pmatrix}$, as $\sqrt{x^2 + y^2}$. Represent vectors by directed line segments. Use the sum and difference of two vectors to express given vectors in terms of two coplanar vectors. Use position vectors.
7.4	<i>Extended curriculum only.</i>	Display information in the form of a matrix of any order. Calculate the sum and product (where appropriate) of two matrices. Calculate the product of a matrix and a scalar quantity. Use the algebra of 2×2 matrices including the zero and identity 2×2 matrices. Calculate the determinant $ \mathbf{A} $ and inverse \mathbf{A}^{-1} of a non-singular matrix \mathbf{A} .



Ref.	Matrices and transformations – Core curriculum	Matrices and transformations – Extended curriculum
7.5 9.01d	<i>Extended curriculum only.</i>	Use the following transformations of the plane: reflection (M), rotation (R), translation (T), enlargement (E), and their combinations. Identify and give precise descriptions of transformations connecting given figures Describe transformations using co-ordinates and matrices (singular matrices are excluded).



Ref.	Probability – Core curriculum	Probability – Extended curriculum
8.1 11.01d 11.02a	Calculate the probability of a single event as either a fraction, decimal or percentage.	Calculate the probability of a single event as either a fraction, decimal or percentage.
8.2 11.01a	Understand and use the probability scale from 0 to 1.	Understand and use the probability scale from 0 to 1.
8.3 11.02e	Understand that the probability of an event occurring = 1 – the probability of the event not occurring.	Understand that the probability of an event occurring = 1 – the probability of the event not occurring.
8.4 11.01b 11.01c	Understand relative frequency as an estimate of probability.	Understand relative frequency as an estimate of probability.
8.5 11.02a 11.02d 11.02e 11.02f	<i>Extended curriculum only.</i>	Calculate the probability of simple combined events, using possibility diagrams and tree diagrams where appropriate.



Ref.	Statistics – Core curriculum	Statistics – Extended curriculum
9.1 12.02a	Collect, classify and tabulate statistical data. Read, interpret and draw simple inferences from tables and statistical diagrams.	Collect, classify and tabulate statistical data. Read, interpret and draw simple inferences from tables and statistical diagrams.
9.2 12.02a 12.02b 12.03c	Construct and read bar charts, pie charts, pictograms, simple frequency distributions, histograms with equal intervals and scatter diagrams.	Construct and read bar charts, pie charts, pictograms, simple frequency distributions, histograms with equal and unequal intervals and scatter diagrams.
9.3 12.03a	Calculate the mean, median, mode and range for individual and discrete data and distinguish between the purposes for which they are used.	Calculate the mean, median, mode and range for individual and discrete data and distinguish between the purposes for which they are used.
9.4 12.03a	<i>Extended curriculum only.</i>	Calculate an estimate of the mean for grouped and continuous data. Identify the modal class from a grouped frequency distribution.
9.5 12.02b	<i>Extended curriculum only.</i>	Construct and use cumulative frequency diagrams.
9.6 12.03c	Understand what is meant by positive, negative and zero correlation with reference to a scatter diagram.	Understand what is meant by positive, negative and zero correlation with reference to a scatter diagram.
9.7 12.03c	Draw a straight line of best fit by eye.	Draw a straight line of best fit by eye.
11.02b	Use systematic listing strategies.	Use the product rule for counting numbers of outcomes of combined events.
12.01a	Define the population in a study, and understand the difference between population and sample. Infer properties of populations or distributions from a sample. Understand what is meant by simple random sampling, and bias in sampling.	Define the population in a study, and understand the difference between population and sample. Infer properties of populations or distributions from a sample. Understand what is meant by simple random sampling, and bias in sampling.
12.03b	Recognise graphical misrepresentation through incorrect scales, labels, etc.	Recognise graphical misrepresentation through incorrect scales, labels, etc.
12.03d	Identify an outlier in simple cases. Appreciate there may be errors in data from values (outliers) that do not 'fit'. Recognise outliers on a scatter graph.	Identify an outlier in simple cases. Appreciate there may be errors in data from values (outliers) that do not 'fit'. Recognise outliers on a scatter graph.



Your checklist

Our aim is to provide you with all the information and support you need to deliver our specifications.

- Bookmark www.ocr.org.uk/gcsemaths for all the latest resources, information and news on GCSE (9-1) maths
- Be among the first to hear about support materials and resources as they become available – register for mathematics updates at www.ocr.org.uk/updates
- Find out about our professional development at www.cpdhub.ocr.org.uk
- View our range of skills guides for use across subjects and qualifications at www.ocr.org.uk/skillsguides
- Discover our new online past paper service at www.ocr.org.uk/examcreator
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General qualifications

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