Qualification specification

NCFE Level 3 Certificate in Mathematics for Everyday Life
QN: 603/3437/X

Contents

Summary of changes

This section summarises the changes to this Qualification Specification since the last version (version 1.2 December 2019)

Version	Publication Date	Summary of amendments
v1.2	December 2019	Learning resources section added too Section 1 which includes information regarding the wellbeing and safeguarding of learners (page 19). Information regarding the aggregation methods and grade thresholds added to Section 4 (page 49).
v2	March 2021	Grade descriptor information updated, including the addition of a descriptor for grade C (page 48−50).
v2.1	January 2022	Paragraph added in regarding external quality assurance for graded qualifications.

Section 1

Qualification overview

Qualification overview

Introduction

We want to make your experience of working with NCFE as pleasant and easy as possible. This Qualification Specification contains everything you need to know about this qualification and should be used by everyone involved in the planning, delivery and assessment of the Level 3 Certificate in Mathematics for Everyday Life.

All information contained in this specification is correct at the time of publishing.

To ensure that you're using the most up-to-date version of this Qualification Specification, please check the issue date in the page headers against that of the Qualification Specification on the NCFE website.

If you advertise this qualification using a different or shortened name, you must ensure that learners are aware that their final certificate will state the regulated qualification title of Level 3 Certificate in Mathematics for Everyday Life.

Things you need to know

Qualification number (QN)	603/3437/X
Aim reference	6033437X
Total Qualification Time (TQT)	270
Guided Learning Hours (GLH)	180
Level	3
Grade	A, B, C, D, E. If learners do not gain enough marks for a grade E, they will receive a U (unclassified) grade.
Centre for Innovation in Mathematics Teaching	We're delighted to inform you that this qualification has been developed in conjunction with the **Centre for Innovation in Mathematics Teaching (CIMT).** CIMT is a research and development centre dedicated to helping teachers to enhance the mathematical progress of their learners. They work across all sectors of education, nationally and internationally. CIMT is run by teachers, for teachers, with the aim of enhancing, improving and sustaining mathematics teaching and learning at all Key Stages for the benefit of learners, parents and carers, trainee teachers, teachers and Tutors. As well as our own resources, CIMT's website also has a number of free resources which can be used to support delivery of this qualification. Please visit their website for more information: www.cimt.org.uk/.
Assessment overview	This is a linear qualification (please see page 12 for further information) and has external assessment only. There are **2** mandatory external assessment papers. Learners **must** attempt both papers in the same series. The external assessment papers are set and marked by NCFE. Paper 1 is a written external assessment paper. Paper 2* is a written external assessment paper with pre-release material and will be contextualised to the following vocations and areas of interest: • business and administration **or** • engineering and manufacturing **or**

	• health and science. The mathematics covered in all vocations/areas of interest will be the same; it is only the contextualisation that will differ. *Centres will enter learners for one of these vocations/areas of interest when they enter their learners. The external assessment element is mandatory and centres are not permitted to amend the assessment materials.
Contextualisation	To support the application of the mathematical and statistical problem solving techniques learners will develop throughout the duration of this qualification, resources have been contextualised to the following vocations and areas of interest: • business and administration • engineering and manufacturing • health and science. The contextualisation means learners will be presented with issues and stories that are meaningful and/or of interest to them. The contextualisation is not rigid and will be applied in the widest sense; for example: • business and administration will be complementary to other Level 3 provision, including A Levels, and can be associated to a broad range of vocations and areas of interest • engineering and manufacturing may range from construction to design • health and science may range from medical science to sport science. The vocations and areas of interest selected for the contextualisation of this qualification will be regularly reviewed. The contextualised resources provided are not mandatory, but we strongly recommend that they are used for the delivery of this qualification. **Contextualisation in the external assessment** As outlined in the 'Assessment overview' section above, contextualisation will occur in Paper 2. 2 of the questions on this external assessment paper will contain scenarios relevant to the vocations and areas of interest listed above.

Total qualification time (TQT)

Total Qualification Time is the number of notional hours which represents an estimate of the total amount of time that could reasonably be expected to be required in order for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.

Total Qualification Time comprises:

- the Guided Learning Hours for the qualification
- an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by – but not under the immediate guidance or supervision of – a lecturer, supervisor, Tutor or other appropriate provider of education or training.

About this qualification

This is a regulated qualification. The regulated number for this qualification is 603/3437/X.

This qualification meets the Core Maths Technical Guidance published by the Department for Education (DfE) and is approved for inclusion in the 16-19 performance tables from 2020. Core Maths has been introduced by the DfE to address the issue of poor progression in mathematics from age 16, by offering an opportunity for students not studying AS or A level mathematics to study a Level 3 mathematics course alongside their main programme of study. This qualification is therefore suitable for use within a Study Programme.

Core Maths is a descriptor for a range of qualifications; it is not a qualification title. Core Maths qualifications will count within the proposed Level 3 maths measure in the 16-19 performance tables from 2017. The Level 3 Certificate in Mathematics for Everyday Life is included within this measure.

This qualification may be eligible for funding. For further guidance on funding, please contact your local funding provider.

UCAS points

The qualification will attract the following UCAS points:

- A: 20
- B: 16
- C: 12
- D: 10
- E: 6

Performance points

The qualification will attract the following performance points in the 16-19 performance tables:

- A: 25
- B: 20
- C: 15
- D: 10
- E: 5

Delivery

This qualification is designed to be taken over 2 years. However, centres may run the qualification over a shorter period of time at their discretion. Centres must pay attention to when the assessment dates are. Please see Section 3 for further information on assessment dates.

Linear qualifications

This qualification is linear.

Linear qualifications are designed to allow centres to deliver the qualification in a joined up way, rather than in unitised chunks (modular). Linear qualifications allow learners the opportunity to develop their understanding of the subject over the length of the qualification, giving more scope for drawing topics and ideas together when being taught and assessed.

Learners will take **all** of their assessments at the end of the qualification (typically 2 years). There are 2 external assessments for this qualification, therefore learners must take **both** assessments in the same series. If learners do not achieve the qualification, learners must retake **both** assessments in the following series.

Learners will be issued with an overall grade for the qualification. Marks for each external assessment will be added together and this total mark will determine the learner's grade, based on the qualification grade boundaries.

Qualification purpose

This qualification enables post-16 learners to retain, deepen and extend their mathematical understanding. This is achieved through using mathematics to solve meaningful and relevant problems which will prepare learners for university, academic or vocational learning, employment and life. The word 'life' in our qualification title refers to all aspects of future needs.

This qualification addresses the specific needs of learners by providing a core of key themes. These are based in part on specific contexts and areas of interest that will complement a learner's main programme of study.

The key themes are:

- A: Understanding personal finance
- B: Understanding commerce
- C: Understanding chance
- D: Understanding data.

Mathematical problem solving will be contextualised in the following vocations and areas of interest:

- business and administration
- engineering and manufacturing
- health and science.

Our proposed teaching and learning strategy is based around current events, ensuring it is meaningful and relevant to learners, parents, employers and FE/HE providers. We will provide resources that include a wealth of contexts and problems and will encourage an open problem solving approach to mathematics. This will work well in a range of centre types and sector areas. These problems will not only form a starting point for lesson planning but will also give learners the opportunity to make critical judgements of reports in the media and current affairs.

This qualification will show why mathematics and statistics are important topics, providing strong motivation for learners and hence increasing uptake of Level 3 mathematics qualifications. The content, teaching strategy and assessment meets the needs of learners, providing them with transferable skills in mathematics and statistics.

This qualification will:

- focus on the study of mathematics and statistics
- offer breadth and depth of study, incorporating a key core of knowledge
- provide opportunities to acquire a number of practical and technical skills.

Qualification objectives

The objectives of this qualification are to:

- deepen competence in the selection and use of mathematical methods and techniques
- develop confidence in representing and analysing authentic situations mathematically and in applying mathematics to address related questions and issues
- build skills in mathematical thinking, reasoning and communication.

Achieving this qualification

To be awarded the Level 3 Certificate in Mathematics for Everyday Life, learners must achieve a minimum of a grade E from **across** the external assessments.

Learners are required to attempt **both** external assessment papers. If learners do not attempt one of the assessments, or fail to reach the minimum standard from across both assessments, they will receive a U grade.

Learners who are not successful must retake the qualification. Learners must sit both external assessments in the same series.

A unit certificate is not available for this qualification.

This qualification is graded. For further information about grading, please see Section 4.

Entry guidance

This qualification is designed for post-16 learners studying a Key Stage 5 curriculum.
The qualification is suitable for those with a grade of 4 or above in GCSE maths at age 16 (or equivalent), who are not taking AS/A Level maths or a Level 3 International Baccalaureate (IB) mathematics certificate as part of their 16–19 study programme.

Some of the content in this qualification draws on higher tier GCSE topics as well as content drawn from beyond GCSE; however, the qualification is still suitable for those learners who have sat the foundation tier GCSE mathematics and achieved a grade 4 or above. Entry is at the discretion of the centre.

Equivalent Level 2 qualifications may also be used as entry onto this qualification at the centre's discretion; however, we recommend that centres check the funding rules.

Centres are responsible for ensuring that this qualification is appropriate for the age and ability of learners. They need to make sure that learners can fulfil the requirements of the qualification with the relevant literacy, numeracy and health and safety aspects of this qualification.

Learners registered on this qualification should not undertake another qualification at the same level with the same or a similar title, as duplication of learning may affect funding eligibility.

Progression opportunities

Learners who achieve this qualification could progress onto a range of higher education courses and/or employment, across a broad range of academic, professional, creative and technical fields. For example, the inclusion of decision mathematics and statistics as well as graphical techniques will prepare learners for careers in management, finance, business, engineering, manufacturing, health, science, geographical studies, agriculture, operational research and industry, as well as prepare learners for further educational study.

Progression to Higher Level Studies

This qualification aims to provide learners with a number of progression options, including higher level studies at university or FE colleges. The skills required to progress to higher academic studies are different from those required at Levels 1 and 2. Level 3 qualifications enable the development of these skills. Although there is no single definition of higher level learning skills, they include:

- checking and testing information
- supporting your points with evidence
- self-directed study
- self-motivation
- thinking for yourself
- analysing and synthesising information/materials
- critical thinking and problem solving
- reflecting upon learning and identifying improvements.

Level 3 criteria can require learners to **analyse**, **draw conclusions**, **interpret** or **justify**, which are all examples of higher level skills. This means that evidence provided for the portfolio will also demonstrate the development and use of higher level learning skills.

Qualification dates

Regulated qualifications have operational end dates and certification end dates.

We review qualifications regularly, working with sector representatives, vocational experts and stakeholders to make any changes necessary to meet sector needs and to reflect recent developments.

If a decision is made to withdraw a qualification, we will set an operational end date and provide reasonable notice to our centres. We will also take all reasonable steps to protect the interest of learners.

An operational end date will only show on the Ofqual Register of Regulated Qualifications register.ofqual.gov.uk and on our website if a decision has been made to withdraw a qualification. After this date, we can no longer accept learner registrations. However, certification is allowed until the certification end date so that learners have time to complete any programmes of study. The certification end date will only show on the Ofqual Register once an operational end date has been set. After this date, we can no longer process certification claims.

Where a qualification has an external assessment, this can only be taken up to the last assessment date set by us. No external assessments will be permitted after this date so learners will need to be entered in sufficient time.

Staffing requirements

Centres delivering any of NCFE's qualifications must:

- ensure that all staff involved in delivery are provided with appropriate training and undertake meaningful and relevant continuing professional development (CPD)
- provide all staff involved with sufficient time and resources to carry out their roles effectively.

Resource requirements

Centres/learners should have access to:

- black pen
- scientific calculator or a graphics calculator with 2 variable statistical functions (for example, Casio fx-991EX, Texas Ti30-XS); these calculators will also be required in the external assessments
  - calculators that feature symbolic algebraic manipulation are not allowed
  - calculators are subject to the rules in the document 'Instructions for Conducting Examinations' which is published annually by the Joint Council for Qualifications (JCQ) (www.jcq.org.uk)
- pencil (for use in diagrams only – no colour pencils)
- ruler
- pair of compasses
- protractor.

The statistical tables included in this specification will also be required for delivery and centres should provide copies of these to their learners. NCFE will also issue clean copies of these with the external assessment materials.

Support for centres

There are a number of support documents available on the NCFE website that the centres might find useful.

Customer Support team

Our award winning Customer Support team will support you with approvals, registrations, external quality assurance, external assessment, results and certification. To contact your Customer Support assistant, call 0191 239 8000 or email customersupport@ncfe.org.uk

Qualification Support Packs

NCFE will offer a Qualification Support Pack (QSP) for this qualification.

The QSP will include resources that centres can use when planning and delivering the qualification.

The QSP will contain activities that reflect current issues and stories, as well as incorporating the following vocations and areas of interest:

- business and administration
- engineering and manufacturing
- health and science.

The QSP will include the following resources:

- PowerPoints (PPT)
- lesson plans
- scheme of work
- worksheets
- NCFE Math's news
- competency workbook.

These resources are not mandatory and centres may amend these as required.

The QSP for this qualification can be downloaded from the NCFE website

Reasonable Adjustments and Special Considerations Policy

This policy is aimed at customers – including learners – who use our products and services and who submit requests for reasonable adjustments and special considerations. The policy can be found on our dedicated qualifications website www.ncfe.org.uk.

Fees and Pricing

The current Fees and Pricing Guide is available on the NCFE website.

Useful websites

Centres may also find the following websites helpful for materials and resources to assist with the delivery of this qualification:

- The advanced Mathematics Support Programme – www.amsp.org.uk/teachers/core-maths
- The Centre for Innovation in Mathematics Teaching (CIMT) – www.cimt.org.uk/
- Quibans: Questions inspired by a news story – www.quibans.blogspot.com/
- Reality Check – BBC news – www.bbc.co.uk/news/topics/cp7r8vgl2rgt/reality-check
- Get support from your local maths hub – www.gov.uk/guidance/get-support-from-your-local-maths-hub?utm_source=68524211-b886-4f23-b91ee96ee6985a38&utm_medium=email&utm_campaign=govuk-notifications&utm_content=daily
- Get help to increase participation in advanced maths – www.gov.uk/guidance/get-help-to-increase-participation-in-advanced-maths?utm_source=312c7ba2-eedf-4bf3-a2a4-572dd7b44e18&utm_medium=email&utm_campaign=govuk-notifications&utm_content=daily
- Resourceaholic – www.resourceaholic.com/

Learning resources

We offer a wide range of learning resources and materials to support the delivery of our qualifications. Please check the qualification page on our website for more information and to see what is available for this qualification.

The resources and materials used in the delivery of this qualification must be age-appropriate and due consideration should be given to the wellbeing and safeguarding of learners in line with your institute's safeguarding policy when developing or selecting delivery materials.

Section 2

Content

Qualification content introduction

The motivation for this qualification is to enable learners to appreciate the diverse ways in which mathematics can and does impact on their everyday lives.

The intention is that this qualification will be built around mathematical activities that reflect current issues and stories, as well as incorporating certain vocations and areas of interest. This will enable learners to be actively and purposely involved in concrete real world problems. These problems will not only reinforce their learning at GCSE, but also create an opportunity to extend their learning into new areas. As this is very much a problem solving based qualification, it will also raise each learner's ability to think, make decisions and express ideas, and let them feel the joy and meaning in learning mathematics through meaningful activities.

The activities presented will give learners further practice in many of the GCSE maths content areas, such as probability, statistics, number, algebra, ratio, proportion and rates of change, as well as introducing new topics which can be applied to relevant and interesting problems. These topics will include:

- Finance
- Critical Path Analysis
- Linear programming
- Chance in the real world
- Correlation and regression.

It is expected that throughout the qualification, learners will make use of:

- the modelling cycle to represent and solve real world problems
- spreadsheets to model real world situations. Questions within the external assessments may include printouts from spreadsheets which learners will need to complete or interpret
- a scientific calculator or a graphics calculator with 2 variable statistical functions (for example, Casio fx-991EX, Texas Ti30XS); these calculators will also be required in the external assessments.

Calculators that feature symbolic algebraic manipulation are not allowed. Calculators are subject to the rules in the document 'Instructions for Conducting Examinations' which is published annually by JCQ (www.jcq.org.uk). Please see Section 1 for further information on the resources required for this qualification.

There is no expectation that teaching of the GCSE content areas should be repeated during this qualification. Learners, however, will be expected to make use of elements of this content when addressing problems in this qualification.

Higher tier GCSE topics

The content of the qualification does include a range of mathematical methods and techniques taken from the extra topics as highlighted in current specifications of the higher tier GCSE mathematics. These have been specified in the content below under the heading 'Higher tier GCSE topics'.

Challenging mathematical concepts and techniques

The more challenging mathematical concepts and techniques drawn from beyond GCSE, which are relevant to this qualification, are listed in the content section in italic type. Any formulas needed for these concepts will be provided in the external assessments.

Mathematics has many applications; consequently, it is unrealistic to expect any qualification to cover everything needed for living and working in the twenty-first century; however, this qualification covers many of the problems that are faced by young people today.

The content has been divided into 4 themes as follows:

- A: Understanding personal finance
- B: Understanding commerce
- C: Understanding chance
- D: Understanding data.

Level	3
Mandatory/optional	**Mandatory**
Externally assessed	Please note that all information within the 'Content', 'Amplification' and 'Higher tier GCSE topics' columns **must** be covered during the teaching of this qualification and should be considered as **mandatory** teaching content. **All** of which is subject to external assessment. Learners will be assessed against the assessment objectives (AOs) as detailed in Section 3. These AOs will provide a consistent framework for learners and are applied synoptically, allowing learners to show their knowledge, understanding and skills from across the full breadth of the qualification.

A. Understanding personal finance

Learners will develop an understanding of setting up, solving and interpreting solutions to financial problems, including those that involve compound interest, using iterative methods and problems involving appreciation/depreciation.

Sub theme	Content	Amplification	Higher tier GCSE topics
A1. Saving money	• Interest rates (simple/compound) – savings and investments including *annual equivalent rates (AER).*		• Express exponential growth or decay as a formula and work with general iterative processes • Solve and interpret answers in growth and decay problems • Recognise and sketch graphs of exponential functions in the form $y = k^x$ for positive k.

A. Understanding personal finance cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics

A2. Earning money	• *Wages, salary, to include:*
	    – *gross pay*
	    – *net pay*
	    – *income tax*
	    – *National Insurance*
	    – *pension costs.*
		Wages, salary, to include:
		• *rates of pay*
		• *weekly/monthly/yearly salary*
		• *flat rate*
		• *overtime*
		• *piece work*
		• *commission*
		• *claiming expenses*
		• *retainers*
		• *zero hour contracts.*
		Income tax, National Insurance, pension costs, to include:
		• *national living wage*
		• *national minimum wage.*	

A3. Spending money	• Budgeting (balancing incomings and outgoings) • Buying on credit, including interest rates and using credit cards/debit cards • Value added tax.	To include: • buying on credit using credit cards/debit cards and the consequences of delayed payments (debt).	

A4. Borrowing money	• Loans, including student loans:
	    – repayment of student loans including current legislation
	• Simple interest/compound interest:
	    – *pay day loans*
	    – *bank loans/overdrafts*
	    – *annual percentage rate (APR).*
			• Interpret the gradient at a point on a curve as the instantaneous rate of change
			• Apply the concepts of average and instantaneous rate of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts.

A. Understanding personal finance cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
A5. Protecting your money	*Insurance,* to include: • life insurance • holiday insurance • car insurance • buildings and content insurance.		

A6. Solving financial problems	• *The effects of inflation including:*
	  – *Retail Price Index (RPI)*
	  – *Customer Price Index (CPI)*
	• Currency exchange rates.
		To include:
		• percentage increase/decrease and original value problems
		• the effects of inflation
		• understanding the difference in rates of buying and selling foreign currency
		• the use of commission.	

B. Understanding commerce

Learners will develop confidence in their ability to represent and analyse authentic situations that often arise in commercial and industrial concerns. They will be expected to make judgements about strategies and methods to achieve an optimal solution.

Sub theme	Content	Amplification	Higher tier GCSE topics
B1. Transportation (Networks)	*The minimum connector problem* *Kruskal's algorithm (graphical form only)* *Prim's algorithm (graphical and tabular form), distance tables and networks* *The shortest route problem using Dijkstra's algorithm* *Other algorithms given in a variety of formats.*		
B2. Optimising resources (Critical Path Analysis)	*Activity network (activities represented by arcs, events by nodes) – including the use of precedence table and precedence network* *Critical activities and critical analysis –including forward and backward passes, earliest event times, latest event times, identification of critical activities, critical paths and the calculation of float* - Gantt charts.		

B. Understanding commerce cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
B3. Making decisions (Linear programming in 2 dimensions)	• Identify unknowns, constraints and optimum outcomes • Translate simple situations or procedures in simple algebraic equations and inequalities • Plot graphs of the equations and identify feasible regions • Solve simultaneous equations graphically and algebraically • *Make use of profit lines to find the optimum solution.*	To include: • maximisation problems only • represent the solution set on a graph using the convention of dashed and solid lines • solving linear inequalities in one or two variable(s), (Integer solutions only).	• Plot graphs of the equations and identify feasible regions • Solve simultaneous equations graphically and algebraically • Solve linear inequalities in one or two variable(s) • Represent the solution set on a graph using the convention of dashed and solid lines.
B4. Simulations	• *Test models using random numbers, random number tables, generating random numbers using a calculator and a spreadsheet.*	• Use of two-digit random numbers only • Devise a rule in which sets of random numbers occur with the same probabilities as the outcomes you are simulating • Build and use simple models • Interpret results • Understand the need for repetition.	

C. Understanding chance

Our daily lives are filled with uncertainty seemingly governed by chance. We cope with this uncertainty by estimating the chances of a particular event occurring. Unfortunately, these estimates are often based on 'gut feeling' rather than mathematics. In this section, learners will learn how to quantify uncertainty using experiments, events, outcomes, rules for combining events, conditional probability, counting methods and discrete random variable probability distributions.

Sub theme	Content	Amplification	Higher tier GCSE topics
C1. Thinking about chance*	- Randomness - Probability scale - Experimental probability - Relative frequency - Theoretical probability *The law of large numbers* *Expectation* - Sample space - Frequency tree diagrams - Frequency probability tree diagrams - Combining events - Set notation - Venn diagrams - Independent/dependent events - Conditional probability.	- The law of large numbers says that as the number of experiments increases, the actual ratio of outcomes will converge on the theoretical, or expected, ratio of outcomes - Use of set notation is expected, for example $P(A)$, $P(A')$, $P(A \cup B)$, $P(A \cap B)$, $P(A \mid B)$.	Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams.
C2. Permutations and combinations*	*Arrangements of unlike objects* *Factorial notation* *Understand the difference between permutations and combinations.*	*Use of ^nP_r and ^nC_r.*	Use the product rule for counting numbers of outcomes of combined events.
C3. Discrete random variables	- Use probability functions, given algebraically or in tables - Calculate the expectation (mean), $E(X)$, in simple cases and understand its meaning - Calculate the variance, $Var(X)$, in simple cases.		

C. Understanding chance cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
C4. Binomial distribution	• Recognise situations that give rise to a binomial distribution • Identify the binomial parameter p, the probability of success • Calculate probabilities using the binomial distribution • Calculate the expected frequencies of various possible outcomes from a series of binomial trials • Understand and apply the mean = np.		
C5. Normal distribution	• *Characteristics of the Normal distribution curve* • *Standard using the variable* • *Using the notation N(0,1) for a standardised Normal distribution* • *Use a calculator or Normal distribution tables to find probabilities or estimate population proportions for normally distributed data with known mean and standard deviation in the context of a problem.*	• Finding of an unknown mean or standard deviation by making use of percentage points will not be required.	

*Centres can deliver the mathematics using real world contexts, these may include, amongst other contexts:
• understanding the mathematics behind risk such as insurance and gambling, including the lottery, scratch cards, slot machines, roulette, horse racing, winning systems
• understanding that gambling models always favour the house.

D. Understanding data

Our twenty-first century world is flooded with data. In this section, learners will develop a deeper understanding of the meaning and comprehension of data as they collect, analyse, present and interpret data arising from our data-saturated world.

Sub theme	Content	Amplification	Higher tier GCSE topics

D1. Generating data	• Measurements
	  – variables
	  – *validity*
	  – *accuracy*
	  – *bias*
	  – *reliability*
	• *Data ethics*
	• Surveys, census questionnaires, observations, experiments
	• Population
	• Samples
	  – simple random
	  – stratified
	  – quota
	  – cluster
	  – systematic
	  – multistage.		

D2. Picturing distributions with graphs	• Individuals and variables • Categorical (qualitative) variables – pie charts, bar graphs • Quantitative variables • Histograms • Symmetric and skewed distributions • Stem and leaf plots • Dot plots • Time series • Cumulative frequency diagrams.		• Construct and interpret diagrams for grouped discrete data and continuous data, ie histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use.

D. Understanding data cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
D3. Describing distributions with numbers	- Measure the centre - mean - median - mode - Measure spread - range - quartiles - interquartile range 5 number summary and boxplots - Consider outliers when calculating the range of distribution *Identify outliers as LQ – 1.5 x IQR and large outliers as > UQ + 1.5 x IQR* *Measure spread standard deviation and variance* *Calculate standard deviation and variance using a scientific calculator, including grouped data* *Identify outliers as any number being outside of $\mu \pm 2\sigma$* - Choose the most appropriate measures - Organise a statistical problem.	Please note: - The 5 number summary corresponds to the 5 key values used in a box plot, namely: Q_0 (minimum value) Q_1 (lower quartile or first quartile) Q_2 (median or second quartile) Q_3 (upper quartile or third quartile) Q_4 (maximum value).	- Calculate estimates of mean, mode, range, quartiles and interquartile ranges from graphical representation of grouped data - Draw and interpret box plots - Use the median and interquartile range to compare distributions.
D4. The Normal Distribution	*Density curves* - Normal distributions *Characteristics of the Normal distribution curve* *The 68-95-99.7 rule* *Using the notation $N(\mu, \sigma^2)$ to describe a distribution in terms of the mean and standard deviation.*		

D. Understanding data cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
D5. Describing relationships: scatter graphs and correlation	- Bivariate data - Dependent and independent variables - Plotting and interpreting scatter graphs - Determine the line of best fit by eye *through the double mean point $(\overline{x}, \overline{y})$* *Understanding correlation* *Measuring the strength of correlation using Pearson's product moment correlation coefficient (PMCC) (using a calculator)* *Interpreting the strength of correlation.*	- Identify and understand outliers and make decisions whether or not to include them when drawing a line of best fit - Understand that PMCC always has a value in the range from –1 to +1 - Appreciate the significance of a positive, zero or negative value of PMCC in terms of correlation of data.	
D6. Describing relationships: regression, prediction and causation	*Regression lines* *Regression equations (using a calculator)* *Interpretation of gradient and intercept are expected* - Understand predictions and awareness of issues regarding interpolation and extrapolation *Connect correlation and regression* - Understand the distinction between correlation and causation.	Finding residuals will be excluded.	

D.   Understanding data cont'd

Sub theme	Content	Amplification	Higher tier GCSE topics
D7. Describing relationships: Rank Correlation	• *Measure the strength of correlation using Spearman's rank correlation coefficient (using the formula and a calculator)* • *Interpret Spearman's rank coefficient.*	• *Tied ranks will be excluded* • Being aware that values range on a scale from −1 to +1 • Knowing that values closer to these limits indicate 'stronger' correlation, but no formal interpretation of strength of correlation is expected • Knowing that +1 means perfect agreement and −1 means complete disagreement.	

Why is gambling featured in our specification?

Gambling is widespread in the UK and it is becoming a major problem for young people.

Young people can encounter gambling through many channels, including social media, advertisements and computer games, where gambling can be seen to be encouraged.

The leading problem gambling charity GambleAware has voiced concerns about, is a lack of education available to young people about the risks involved in gambling.

We want this qualification to help address the gap between perception and the mathematical realities of gambling and, in particular, in understanding that the odds are stacked heavily against the gambler.

We are encouraging our centres to allow their learners to develop evidence-based awareness of the common forms of gambling prevalent in our country today, such as the lottery, scratch cards, slot machines, roulette and horse racing, as well as studying the mathematics behind these forms of gambling.

We expect centres to emphasise that gambling models always favour the house and that so-called 'winning systems' simply do not exist in reality.

We recommend that schools and colleges inform parents and carers about the rationale behind this approach through direct contact to prevent any misunderstanding.

Formulas

It is assumed that learners will know the common formulas learnt in the GCSE mathematics criteria. Any other formulas required will be provided in the external assessment papers.

Statistical tables

The following statistical tables will also be required for the external assessments. NCFE will issue clean copies of these with the external assessment papers.

A. The Normal distribution: values of $\Phi(z) = p$
B. The Inverse Normal function: values of $\Phi^{-1}(p) = z$
C. Random digit table.

A. The Normal distribution: values of $\Phi(z) = p$

The table gives the probability, p, of a random variable distributed as N(0,1) being less than z.
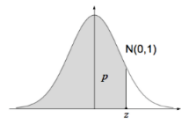
z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

B. The Inverse Normal function: values of $\Phi^{-1}(p) = z$

z	0	0.001	0.002	0.003	0.004	0.005	0.006	0.007	0.008	0.009
0.50	0.0000	0.0025	0.0050	0.0075	0.0100	0.0125	0.0150	0.0175	0.0201	0.0226
0.51	0.0251	0.0276	0.0301	0.0326	0.0351	0.0376	0.0401	0.0426	0.0451	0.0476
0.52	0.0502	0.0527	0.0552	0.0577	0.0602	0.0627	0.0652	0.0677	0.0702	0.0728
0.53	0.0753	0.0778	0.0803	0.0828	0.0853	0.0878	0.0904	0.0929	0.0954	0.0979
0.54	0.1004	0.1030	0.1055	0.1080	0.1105	0.1130	0.1156	0.1181	0.1206	0.1231
0.55	0.1257	0.1282	0.1307	0.1332	0.1358	0.1383	0.1408	0.1434	0.1459	0.1484
0.56	0.1510	0.1535	0.1560	0.1586	0.1611	0.1637	0.1662	0.1687	0.1713	0.1738
0.57	0.1764	0.1789	0.1815	0.1840	0.1866	0.1891	0.1917	0.1942	0.1968	0.1993
0.58	0.2019	0.2045	0.2070	0.2096	0.2121	0.2147	0.2173	0.2198	0.2224	0.2250
0.59	0.2275	0.2301	0.2327	0.2353	0.2378	0.2404	0.2430	0.2456	0.2482	0.2508
0.60	0.2533	0.2559	0.2585	0.2611	0.2637	0.2663	0.2689	0.2715	0.2741	0.2767
0.61	0.2793	0.2819	0.2845	0.2871	0.2898	0.2924	0.2950	0.2976	0.3002	0.3029
0.62	0.3055	0.3081	0.3107	0.3134	0.3160	0.3186	0.3213	0.3239	0.3266	0.3292
0.63	0.3319	0.3345	0.3372	0.3398	0.3425	0.3451	0.3478	0.3505	0.3531	0.3558
0.64	0.3585	0.3611	0.3638	0.3665	0.3692	0.3719	0.3745	0.3772	0.3799	0.3826
0.65	0.3853	0.3880	0.3907	0.3934	0.3961	0.3989	0.4016	0.4043	0.4070	0.4097
0.66	0.4125	0.4152	0.4179	0.4207	0.4234	0.4261	0.4289	0.4316	0.4344	0.4372
0.67	0.4399	0.4427	0.4454	0.4482	0.4510	0.4538	0.4565	0.4593	0.4621	0.4649
0.68	0.4677	0.4705	0.4733	0.4761	0.4789	0.4817	0.4845	0.4874	0.4902	0.4930
0.69	0.4959	0.4987	0.5015	0.5044	0.5072	0.5101	0.5129	0.5158	0.5187	0.5215
0.70	0.5244	0.5273	0.5302	0.5330	0.5359	0.5388	0.5417	0.5446	0.5476	0.5505
0.71	0.5534	0.5563	0.5592	0.5622	0.5651	0.5681	0.5710	0.5740	0.5769	0.5799
0.72	0.5828	0.5858	0.5888	0.5918	0.5948	0.5978	0.6008	0.6038	0.6068	0.6098
0.73	0.6128	0.6158	0.6189	0.6219	0.6250	0.6280	0.6311	0.6341	0.6372	0.6403
0.74	0.6433	0.6464	0.6495	0.6526	0.6557	0.6588	0.6620	0.6651	0.6682	0.6713
0.75	0.6745	0.6776	0.6808	0.6840	0.6871	0.6903	0.6935	0.6967	0.6999	0.7031
0.76	0.7063	0.7095	0.7128	0.7160	0.7192	0.7225	0.7257	0.7290	0.7323	0.7356
0.77	0.7388	0.7421	0.7454	0.7488	0.7521	0.7554	0.7588	0.7621	0.7655	0.7688
0.78	0.7722	0.7756	0.7790	0.7824	0.7858	0.7892	0.7926	0.7961	0.7995	0.8030
0.79	0.8064	0.8099	0.8134	0.8169	0.8204	0.8239	0.8274	0.8310	0.8345	0.8381
0.80	0.8416	0.8452	0.8488	0.8524	0.8560	0.8596	0.8633	0.8669	0.8705	0.8742
0.81	0.8779	0.8816	0.8853	0.8890	0.8927	0.8965	0.9002	0.9040	0.9078	0.9116
0.82	0.9154	0.9192	0.9230	0.9269	0.9307	0.9346	0.9385	0.9424	0.9463	0.9502
0.83	0.9542	0.9581	0.9621	0.9661	0.9701	0.9741	0.9782	0.9822	0.9863	0.9904
0.84	0.9945	0.9986	1.0027	1.0069	1.0110	1.0152	1.0194	1.0237	1.0279	1.0322
0.85	1.0364	1.0407	1.0450	1.0494	1.0537	1.0581	1.0625	1.0669	1.0714	1.0758
0.86	1.0803	1.0848	1.0893	1.0939	1.0985	1.1031	1.1077	1.1123	1.1170	1.1217
0.87	1.1264	1.1311	1.1359	1.1407	1.1455	1.1503	1.1552	1.1601	1.1650	1.1700
0.88	1.1750	1.1800	1.1850	1.1901	1.1952	1.2004	1.2055	1.2107	1.2160	1.2212
0.89	1.2265	1.2319	1.2372	1.2426	1.2481	1.2536	1.2591	1.2646	1.2702	1.2759
0.90	1.2816	1.2873	1.2930	1.2988	1.3047	1.3106	1.3165	1.3225	1.3285	1.3346
0.91	1.3408	1.3469	1.3532	1.3595	1.3658	1.3722	1.3787	1.3852	1.3917	1.3984
0.92	1.4051	1.4118	1.4187	1.4255	1.4325	1.4395	1.4466	1.4538	1.4611	1.4684

0.93	1.4758	1.4833	1.4909	1.4985	1.5063	1.5141	1.5220	1.5301	1.5382	1.5464
0.94	1.5548	1.5632	1.5718	1.5805	1.5893	1.5982	1.6072	1.6164	1.6258	1.6352
0.95	1.6449	1.6546	1.6646	1.6747	1.6849	1.6954	1.7060	1.7169	1.7279	1.7392
0.96	1.7507	1.7624	1.7744	1.7866	1.7991	1.8119	1.8250	1.8384	1.8522	1.8663
0.97	1.8808	1.8957	1.9110	1.9268	1.9431	1.9600	1.9774	1.9954	2.0141	2.0335
0.98	2.0537	2.0749	2.0969	2.1201	2.1444	2.1701	2.1973	2.2262	2.2571	2.2904
0.99	2.3263	2.3656	2.4089	2.4573	2.5121	2.5758	2.6521	2.7478	2.8782	3.0902

C. Random digit table

Row/Col	1	2	3	4	5	6	7	8	9	10	11	12
1	81	69	72	36	47	11	78	73	27	16	50	07
2	23	63	45	59	07	43	63	22	03	84	14	30
3	49	32	47	84	35	22	17	09	01	97	93	45
4	63	81	29	05	64	51	45	20	68	51	94	77
5	09	15	65	91	86	69	79	65	28	11	56	66
6	37	78	90	07	51	75	61	79	14	55	99	85
7	37	51	78	75	76	07	91	37	10	84	88	66
8	45	14	88	43	23	82	39	78	51	76	97	95
9	41	29	12	53	56	84	26	70	51	67	32	19
10	04	06	83	05	20	72	84	58	60	12	64	07
11	17	39	16	61	52	66	32	85	74	43	71	64
12	85	21	42	96	05	50	89	39	22	64	48	96
13	91	57	87	87	83	47	14	47	35	88	16	21
14	58	65	15	53	97	91	94	52	42	44	80	27
15	68	47	43	63	25	54	53	83	36	14	16	89
16	79	50	45	49	72	00	74	55	35	36	25	34
17	18	37	32	79	55	36	78	52	35	17	75	68
18	53	76	47	39	97	61	05	59	24	13	95	46
19	68	27	00	70	73	24	09	85	89	95	45	37
20	44	31	48	39	04	98	67	28	81	60	01	84
21	30	81	84	12	41	82	27	89	76	22	76	62
22	95	13	26	45	88	56	54	16	97	10	58	92
23	98	47	41	39	61	75	83	05	25	60	18	32

24	26	88	55	27	04	47	40	06	35	36	37	21
25	83	19	39	33	80	33	12	94	33	50	78	52
26	01	37	11	02	74	67	30	74	20	96	57	67
27	10	60	10	92	12	96	20	01	68	75	52	84
28	76	56	92	70	38	23	46	03	55	13	69	75
29	60	95	12	53	68	80	97	07	35	63	49	24
30	96	46	42	46	92	81	70	37	65	35	69	45
31	57	26	40	89	50	25	01	77	03	63	27	03
32	74	60	39	85	97	27	67	74	89	98	63	71
33	91	48	41	66	17	54	39	11	47	18	89	32
34	48	52	35	19	73	59	72	76	63	86	00	31
35	24	48	15	13	75	55	49	42	83	34	95	98
36	32	63	55	25	58	27	16	73	91	11	93	91
37	46	96	03	74	84	11	26	83	97	71	53	69
38	79	03	12	10	50	13	70	97	20	52	89	72
39	91	88	26	16	22	77	60	04	41	28	32	18
40	35	07	49	81	95	59	03	36	46	89	55	81
41	07	76	09	18	12	70	73	28	23	43	53	73
42	03	72	58	31	30	83	47	14	17	41	57	60
43	82	43	55	87	38	02	93	96	69	30	29	75
44	70	94	54	41	31	22	41	66	95	18	27	17
45	71	47	54	37	32	12	45	96	78	60	81	98
46	00	77	97	71	36	70	30	25	63	31	65	45
47	32	77	66	92	32	46	54	36	70	74	49	98
48	99	81	48	13	74	71	48	99	99	20	26	50

| 49 | 28 | 92 | 85 | 15 | 47 | 15 | 06 | 57 | 40 | 74 | 64 | 738 |
| 50 | 37 | 38 | 72 | 87 | 00 | 81 | 37 | 70 | 71 | 24 | 31 | 0 |

Section 3

Assessment and quality assurance

Assessment and quality assurance

How the qualification is assessed

Assessment is the process of measuring a learner's skill, knowledge and understanding against the standards set in a qualification.

The assessment for the Level 3 Certificate in Mathematics for Everyday Life consists of **2** written external assessment papers.

Each learner is required to undertake both papers in the same series.

Learners must achieve enough marks from across the external assessment papers to gain the Level 3 Certificate in Mathematics for Everyday Life.

External assessment

A variety of question styles will be used in both external assessment papers, including multiple-choice, short-answer and extended-response questions. This will enable learners to demonstrate their breadth of knowledge and understanding of the subject and ensure achievement at the appropriate level, including stretch and challenge. Questions will be written in plain English and in a way that is supportive and accessible to all learners of all abilities.

All questions should be attempted by the learner to ensure they can achieve the best grade possible, with available marks clearly identified. The written external assessment papers will be carefully constructed following a rigorous quality control process to ensure that the assessments are valid.

External assessments are set and marked by NCFE. The assessments assess learners' knowledge, understanding and skills from content across all four key themes of this qualification. Centres must not assess or internally quality assure external assessments or provide any feedback to the learner about their performance in the external assessment. Centres must also not amend the assessment materials in any way.

The external assessments within this qualification must be invigilated. The assessments have a set date and time. NCFE specifies the exact date and time (as agreed with JCQ) that the external assessments must be administered in the centre.

As this is a linear qualification, learners must undertake both external assessment papers in the same series.

For guidance on conducting external assessments, please refer to the Regulations for the Conduct of External Assessments, available on the NFE website, or contact the Quality Assurance team on 0191 239 8000.

External quality assurance (CACHE and NCFE graded qualifications)

Summatively assessed and internally quality assured grades for at least one completed unit must be submitted via the Portal, prior to an EQA review taking place. Following the EQA review, the unit grades will either be accepted and banked by your external quality assurer or, if they disagree with the grades, they will be rejected. If a grade is rejected, centres must reassess, regrade, internally quality assure and resubmit the new unit grade in line with EQA actions.

Paper 1
Externally set and marked by NCFE

Externally set and marked by NCFE

This is a mandatory written paper with a 40% contribution to the overall grade.

Written external assessment:

- 60 marks
- 1 hour 30 minutes
- a mixture of multiple-choice, short-answer and extended-response questions.

The paper will include:

- Section 1 – 8-10 multiple-choice questions worth 8-10 marks
- Section 2 – a mixture of short-answer and extended-response questions worth a total of 50-52 marks.

The written external assessment paper will target assessment objectives AO1, AO2 and AO3.

The statistical tables required for completion of this external written paper can be found in Section 2 onwards. NCFE will issue a clean copy of the statistical tables to be used with this paper.

Assessment dates will be released on the NCFE website each year.

This assessment must be invigilated and follow the Regulations for the Conduct of External Assessment.

Subject content

This written external assessment paper assesses a learner's knowledge and understanding from the full content area across all 4 key themes.

Paper 2
Externally set and marked by NCFE

Externally set and marked by NCFE

This is a mandatory written paper with a 60% contribution to the overall qualification grade.

Written external assessment:

- 90 marks
- 2 hours
- a mixture of short-answer and extended-response questions
- pre-release material will be issued 4 weeks prior to the external assessment taking place.

The paper will include:

- Section 1 – a mixture of short-answer and extended-response questions worth approximately 26 marks
- Section 2 – a mixture of short-answer and extended-response questions worth approximately 19 marks
- Section 3 – a mixture of contextualised short-answer and extended-response questions worth approximately 19 marks
- Section 4 – a mixture of contextualised short-answer and extended-response questions worth approximately 26 marks.

Sections 3 and 4 within Paper 2 will contain scenarios relevant to the following vocations and areas of interest:

- business and administration **or**
- engineering and manufacturing **or**
- health and science.

These will be presented in the widest sense to ensure we do not disadvantage any learners.

Learners will be entered for one of the contextualised papers on entry.

Pre-release material will be issued 4 weeks prior to the assessment date. Learners will not be able to take their copy of the pre-release material into the assessment with them. NCFE will issue a clean copy of the pre-release material with the paper.

The written external assessment paper will target assessment objectives AO1, AO2 and AO3.

The statistical tables required for completion of this external written paper can be found in Section 2 onwards. NCFE will issue a clean copy of the statistical tables to be used with this paper.

Assessment dates will be released on the NCFE website each year.

This assessment must be invigilated and follow the Regulations for the Conduct of External Assessment.

Subject content.

This written external assessment paper assesses a learner's knowledge and understanding from the full content area across all 4 key themes.

Sample assessment material is available on our website: www.ncfe.org.uk.

Synoptic assessment

Linear qualifications are synoptic. The external assessments will assess the learner's ability to effectively draw together their knowledge, understanding and skills from across the whole vocational area and will assess across all three assessment objectives AO1, AO2 and AO3.

Assessment objectives and weightings

Assessment objectives

This qualification requires learners to:

AO1	Deepen competence in the selection and use of mathematical methods and techniques.
AO2	Develop confidence in representing and analysing authentic situations mathematically and in applying mathematics to address related questions and issues.
AO3	Build skills in mathematical thinking, reasoning and communication.

Assessment objective weightings

AOs	Paper 1 (approx %)	Paper 2 (approx %)	Overall weighting (approx. %)
AO1	12.5	16	28.5
AO2	15	25	40
AO3	12.5	19	31.5
Overall weighting of assessments	**40**	**60**	**100%**

Scaling factor

We have not applied a scaling factor to the external assessment papers because the raw marks reflect the assessment weightings. Paper 1 has 60 marks and Paper 2 has 90 marks; this is equivalent to a 40/60 split.

Entering learners for the external assessments

The external assessments are sat on a specific date. Assessment dates will be released on the NCFE website each year: www.ncfe.org.uk. The first assessments will take place in 2020.

As this is a linear qualification, **both** external assessment papers must be sat in the same series.

This qualification has paper-based assessment only.

To access the external assessments, centres must have entered learners using the NCFE Portal.

Centres will be required to enter learners for the most appropriate vocation/area of interest to ensure that they receive the relevant contextualised paper for Paper 2.

The external assessment material will be sent out in time for the start of the assessment date. The material must be kept secure at all times throughout the duration of the assessment period.

You must return all external assessment material and learner work to NCFE one working day after the external assessment has taken place.

Pre-release material

Pre-release material for Paper 2 will be issued 4 weeks before the assessment date.

NCFE will also issue a clean copy of the pre-release material when we send out the external assessment material. Only the clean version is to be used in the external assessment.

Regulations for the Conduct of External Assessments

The external assessments within this qualification must be invigilated.

For guidance on conducting external assessments, please refer to the Regulations for the Conduct of External Assessments, available from the NCFE website or contact the Quality Assurance team on 0191 239 8000.

Results

Result release dates will be released on the NCFE website each year.

Retakes

If learners do not achieve enough marks across the external assessments to achieve the overall qualification, they will have to retake the full qualification.

If a learner needs to retake the qualification, they must sit both assessments in the same series.

A charge may apply. Please refer to the Fees Guide on the NCFE website.

Section 4
Grading information

Qualification grading information

This qualification is awarded on a five-point grade scale: A, B, C, D and E. Learners will be issued with an overall grade for the qualification.

Marks for each external assessment will be added together and this total mark will determine the learner's grade, based on the qualification grade boundaries.

If learners do not gain enough marks for a grade E, they will receive a U (unclassified) grade.

Grade descriptors

Grade A

We expect learners to be able to successfully tackle both routine and non-routine problems that reflect real life situations in everyday contexts, including personal finance, business and commerce, risk and probability.

They will demonstrate a good working knowledge of all skills and techniques included in the syllabus and be able to apply them confidently across a variety of contexts.

At this level, learners will be able to respond to new situations with little or no prompting. They will be able to successfully tackle unstructured problems that have not been seen before.

Learners will select the most appropriate mathematical and statistical methods that consider the purpose of the problems and allow useful and valid conclusions to be reached.

Learners will justify their strategies for solving problems, giving clear explanations for their reasoning used to solve problems, and provide answers in the context of the real world.

Learners will work to a high degree of accuracy. They will use calculator technology efficiently and effectively when appropriate and present answers using a suitable degree of accuracy.

They will be able to assimilate all of the necessary information needed to solve a problem.

They will be able to manipulate mathematical expressions, use graphs, tables and diagrams where appropriate and use mathematical language and symbols correctly and effectively.

They will be expected to interrogate and analyse data sets in context and apply appropriate data analysis in finding trends, making predictions and confirming or refuting conclusions and carrying out further analysis to test and evaluate their answers and conclusions.

They will interpret their results correctly, referring to the context of the problem. Learners will communicate their conclusions clearly, and it will be clear how they are supported by their working.

They will show strong evidence of evaluating the solution to a problem and will be expected to critique mathematical and statistical models of real-life issues and problems and suggest revised models where appropriate.

Grade C

We expect learners to be able to successfully tackle routine problems and be able to reach a conclusion on some non-routine problems that reflect real life situations in everyday contexts, including personal finance, business and commerce, risk and probability.

Learners will be able to demonstrate practical application of many of the skills and knowledge of the relevant mathematics and statistical concepts and techniques reflected in the syllabus.

At this level, learners will respond to cues in both well-defined and unstructured problems. They will use their mathematical and statistical knowledge to make progress with unfamiliar problems, reaching conclusions to some of them.

Learners will select appropriate mathematical and statistical methods, although this might not fully address the context of the problem. They will show clear reasons for choosing strategies to solve problems.

Learners will work with good accuracy in routine calculations, with some minor errors. They will use calculator technology efficiently when appropriate, and present answers using a suitable degree of accuracy.

They will be able to identify the key parts of the information presented to allow progress.

They will be able to manipulate mathematical expressions, use graphs, tables and diagrams and use mathematical language and symbols correctly in most cases.

They will be able to extract information from and analyse data sets, find statistical measures as directed, interpreting the results to find trends, make predictions and confirm or refute conclusions.

Learners will communicate their conclusions, clearly linking most of them to their working. They will state results with attempts to reference the context of the problem.

Learners will be expected to show evidence of comparing their observations on mathematical and statistical models of real-life issues and problems to given or known information, identifying where a revised model may be appropriate.

Grade E

We expect learners to be able to successfully tackle routine problems and make some progress on solving non-routine problems, where these problems are based on real life situations in everyday contexts, including personal finance, business and commerce, risk and probability.

Learners will be able to demonstrate application of some skills and knowledge of the relevant mathematics and statistical concepts and techniques reflected in the syllabus.

At this level, learners will respond to cues in well-defined problems. They will use their mathematical and statistical knowledge to make some progress on unstructured problems that have not been seen before.

Learners will select appropriate mathematical and statistical methods, although these may not be the most efficient or lead to a conclusion. They will make some justification for their strategies for solving problems.

They may make some calculation errors, although the intention is clear. They will use calculator technology where appropriate, giving answers to an acceptable degree of accuracy.

They will be able to identify some of the key information presented and will attempt to proceed with this.

They will be able to manipulate straightforward mathematical expressions, using graphs, tables and diagrams and using mathematical language and symbols.

They will be expected to understand and use data sets in context and apply some data analysis in finding trends or making predictions and confirming or refuting conclusions.

They will state results, with limited reference to the context of the problem. Some will be implied by their working.

Learners will show limited evidence of comparison of their solution to given or known information.

They will be expected to make comments on mathematical and statistical models of real-life issues and problems.

Whilst NCFE does not anticipate any changes to our aggregation methods or any overall grade thresholds, there may be exceptional circumstances in which it is necessary to do so to secure the maintenance of standards over time. Therefore, overall grade thresholds published within this Qualification Specification may be subject to change.

Section 5

General information

General information

Equal opportunities

NCFE fully supports the principle of equal opportunities and opposes all unlawful or unfair discrimination on the grounds of ability, age, colour, culture, disability, domestic circumstances, employment status, gender, marital status, nationality, political orientation, racial origin, religious beliefs, sexual orientation and social background. NCFE aims to ensure that equality of opportunity is promoted and that unlawful or unfair discrimination, whether direct or indirect, is eliminated both in its own employment practices and in access to its qualifications. A copy of our Diversity and Equality policy is available on the NCFE website.

Diversity, access and inclusion

Our qualifications and associated assessments are designed to be accessible, inclusive and non-discriminatory. NCFE regularly evaluates and monitors the 6 diversity strands (gender, age, race, disability, religion, sexual orientation) throughout the development process as well as throughout the delivery, external quality assurance and external assessment processes of live qualifications. This ensures that positive attitudes and good relations are promoted, discriminatory language is not used and our assessment procedures are fully inclusive.

Learners who require reasonable adjustments or special consideration should discuss their requirements with their Tutor, who should refer to our Reasonable Adjustments and Special Considerations policy for guidance.

For more information on the Reasonable Adjustments and Special Considerations policy, please visit the NCFE website.

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*** To continue to improve our levels of customer service, telephone calls may be recorded for training and quality purposes.***