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Functional Skills – mathematics: Level 2

	Using numbers and the number system – whole numbers	
DfE Functional Skills reform subject content for mathematics (February 2018)	Current **NCFE** Functional Skills mathematics amplification	Mapping comment
1. Read, write, order and compare positive and negative numbers of any size.	Understand and use positive and negative numbers of any size in practical contexts.	No change.
2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation.		New: specific reference to calculations with values of up to 1 million (the same as new Level 1), with specific reference to checks using estimation/approximation. ⭐
3. Evaluate expressions and make substitutions in given formulae in words and symbols.	Understand and use simple formulae and equations involving one or two-step operations.	Formulae use now includes words and symbols.
4. Identify and know the equivalence between fractions, decimals and percentages.	Understand and use equivalences between fractions, decimals and percentages.	No change.
5. Work out percentages of amounts and express one amount as a percentage of another.		Specific reference to amounts as % and finding % amounts.
6. Calculate percentage change (any size increase and decrease), and original value after percentage change.		Specific reference to % increase/decrease and reverse %.
7. Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers.		New: proper and improper fractions and mixed numbers. ⭐
8. Express one number as a fraction of another.		Specific reference to amounts as fractions.
9. Order, approximate and compare decimals.	Carry out calculations with numbers of any size in practical contexts, to a given number of decimal places	Specific reference to ordering/comparing decimals.
10. Add, subtract, multiply and divide decimals up to three decimal places.		Calculations with decimals are now specified as +-x÷, and there's specific reference of up to 3 decimal places.
11. Understand and calculate using ratios, direct proportion and inverse proportion.	Understand, use and calculate ratio and proportion, including problems involving scale.	New: specific reference to inverse proportion. ⭐
12. Follow the order of precedence of operators, including indices.		New: specific reference to BIDMAS/BODMAS and indices (the new Level 1 skill required is 3^2 while Level 2 includes 3^3). ⭐

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Functional Skills – mathematics: Level 2

Using common measures, shapes and space		
DfE Functional Skills reform subject content for mathematics (February 2018)	Current **NCFE** Functional Skills mathematics amplification	Mapping comment
13. Calculate amounts of money, compound interest, percentage increases, decreases and discounts including tax and simple budgeting.		New: specific reference to compound interest, percentage increases, decreases and discounts including tax and simple budgeting. ⭐
14. Convert between metric and imperial units of length, weight and capacity using a) a conversion factor and b) a conversion graph.	Use, convert and calculate using metric, and, where appropriate, imperial measures.	New: conversion graph as well as conversion rate is new. ⭐
15. Calculate using compound measures including speed, density and rates of pay.		New: compound measures, specifically speed, density and rates of pay. ⭐
16. Calculate perimeters and areas of 2D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles).		New: no formulae to be included for area and perimeter of circles and triangles. ⭐
17. Use formulae to find volumes and surface areas of 3D shapes including cylinders (formulae to be given for 3D shapes other than cylinders).	Find area, perimeter and volume of common shapes.	New: no formulae for cylinder volume and surface area. ⭐
18. Calculate actual dimensions from scale drawings and create a scale diagram given actual measurements.		Specific reference to creating a scale drawing .
19. Use coordinates in 2D, positive and negative, to specify the positions of points.		New: use of coordinates (+-). ⭐
20. Understand and use common 2D representations of 3D objects.		No change.
21. Draw 3D shapes to include plans and elevations.	Recognise and use 2D representations of 3D objects.	New: draw 3D shapes. ⭐
22. Calculate values of angles and/or coordinates with 2D and 3D shapes.		Specific reference to angles and coordinates in 2D, 3D shapes. ⭐

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Functional Skills – mathematics: Level 2

Handling information and data		
DfE Functional Skills reform subject content for mathematics (February 2018)	Current **NCFE** Functional Skills mathematics amplification	Mapping comment
23. Calculate the median and mode of a set of quantities.	Use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate.	Reference to using/interpreting data from tables/diagrams has been removed.
24. Estimate the mean of a grouped frequency distribution from discrete data.	Use statistical methods to investigate situations.	New: specific reference to mean average from grouped frequency distribution. There's now specific reference to mode and median averages ('from a set of quantities'). ⭐
25. Use the mean, median, mode and range to compare two sets of data.		Specific reference to 2 sets of data for mean, mode and median.
26. Work out the probability of combined events including the use of diagrams and tables, including two-way tables.	Use probability to assess the likelihood of an outcome.	New: specific reference to probability of combined events (including the use of diagrams and tables, including two-way tables). ⭐
27. Express probabilities as fractions, decimals and percentages.		Specific reference to probability displayed as a fraction, decimal or percentage.
28. Draw and interpret scatter diagrams and recognise positive and negative correlation.	Collect and represent discrete and continuous data, using ICT where appropriate.	New: scatter diagrams (draw and interpret). ⭐

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Functional Skills – mathematics: Level 2

DfE guidance on **Problem Solving and Decision Making** at **Level 2.**
Solving mathematical problems and decision making: learners at Level 2 are expected to be able to use the knowledge and skills listed above to recognise and obtain a solution or solutions to a complex problem. A complex problem is one which requires a multistep process, typically requiring planning and working through at least two connected steps or processes.   Individual problems are based on a combination of the knowledge and/or skills from the mathematical content areas (number and the number system; measures, shape and space; information and data). At Level 2 it is expected that the student will be able to address individual problems some of which draw upon a combination of all three mathematical areas and require learners to make connections between those content areas.

Learning aims and outcomes at Level 2
Learners at Level 2 are expected to be able to: • read, understand, and use mathematical information and mathematical terms.   • address individual problems as described above.   • use knowledge and understanding to a required level of accuracy.   • identify suitable operations and calculations to generate results.   • analyse and interpret answers in the context of the original problem.   • check the sense and reasonableness of answers.   • present and explain results clearly and accurately demonstrating reasoning to support the process and show consistency with the evidence presented.   The context of individual problems at this level will require interpretation and analysis in order for the student to be able independently to identify and carry out an appropriate mathematical process or processes.