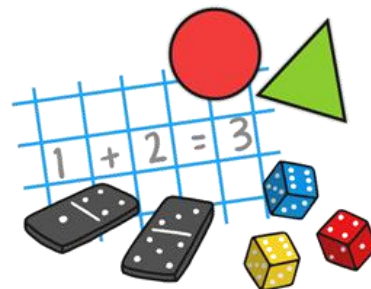




# Functional Maths Level 1

Long Term Plan



Maths

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*Post 16*

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## Aims and overviews of the Programme of Study

### Level 1

#### Purpose

Purpose of Functional Skills mathematics for Level 1: a qualification for work, study and life. Achievement of the qualification demonstrates a sound grasp of mathematical skills at the appropriate level and the ability to apply mathematical thinking effectively to solve problems successfully in the workplace and in other real life situations.

#### Additional Assessment Requirements

The assessments use and reinforce underpinning skills and problem-solving techniques. The assessments use and reinforce the subject content at the specified level and will reflect the learning aims and objectives.

NOCN sets and marks all assessments for Functional Skills Qualifications in mathematics at Levels 1

NOCN Functional Skills Qualifications in mathematics at Level 1 comprise of a single summative assessment which focuses on interrelated skills through assessing using numbers and the number system, measure shape and space and handling information and data. The assessment contains a number of questions which cover a representative sample of the subject content. The single summative assessments contain a non-calculator section, (Part A) which is 25% of the overall marks for the assessment and a calculator section, (Part B) which is 75% of the overall marks for the assessment. The single summative assessment with separate sections for the non-calculator and calculator tests are to be taken by learners in one sitting.

#### Subject Content

#### Assessment/Success Criteria

**Using numbers and the number system – Whole numbers, fractions, decimals and percentages**

1. L1.1 Read, write, order and compare large numbers (up to one million)
2. L1.2 Recognise and use positive and negative numbers
3. L1.3 Multiply and divide whole numbers and decimals by 10, 100, 1000
4. L1.4 Use multiplication facts and make connections with division facts
5. L1.5 Use simple formulae expressed in words for one or two-step operations
6. L1.6 Calculate the squares of one-digit and two-digit numbers
7. L1.7 Follow the order of precedence of operators
8. L1.8 Read, write, order and compare common fractions and mixed numbers
9. L1.9 Find fractions of whole number quantities or measurements
10. L1.10 Read, write, order and compare decimals up to three decimal places
11. L1.11 Add, subtract, multiply and divide decimals up to two decimal places
12. L1.12 Approximate by rounding to a whole number or to one or two decimal places
13. L1.13 Read, write, order and compare percentages in whole numbers
14. L1.14 Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof
15. L1.15 Estimate answers to calculations using fractions and decimals
16. L1.16 Recognise and calculate equivalences between common fractions, percentages and decimals
17. L1.17 Work with simple ratio and direct proportions

**Using common measures, shape and space**

18. L1.18 Calculate simple interest in multiples of 5% on amounts of money
19. L1.19 Calculate discounts in multiples of 5% on amounts of money
20. L1.20 Convert between units of length, weight, capacity, money and time, in the same system
21. L1.21 Recognise and make use of simple scales on maps and drawings
22. L1.22 Calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles
23. L1.23 Calculate the volumes of cubes and cuboids
24. L1.24 Draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles
25. L1.25 Interpret plans, elevations and nets of simple 3-D shapes
26. L1.26 Use angles when describing position and direction, and measure angles in degrees

<b>Handling information and data</b>	27. L1.27 Represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs 28. L1.28 Group discrete data and represent grouped data graphically 29. L1.29 Find the mean and range of a set of quantities 30. L1.30 Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events 31. L1.31 Use equally likely outcomes to find the probabilities of simple events and express them as fractions
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**Opportunities for solving mathematical problems and decision making**

Level 1 learners are expected to be able to:

- apply mathematical thinking effectively to solve problems in real-life situations
- interpret their results and provide a valid conclusion.

These realistic problems may be straightforward and require a one-step process, or more than one connected step or process.

## Prior Knowledge for Level 1

Students must have passed Entry Level 3

- Count, read, write, order and compare numbers up to 1000.
- Add and subtract using three-digit whole numbers.
- Divide three-digit whole numbers by single- and double-digit whole numbers and express remainders.
- Multiply two-digit whole numbers by single- and double-digit whole numbers.
- Approximate by rounding numbers less than 1000 to the nearest 10 or 100 and use this rounded answer to check results.
- Recognise and continue linear sequences of numbers up to 100.
- Read, write and understand thirds, quarters, fifths and tenths including equivalent forms.
- Read, write and use decimals up to two decimal places.
- Recognise and continue sequences that involve decimals.
- Calculate with money using decimal notation and express money correctly in writing in pounds and pence.
- Round amounts of money to the nearest £1 or 10p.
- Read, measure and record time using am and pm.
- Read time from analogue and 24-hour digital clocks in hours and minutes.
- Use and compare measures of length, capacity, weight and temperature using metric or imperial units to the nearest labelled or unlabelled division.
- Compare metric measures of length including millimetres, centimetres, metres and kilometres.
- Compare measures of weight including grams and kilograms.
- Compare measures of capacity including millilitres and litres.
- Use a suitable instrument to measure mass and length.
- Sort 2-D and 3-D shapes using properties including lines of symmetry, length, right angles, angles including in rectangles and triangles.
- Use appropriate positional vocabulary to describe position and direction including eight compass points and including full/half/quarter turns.
- Extract information from lists, tables, diagrams and charts and create frequency tables.
- Interpret information, to make comparisons and record changes, from different formats including bar charts and simple line graphs.
- Organise and represent information in appropriate ways including tables, diagrams, simple line graphs and bar charts

# Using numbers and the number system

## 1 & 2 whole numbers

Specification Reference	Objectives	Possible Success Criteria
<ol style="list-style-type: none"> <li>1. Read, write, order and compare large numbers (up to one million)</li> <li>2. Recognise and use positive and negative numbers</li> </ol>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• read and write numbers up to one million (both written in words and using digits)</li> <li>• explain the value represented by a specific digit in a given number (up to one million)</li> <li>• place numbers up to one million in ascending and/or descending order</li> <li>• compare numbers up to one million using ‘greater than’ and ‘less than’ symbols</li> <li>• recognise and use positive and negative numbers in practical contexts (e.g. temperature, profit/loss)</li> <li>• count in steps of various sizes, including negative numbers</li> <li>• calculate with positive and negative numbers.</li> </ul>	<ul style="list-style-type: none"> <li>• Match numbers in words and numerals (up to one million).</li> <li>• Place numbers up to one million in ascending or descending order.</li> <li>• Compare numbers in terms of ‘greater than’ or ‘less than’, both written in words and numerals.</li> <li>• Read numbers in everyday documents and contexts, e.g. tables, diagrams, charts, articles, adverts.</li> <li>• Take temperature readings, including negative numbers.</li> <li>• Work out the difference between a positive and a negative number (e.g. temperature change).</li> <li>• Use both positive and negative numbers in simple multi-step calculations.</li> </ul>
<p><b>Key Words</b></p>	<p>place value, digit, tens, hundreds, thousands, millions, difference, order, compare, most, greater than, least, less than, fewest, highest, smallest, positive, negative</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Write a number using digits when reading a number written in words.</li> <li>✓ Find the total profit or loss made across several months or quarters presented in a table or graph.</li> <li>✓ Read the temperature on a thermometer.</li> <li>✓ Use a chart or table to find a suitable storage temperature.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Add positive and negative figures to find a difference in temperature or income.</li> <li>✓ Work out the appropriate temperature for sowing or harvesting.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to make a yes/no decision or give a short answer. e.g.</p> <ul style="list-style-type: none"> <li>✓ Is a temperature lower than 5°C appropriate for harvesting this crop?</li> <li>✓ Which branch of the business made the greatest loss last year?</li> </ul>	

### 3 & 4 whole numbers

Specification Reference	Objectives	Possible Success Criteria
<p>3. Multiply and divide whole numbers and decimals by 10, 100, 1000</p> <p>4. Use multiplication facts and make connections with division facts</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• recognise multiples of 10, 100, 1000</li> <li>• recognise multiples of 2 to 9 up to 100</li> <li>• break down numbers into prime factors</li> <li>• work out multiplication and division problems using mental and written methods.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify multiplication as the appropriate problem-solving approach.</li> <li>• Identify division as the appropriate problem-solving approach.</li> <li>• Multiply correctly two figures (up to 3 digits each).</li> <li>• Divide correctly 3-digit figures by a single-digit figure.</li> </ul>
<p><b>Key Words</b></p>	<p>place value, times tables, multiple, factor</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify multiplication as the appropriate approach in finding the total number, e.g. number of tins in several crates, total printing cost of 1000 leaflets.</li> <li>✓ Identify relevant figures to multiply or divide in a table, graph or chart.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Multiply appropriate figures to find the total cost or total number.</li> <li>✓ Divide appropriate figures to find a cost per item.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. e.g.</p> <ul style="list-style-type: none"> <li>✓ What is the total cost of 20 boxes?</li> <li>✓ Is the cost of 1 book less than £3?</li> </ul>	

## 5 whole numbers

Specification Reference	Objectives	Possible Success Criteria
5. Use simple formulae expressed in words for one or two-step operations	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• substitute a variable in a formula with a correct value</li> <li>• evaluate expressions in a given formula</li> <li>• follow the correct order of operations to evaluate a formula.</li> </ul>	<ul style="list-style-type: none"> <li>• Substitute a value into a given formula to work out a total cost.</li> <li>• Convert between different units using a given formula.</li> </ul>
<b>Key Words</b>	substitution, constant, variable, order of operations (BIDMAS)	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world context, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify values to be substituted into a formula, from a text or diagram.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Use a formula to calculate an electricity bill.</li> <li>✓ Use a formula to convert imperial units into metric units.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the equivalent of 10 kg in pounds?</li> <li>✓ Does Mary pay the correct amount for her electricity in June?</li> </ul>	



## 6 & 7 whole numbers

Specification Reference	Objectives	Possible Success Criteria
<p>6. Calculate the squares of one-digit and two-digit numbers</p> <p>7. Follow the order of precedence of operators</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• understand that squaring a number means multiplying the number by itself</li> <li>• recall times tables to work out the squares of up to two-digit numbers</li> <li>• follow the order of operations to solve calculations</li> </ul>	<ul style="list-style-type: none"> <li>• Work out the squares of any two-digit number, e.g. 122.</li> <li>• Comprehend the written problem in terms of two-step operations and realise which takes precedence</li> </ul>
<p><b>Key Words</b></p>	<p>exponent, index, times tables, BIDMAS</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world context, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify the figures to be used in a table or graph.</li> <li>✓ Analyse a written problem to identify the appropriate operations and their order.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out an area of a square with the side length 14 m.</li> <li>✓ Identify the calculation required to work out a quote for a job, which requires separate calculations for labour and material costs.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the area of this square?</li> <li>✓ How much should Steve charge for this job?</li> </ul>	

## 8 & 9 Fractions

Specification Reference	Objectives	Possible Success Criteria
<p>8. Read, write, order and compare common fractions and mixed numbers</p> <p>9. Find fractions of whole number quantities or measurements</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• read and write common fractions and mixed numbers</li> <li>• find equivalent fractions (simplify fractions)</li> <li>• order fractions in ascending or descending order and compare them</li> <li>• work out the value of a fraction of a whole number, some using various units (£, kg, m, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>• Read and write a fraction using numerals and words.</li> <li>• Correctly write and simplify fractions based on data provided.</li> <li>• Compare and order fractions and identify equivalent fractions.</li> <li>• Work out a fraction of a whole number.</li> </ul>
<b>Key Words</b>	fraction, numerator, denominator, improper fraction, equivalent fraction	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify what values should be placed in the numerator and denominator based on the information in the text or table.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Find out how many people in a survey were men, knowing that the total number of people was 200 and <math>\frac{1}{5}</math> of them were men.</li> <li>✓ Look at the information from the survey in a table and work out what fraction of people was satisfied with the service.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ Work out <math>\frac{1}{4}</math> of a total number of people.</li> <li>✓ Present the fraction of people who were satisfied with the service.</li> </ul>	

## 10, 11 & 12 Decimals

Specification Reference	Objectives	Possible Success Criteria
<p>10. Read, write, order and compare decimals up to three decimal places</p> <p>11. Add, subtract, multiply and divide decimals up to two decimal places</p> <p>12. Approximate by rounding to a whole number or to one or two decimal places</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• read and write decimals up to three decimal places (both written in words and using digits)</li> <li>• explain the value represented by a specific digit in a given decimal (up to three decimal places)</li> <li>• place decimals in ascending and/or descending order</li> <li>• compare decimals up to three decimal places using 'greater than' and 'less than' symbols</li> <li>• add, subtract, multiply and divide decimals up to two decimal places</li> <li>• approximate by rounding to a whole number or to one or two decimal places.</li> </ul>	<ul style="list-style-type: none"> <li>• Place decimals in ascending and/or descending order to show winners of a sporting event.</li> <li>• Compare decimals in terms of 'greater than' or 'less than'.</li> <li>• Add prices together to work out the total cost.</li> <li>• Subtract prices from the total to check calculations.</li> <li>• Multiply items by their price to work out the subtotal.</li> <li>• Divide the total by the number of items to find the individual item price.</li> <li>• Present answers to the required degree of accuracy (up to two decimal places).</li> </ul>
<b>Key Words</b>	place value, degree of accuracy, decimal place	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Use tables and charts to identify the correct prices.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the total gross and net weekly pay.</li> <li>✓ Convert prices between £ and \$ using the conversion rate £1= \$1.29.</li> <li>✓ Estimate the minimal length of required cable.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the total net weekly pay for Rob.</li> <li>✓ Is £400 more than \$650?</li> <li>✓ What is the minimal length of the cable in metres, correct to 2 dp?</li> </ul>	

## 13 & 14 Percentages

Specification Reference	Objectives	Possible Success Criteria
<p>13. Read, write, order and compare percentages in whole numbers</p> <p>14. Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• read and write percentages in whole numbers</li> <li>• order and compare percentages using 'greater than' and 'less than' symbols</li> <li>• work out percentages of quantities, including increases and decreases by 5% and multiples thereof.</li> </ul>	<ul style="list-style-type: none"> <li>• Place percentages in ascending or descending order.</li> <li>• Compare percentages in terms of 'greater than' or 'less than', both written in words and numerals.</li> <li>• Work out the percentage increase of an electricity bill.</li> <li>• Work out the percentage of whole numbers (people in a survey).</li> </ul>
<p><b>Key Words</b></p>	<p>place value, discount, interest rate, mortgage, savings, profit margin, tax</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Use tables and charts to identify correct figures to work with.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the amount a 20% discount on a bill is.</li> <li>✓ Work out how many people in the survey were happy with their work.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ Work out 20% of £174.10.</li> <li>✓ Are more than 70% of people happy with their work?</li> </ul>	

## 15 & 16 fractions, decimals and percentages

Specification Reference	Objectives	Possible Success Criteria
<p>15. Estimate answers to calculations using fractions and decimals</p> <p>16. Recognise and calculate equivalences between common fractions, percentages and decimals</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• estimate answers to calculations using fractions and decimals</li> <li>• recognise and calculate equivalences between common fractions, percentages and decimals.</li> </ul>	<ul style="list-style-type: none"> <li>• Simplify fractions to estimate the answer.</li> <li>• Find a common denominator between fractions to compare them.</li> <li>• Work out equivalences between fractions, decimals and percentages.</li> </ul>
<b>Key Words</b>	place value, rounding, estimation, equivalence, common denominator,	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world context, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify relevant figures in the text or table or chart.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Compare test results presented as fractions and percentages.</li> <li>✓ Compare 20% of 300 with <math>\frac{1}{3}</math> of 160 to find which group liked the product in a survey more.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ Which subject was Ahmed most successful in?</li> <li>✓ Which group of people in the survey liked the product more?</li> </ul>	

## 17 Whole Numbers

Specification Reference	Objectives	Possible Success Criteria
17. Work with simple ratio and direct proportions	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• understand the multiplicative relationship between two quantities in a simple ratio</li> <li>• simplify ratio notation</li> <li>• use proportion as equality of simple ratios</li> <li>• relate simple ratios to fractions correctly</li> <li>• work with direct proportion.</li> </ul>	<ul style="list-style-type: none"> <li>• Work out the amount of ingredients needed to follow a recipe or identify amounts needed for mixing.</li> <li>• Scale quantities required up or down.</li> <li>• Work out parts and totals using ratios.</li> </ul>
<b>Key Words</b>	ratio notation, multiplicative relationship, proportionality, factor, variable, constant	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world context, e.g.</p> <ul style="list-style-type: none"> <li>✓ Express information in a text in the form of a ratio.</li> <li>✓ Identify the scaling factor from the information provided.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the amount of ingredients you need for six people, if the recipe gives you information for four people (e.g. 500 g of apples).</li> <li>✓ You have 2 litres of white paint and you mix it with red paint in the ratio 1:3 to make pink paint.</li> <li>✓ Work out how much paint is required to cover 6 m<sup>2</sup> if 1 litre covers 3 m<sup>2</sup></li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What amount of apples will you need for six people?</li> <li>✓ Work out the total amount of pink paint you can make with 2 litres of white paint.</li> </ul>	

## Using common measure, shape and space

### 18 & 19 Percentages

Specification Reference	Objectives	Possible Success Criteria
18. Calculate simple interest in multiples of 5% on amounts of money 19. Calculate discounts in multiples of 5% on amounts of money	The learner should be able to: <ul style="list-style-type: none"><li>• work out simple interest on amounts of money</li><li>• work out discount on amounts of money.</li></ul>	<ul style="list-style-type: none"><li>• Work out the amount of discount on a price.</li><li>• Work out simple interest on an investment.</li></ul>
<b>Key Words</b>	interest, discount	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world context, e.g.</p> <ul style="list-style-type: none"><li>✓ Identify if a percentage increase or decrease is needed, based on the information provided.</li></ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"><li>✓ Work out the total amount to pay off on a loan with simple interest of 15% over 1 year.</li><li>✓ Work out the total prices to pay after a 35% discount.</li></ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"><li>✓ Work out the total amount Sarah needs to pay.</li><li>✓ Will Ali pay more than £300 for the TV after the discount?</li></ul>	

## 20 & 21 Using common measures, shape and space

Specification Reference	Objectives	Possible Success Criteria
<p>20. Convert between units of length, weight, capacity, money and time, in the same system</p> <p>21. Recognise and make use of simple scales on maps and drawings</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• convert between units of length, weight, capacity, money and time in the same system</li> <li>• calculate accurately to two decimal places, using the correct units</li> <li>• recognise and make use of simple scales on maps and drawings.</li> </ul>	<ul style="list-style-type: none"> <li>• Work out the total weight of a parcel in kg.</li> <li>• Work out the total distance in km.</li> <li>• Complete an order form.</li> <li>• Create a time plan for an event.</li> <li>• Work out a distance from a map or a real-life dimension from a scale drawing.</li> </ul>
<p><b>Key Words</b></p>	<p>conversion graph, conversion factor, kilometres, metres, centimetres, millimetres, kilograms, grams, litres, millilitres, cubic units, scale factor, key</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts. E.g.</p> <ul style="list-style-type: none"> <li>✓ Identify the scale factor in a scale drawing or a map.</li> <li>✓ Identify which units to convert between.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the total weight of the parcel to send abroad.</li> <li>✓ Work out how much time is needed to complete several tasks.</li> <li>✓ Work out the total capacity of a fish tank.</li> <li>✓ Work out the dimensions of a room from a scale drawing.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision.</p> <p>E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the total weight of the parcel?</li> <li>✓ Does Sophia have enough time to complete the tasks?</li> <li>✓ Is 300 litres enough to fill up the fish tank?</li> <li>✓ What is the length of the bedroom?</li> </ul>	



## 22 & 23 Using common measures, shape and space

Specification Reference	Objectives	Possible Success Criteria
<p>22. Calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles</p> <p>23. Calculate the volumes of cubes and cuboids</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• work out the perimeter of simple shapes including those that are made up of a combination of rectangles</li> <li>• work out the area of simple shapes including those that are made up of a combination of rectangles</li> <li>• calculate the volumes of cubes and cuboids</li> <li>• calculate accurately to two decimal places, using the correct units.</li> </ul>	<ul style="list-style-type: none"> <li>• Work out the perimeter of a garden.</li> <li>• Work out the area of a room (composite shape).</li> <li>• Work out the volume of a swimming pool.</li> </ul>
<b>Key Words</b>	area, perimeter, volume, metres, centimetres, millimetres, square and cubic units, edge, vertices, faces	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify the figures needed to calculate with.</li> <li>✓ Identify which units to convert between.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the perimeter of a garden to find out how many fencing panels will be needed to go around it.</li> <li>✓ Work out the cost of tiles that will cover the floor of a bathroom.</li> <li>✓ Work out the total volume of a fish tank to find out how many fish can fit in it.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ How many fencing panels does James need to put around his garden?</li> <li>✓ Is £500 enough to buy all the tiles for the bathroom floor?</li> <li>✓ How many fish will fit in this tank?</li> </ul>	

## 24, 25 & 26 Using common measures, shape and space

Specification Reference	Objectives	Possible Success Criteria
<p>24. Draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles</p> <p>25. Interpret plans, elevations and nets of simple 3-D shapes</p> <p>26. Use angles when describing position and direction, and measure angles in degrees</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• draw common 2-D shapes and identify lines of symmetry</li> <li>• place squares of different shading into a symmetrical pattern on a grid</li> <li>• draw lines of symmetry on a given shape</li> <li>• name common angles and their size (e.g. right angle = <math>90^\circ</math>, <math>\frac{3}{4}</math> sector in a pie chart has <math>270^\circ</math> angle)</li> <li>• interpret the front elevation and plan of simple 3-D shapes</li> <li>• interpret a working net of a cube, cuboid, cylinder, pyramid and prism</li> <li>• draw nets of simple 3-D shapes</li> <li>• describe position or direction using angles, including bearings</li> <li>• measure angles in degrees.</li> </ul>	<ul style="list-style-type: none"> <li>• Design a symmetrical pattern in the garden.</li> <li>• Find all lines of symmetry in given shapes.</li> <li>• Identify the size of a common angle in a diagram or chart.</li> <li>• Identify the correct elevation of a 3-D shape.</li> <li>• Interpret the net of a box to identify a relevant size.</li> <li>• Draw the net of a box.</li> <li>• Program a robot with directions on a grid using angles (bearings).</li> <li>• Measure an angle using a protractor.</li> </ul>
<p><b>Key Words</b></p>	<p>2-D and 3-D shapes, rectangle, square, pentagon, trapezium, circle, cube, cuboid, line of symmetry, plan (top view), elevation (front and side view), net, faces, vertices, edges, right angle, acute angle, obtuse angle, straight angle, reflex angle, protractor, bearings, clockwise</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify lines of symmetry on a diagram.</li> <li>✓ Identify relevant dimensions by interpreting a plan or elevation.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Design a symmetrical pattern for a bathroom floor by placing different shaded tiles on a grid.</li> <li>✓ Measure an angle of a slope for wheelchair access.</li> <li>✓ Interpret the plan of a building to find the area of the roof.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the size of the slope angle?</li> <li>✓ What is the area of the roof?</li> </ul>	

## Handling information and data

### 27 & 28 Handling information and data

Specification Reference	Objectives	Possible Success Criteria
<p>27. Represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs</p> <p>28. Group discrete data and represent grouped data graphically</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• extract and interpret information from tables, diagrams, charts and graphs</li> <li>• recognise features of charts to summarise and compare sets of data</li> <li>• represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs</li> <li>• group discrete data and represent grouped data graphically.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify relevant figures from a two-way table (e.g. number of males aged 50 and over).</li> <li>• Select appropriate methods of representing specified data (e.g. line graph to show trends).</li> <li>• Construct functional charts, including pie charts, with accurate labels, scales and plotting (e.g. a bar chart using an easy-to-read/interpret scale, with clear labels and a key, if required).</li> <li>• Group discrete data according to given criteria (e.g. students in a class according to their hobbies and gender) and represent this graphically.</li> </ul>
<p><b>Key Words</b></p>	<p>discrete data, two-way table, diagram, pie chart, bar chart, line graph, scale, labels, plotting, axes, sectors, criteria</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Interpret values in a two-way table.</li> <li>✓ Read and interpret a scale on a bar chart.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Design a pie chart to show the results of a survey.</li> <li>✓ Group information about customers according to their age and the level of customer satisfaction.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ Show this information in a pie chart.</li> <li>✓ Show this information in a two-way table.</li> </ul>	

## 29 Handling information and data

Specification Reference	Objectives	Possible Success Criteria
29. Find the mean and range of a set of quantities	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>analyse information presented in different ways and apply simple statistics to interpret it</li> <li>work out the mean of a set of quantities</li> <li>work out the range of a set of quantities.</li> </ul>	<ul style="list-style-type: none"> <li>Work out the range of temperatures in a holiday destination.</li> <li>Work out the mean time of an athlete in a competition.</li> <li>Identify range as a statistical measure that assesses consistency.</li> </ul>
<b>Key Words</b>	mean, average, range, lowest and highest value	
<b>Examples of opportunities</b>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Identify which statistical measure to use.</li> <li>✓ Identify what figures to use in calculations.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the range of ages of people participating in a training event.</li> <li>✓ Work out the mean cost of a train ticket at different times for the same distance.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the range of ages of the people taking part in the event?</li> <li>✓ Is the mean cost of the train ticket less than £10?</li> </ul>	

## 30 & 31 Handling information and data

Specification Reference	Objectives	Possible Success Criteria
<p>30. Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events</p> <p>31. Use equally likely outcomes to find the probabilities of simple events and express them as fractions</p>	<p>The learner should be able to:</p> <ul style="list-style-type: none"> <li>• understand probability on a scale from 0 (impossible) to 1 (certain)</li> <li>• show probability as a fraction</li> <li>• use equally likely outcomes to find the probabilities of simple events.</li> </ul>	<ul style="list-style-type: none"> <li>• Read from a probability scale to identify the likelihood of an event.</li> <li>• Work out the probability of selecting a person at random from a group of people.</li> <li>• Identify the probability of throwing a 6 using a fair dice.</li> </ul>
<p><b>Key Words</b></p>	<p>likelihood, probability scale, impossible, unlikely, even chance, likely, certain, 0–1 scale</p>	
<p><b>Examples of opportunities</b></p>	<p>Learners are required to extract information given in relevant real-world contexts, e.g.</p> <ul style="list-style-type: none"> <li>✓ Use a probability scale effectively.</li> </ul> <p>Learners are required to obtain and present results, and check their own working to an appropriate level of accuracy necessary for the specific task, e.g.</p> <ul style="list-style-type: none"> <li>✓ Work out the probability of winning first prize at a raffle.</li> <li>✓ Show the probability on a probability scale of throwing a 4 using a fair dice.</li> </ul> <p>Learners are required to show working in order to gain marks. This working rationalises the answer they present. Learners may be expected to give a short answer or make a yes/no decision. E.g.</p> <ul style="list-style-type: none"> <li>✓ What is the probability that Zara will win the first prize?</li> <li>✓ What is the likelihood of throwing a 4 using a fair dice?</li> </ul>	

## Delivery Overview

Each week students will be able to use maths in a functional hands-on way. This will be by accessing the community, using money, and time, in their shopping for enterprise, Shop, Cook and Eat sessions. In addition to this each week there will be classroom taught sessions to cover all other aspects of the curriculum and learning the skills and how to answer the specific questions of the functional skills paper.

Below is an overview of the topics to be covered on a weekly basis in the classroom.

### Term 1 (15 Weeks)

Week Number	Area	Topic	Level 1	
1	<b>Baselining</b>	Baselining – Students to take the assessment at the level that they are working too, to establish areas to focus on through the year, and to see where they are after the summer break.		
2	<b>Using numbers and the number system</b>	Whole Number	<ul style="list-style-type: none"> <li>• read and write numbers up to one million (both written in words and using digits)</li> <li>• explain the value represented by a specific digit in a given number (up to one million)</li> <li>• place numbers up to one million in ascending and/or descending order</li> <li>• compare numbers up to one million using ‘greater than’ and ‘less than’ symbols</li> <li>• recognise and use positive and negative numbers in practical contexts (e.g. temperature, profit/loss)</li> <li>• count in steps of various sizes, including negative numbers</li> <li>• calculate with positive and negative numbers.</li> </ul>	
3				
4		Multiplication and division		<ul style="list-style-type: none"> <li>• recognise multiples of 10, 100, 1000</li> <li>• recognise multiples of 2 to 9 up to 100</li> <li>• break down numbers into prime factors</li> <li>• work out multiplication and division problems using mental and written methods.</li> </ul>
5				

6	<b>Using numbers and the number system</b>	Use simple formulae expressed in words for one or two-step operations	<ul style="list-style-type: none"> <li>• substitute a variable in a formula with a correct value</li> <li>• evaluate expressions in a given formula</li> <li>• follow the correct order of operations to evaluate a formula.</li> </ul>	
7		Calculate the squares of one-digit and two-digit numbers Follow the order of precedence of operators	<ul style="list-style-type: none"> <li>• understand that squaring a number means multiplying the number by itself</li> </ul>	
8			<ul style="list-style-type: none"> <li>• recall times tables to work out the squares of up to two-digit numbers</li> <li>• follow the order of operations to solve calculations</li> </ul>	
9		Fractions	<ul style="list-style-type: none"> <li>• read and write common fractions and mixed numbers</li> <li>• find equivalent fractions (simplify fractions)</li> <li>• order fractions in ascending or descending order and compare them</li> <li>• work out the value of a fraction of a whole number, some using various units (£, kg, m, etc.).</li> </ul>	
10				
11			Decimals	<ul style="list-style-type: none"> <li>• read and write decimals up to three decimal places (both written in words and using digits)</li> <li>• explain the value represented by a specific digit in a given decimal (up to three decimal places)</li> <li>• place decimals in ascending and/or descending order</li> <li>• compare decimals up to three decimal places using 'greater than' and 'less than' symbols</li> <li>• add, subtract, multiply and divide decimals up to two decimal places</li> <li>• approximate by rounding to a whole number or to one or two decimal places.</li> </ul>
12				
13				
14	Whole Paper			
15	Whole Paper			

Term 2 (10 Weeks)

Week Number	Area	Topic	Level 1
16	<b>Using numbers and the number system</b>	Percentages	<ul style="list-style-type: none"> <li>• read and write percentages in whole numbers</li> <li>• order and compare percentages using 'greater than' and 'less than' symbols</li> <li>• work out percentages of quantities, including increases and decreases by 5% and multiples thereof.</li> </ul>
17			
18		Fractions, Percentages and decimals	<ul style="list-style-type: none"> <li>• estimate answers to calculations using fractions and decimals</li> <li>• recognise and calculate equivalences between common fractions, percentages and decimals.</li> </ul>
19			
20			
21	<b>Using common measures, shape and space</b>	Percentages	<ul style="list-style-type: none"> <li>• work out simple interest on amounts of money</li> <li>• work out discount on amounts of money.</li> </ul>
22			
23		Conversion of length, weight, capacity and money	<ul style="list-style-type: none"> <li>• convert between units of length, weight, capacity, money and time in the same system</li> <li>• calculate accurately to two decimal places, using the correct units</li> <li>• .</li> </ul>
24	Whole Paper	Whole paper assessment to track progress on baseline paper	



Term 3 (14 Weeks)

Week Number	Area	Topic	Level 1
25	<b>Using common measures, shape and space</b>	simple scales on maps and drawings	<ul style="list-style-type: none"> <li>recognise and make use of simple scales on maps and drawings</li> </ul>
26		Area, perimeter and volume	<ul style="list-style-type: none"> <li>work out the perimeter of simple shapes including those that are made up of a combination of rectangles</li> <li>work out the area of simple shapes including those that are made up of a combination of rectangles</li> <li>calculate the volumes of cubes and cuboids</li> <li>calculate accurately to two decimal places, using the correct units.</li> </ul>
27			
28		2-D and 3D shapes Prepositional Language	<ul style="list-style-type: none"> <li>draw common 2-D shapes and identify lines of symmetry</li> <li>place squares of different shading into a symmetrical pattern on a grid</li> <li>draw lines of symmetry on a given shape</li> <li>name common angles and their size (e.g. right angle = 90°, <math>\frac{3}{4}</math> sector in a pie chart has 270° angle)</li> <li>interpret the front elevation and plan of simple 3-D shapes</li> <li>interpret a working net of a cube, cuboid, cylinder, pyramid and prism</li> <li>draw nets of simple 3-D shapes</li> <li>describe position or direction using angles, including bearings</li> <li>measure angles in degrees.</li> </ul>
29			
30			
31	<b>Handling information and data</b>	Extract and interpret information	<ul style="list-style-type: none"> <li>extract and interpret information from tables, diagrams, charts and graphs</li> <li>recognise features of charts to summarise and compare sets of data</li> <li>represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs</li> <li>group discrete data and represent grouped data graphically.</li> <li>analyse information presented in different ways and apply simple statistics to interpret it</li> <li>work out the mean of a set of quantities</li> <li>work out the range of a set of quantities.</li> </ul>
32			
33		Probability	<ul style="list-style-type: none"> <li>understand probability on a scale from 0 (impossible) to 1 (certain)</li> </ul>

			<ul style="list-style-type: none"> <li>• show probability as a fraction</li> <li>• use equally likely outcomes to find the probabilities of simple events.</li> </ul>
34	<b>Consolidation and pre-assessment</b>	Practice papers	<ul style="list-style-type: none"> <li>• Use practice papers to prepare for Functional Skills live assessments.</li> </ul>
35	Live Assessment	Live Assessment	
36			
37			
38	Last Week of Academic Year		
39	Transition Week		

## Resources

Resources can be found in the following folder:

[O drive Post 16\Curriculum Planning\LTPs\Functional Skills\Maths\Resources](#)