

Scheme of Work - Functional Skills Level 2

Course delivery information: Functional Skills Level 1 (Construction)

Duration: 36 weeks

Aims:

Performance - Learners can:

- Understand routine practical problems in a wide range of familiar and unfamiliar contexts and situations
- Identify the situation or problem and the mathematical methods to tackle it
- Select and apply a range of mathematics to find solutions
- Use appropriate checking procedures and evaluate their effectiveness at each stage
- Interpret results, consider the accuracy and appropriateness of results and solutions, and communicate solutions to practical problems in familiar, unfamiliar, routine and un-routine contexts and situations
- Draw conclusions in light of situations and provide mathematical justifications

Regular resources/textbooks:

Smartboard, WB & Pens, Power Point, paper & pens for group work, textbook, internet and LRC resources.

Week/Session	Content	Learning Objectives: students will be able to	Assessment of Learning	Teaching and Learning Activities	Resources	Functional Skills Standards (including ECM theme)
1	Induction Initial assessment	Discussion the FS requirements and progression opportunities Answer questions on the Profiler assessment	Q&A Profiler Assessment	<ul style="list-style-type: none"> • Introduce the Functional Skills - discuss assessment and portfolio requirements etc. • Paper or computer-based diagnostic assessments 	Handouts Whiteboard Assessments <i>Computers</i>	
2	Initial assessment 1:1 feedback	Complete the Profiler assessment Complete autumn term progress sheets	Profiler Assessment	<ul style="list-style-type: none"> • Continue paper/computer-based diagnostic assessments 	Assessments <i>Computers</i>	
3	Language of Maths Place value	<p>Read, write order and compare large numbers</p> <p>Discuss negative numbers in practical contexts</p> <p>Read temperatures on a thermometer</p> <p>Use negative numbers in a practical context, e.g. temperature below zero, loss in trading</p>	<p>Observation of ordering activity</p> <p>Q&A</p> <p>Peer checking: Correctly read and record temperature - feedback to learners</p> <p>Discussion on government spending figures on public services</p>	<ul style="list-style-type: none"> • Activity - Order a set of monthly trading figures for a year, including losses. • Worksheet - write the value of a digit in a number • Cards activity - Order a set of +ve and -ve numbers (<i>smartboard</i>) • Paired activity - Describe a set of numbers (more than, less than, equal to) (<i>smartboard</i>) <ul style="list-style-type: none"> • Paired activity - measure and record body temperatures 	Matching cards Thermometers Worksheets <i>Computer Smartboard</i>	<p>Read, write, order and compare positive and negative numbers of any size.</p> <p>Understand the meaning of negative numbers in a practical context, for example temperature below zero, loss in trading.</p>

4	Relationship between multiples, factors and prime numbers	Use mental and written methods of calculation to generate results when solving problems using whole numbers of any size Complete calculations using the words <i>multiple</i> , prime number and <i>factor</i> and relate them to multiplication and division facts	Successful completion of problem solving worksheet & mental maths game Observation of activity	Discuss different methods that can be used for mental and written calculations and share short cuts and 'tricks', with explanations, factors. Use a number square and cross off multiples of numbers in turn to find prime numbers. Practise breaking down numbers into prime factors.	Activity cards Worksheets Follow on game cards Dominoes <i>Smartboard</i> <i>Computer</i> <i>Number square</i>	Understand multiple and factor, and relate them to multiplication and division facts. Understand primes and know prime numbers up to 20. Give the level of accuracy of results
5	Ratio and Proportion (Context of sharing according to input - direct or inverse)	Solve problems involving the number of parts in a given ratio, and the value of one part Discus examples of inverse proportion (e.g. more people on a job means less time to complete the job)	Checking/Marking of progress/completion of problem solving worksheet Peer checking: Scale quantities up (or down), using direct proportion, e.g. recipes, etc. - Observation and accurate calculation of inverse proportion.	<ul style="list-style-type: none"> •Discussion - ratio in everyday situation (<i>smartboard</i>) •Worksheets - problem solving •Group activity - calculation of inverse proportion 	Activity cards Worksheets Scale drawing <i>Smartboard</i> <i>Computer</i>	Understand ratio written in the form 3:2, sharing £60 in the ratio 3:2. Understand how to work out the number of parts in a given ratio, and the value of 1 part.
6	Simple Algebra Representing variables and	Use formula to calculate cost of gas bills Evaluate expressions and make substitutions in given formulae in words and symbols to produce results.	Observation of Smartboard activity - Matching expressions Peer checking - Discussion	<ul style="list-style-type: none"> •Discussion - examples of practical applications of algebra. •Board work - match expressions in words and symbols. •Convert expressions from 	Whiteboard Worksheets Calculators <i>Smartboard</i> <i>Computer</i>	Understand that words and symbols in expressions and formulae represent variable quantities (numbers) not things, so $2a + 2b$ cannot be explained as 2 apples and 2 bananas.

	constant factors)			<p>words to symbols, and vice versa. (<i>smartboard</i>).</p> <ul style="list-style-type: none"> •Worksheets - calculate gas bills, commission on sales using formulae. •Paired activity - changing temperature from Fahrenheit to Celsius, using formula. 		<p>Understand that the contents of brackets must be worked out first.</p>
7	Recap of first half term topics and completion of mini project.	Complete mini project. Q & A session	<p>Direct questioning</p> <p>Mark the assignment and give feedback</p>	<ul style="list-style-type: none"> •Learners to complete mini project (work out profit & loss in a business) and answer oral questions (e.g. Household or small business budgeting) •Set homework 	Mini project	<p>Use efficient methods to carry out calculations involving two or more steps, including efficient use of a calculator.</p> <p>Understand that when there is no operator between a number and a variable, two variables, or a bracket, multiplication is implied.</p> <p>Make substitutions in given formulae in words and symbols.</p> <p><u>ECM5</u></p>

HALF TERM

Week/ Session	Content	Learning Objectives: students will be able to	Assessment of Learning	Teaching and Learning Activities	Resources	Functional Skills Standards (including ECM theme)
8	Evaluation of a number as fraction of another	Identify and recognise equivalent fractions Use fraction to compare two numbers	Checking/marking of progress/completion of worksheet	<ul style="list-style-type: none"> • Starter activity - equivalent fractions • Board work - Represent the outcome of observations as a fraction • Discuss - strategies for estimating one number as a fraction of another, • Worksheet - Evaluate quantities as fractions, 	Whiteboard <i>Smartboard</i> <i>Computer worksheet</i>	<p>Know how to change fractions to equivalent fractions with a common denominator.</p> <p>Identify equivalences between fractions, decimals and percentages.</p> <p>Understand that quantities must be in the same units to evaluate and compare.</p>
9	Equivalent fractions	Match equivalent fractions	<p>Observation of matching cards game</p> <p>Q & A</p> <p>Accurate completion of worksheet</p>	<ul style="list-style-type: none"> • Discussion - examples of fractions and its equivalencies in everyday life (use leaflets, adverts and headlines). Understand that fractions add up to one whole • Activity - use fraction to work out increase in wages or VAT (<i>Smartboard</i>) • Card activity - matching equivalent fractions, decimal and percentages 	Leaflets Whiteboard Matching cards Worksheets Drag and drop exercise.	<p>Know how to change fractions to equivalent fractions with a common denominator</p> <p>Evaluate one number as a fraction or percentage of another.</p>

10	Decimals	<p>Add, subtract, multiply and divide decimals up to three places</p> <p>Use exchange rate to calculate the amount of foreign currency required</p>	<p>Successful completion of task</p> <p>Checking/marking of progress/completion of worksheet</p>	<ul style="list-style-type: none"> •Discussion - rounding answers on a calculator and the degree of accuracy that might be appropriate, e.g. calculations with money- Activity calculate gross pay/week and net pay) •Search for goods on European online shopping sites and convert the prices from € to £ sterling 	<p>Whiteboard Ordering cards <i>Smartboard computers</i></p>	<p>Add, subtract, multiply and divide decimals up to three places and check answers in the context of measurements and money</p>
11	Percentage of quantities	<p>Calculate cost of credit</p> <p>Solve problems involving percentages</p> <p>Order and compare percentages and demonstrate understanding of percentage increase and decrease.</p> <p>Calculate VAT of given amounts.</p>	<p>Q&A</p> <p>Checking/marking the progress/completed task</p> <p>Peer-checking</p>	<ul style="list-style-type: none"> •Discuss quick ways of finding VAT •Use interest rates to compare the cost of a loan •Paired Activity - Practise examples in context, e.g. percentage increase or decrease of household bill, fuel. •Discus impact of a change in interest rates on mortgages, savings etc. •Adding 30% to prices as a profit margin in a business. Use any methods. 	<p>Worksheets Interest rates from banks. Internet</p>	<p>Use fractions, decimals and percentages to order and compare amounts or quantities and to solve practical problems. Choose to use a fraction, decimal or percentage to work out VAT.</p>

12	Evaluation of one number as a percentage of another	Calculate one number as percentage of another. Know and use strategies to check answers obtained with a calculator	Direct questioning Peer checking - feedback to learners	<ul style="list-style-type: none"> •Discussion - percentages using the attributes of the group, e.g. what percentage of the group is male, •Activity - match calculations to answers <i>Smartboard / skillswise</i>) •Activity - Use a calculator to check the answers to calculations done by other methods (manual or by another person). 	Whiteboard Matching cards <i>Smartboard</i> <i>Computers</i> <i>Calculators</i>	Evaluate one number as a fraction or percentage of another. Understand that quantities must be in the same units to evaluate and compare.
13	Equivalent fractions, decimals and percentages	Complete a table of equivalent fractions, decimals and percentages Convert percentage savings and profit to fraction and decimals	Observation of activity. Q&A	<ul style="list-style-type: none"> •Boardwork - show learners how to convert between fractions, decimals and percentages. •Paired activity - complete a table of equivalencies •Matching game (<i>Skillswise</i>) 	Whiteboard Matching cards Worksheets <i>Computers</i>	Understand that fractions, decimals and percentages are different ways of expressing the same thing. Use fractions, decimals and percentages to order and compare amounts or quantities and to solve practical problems
14	Completion of project involving Fraction, decimal and percentages	Complete problem solving paper / mini project covering work completed during second half term	Formative assessment of student's work Directed questioning	<ul style="list-style-type: none"> •Learners to complete mini project (e.g. planning a Xmas party for a youth club) •Set homework according to ability 	Mini project	Carry out calculations with numbers of any size in practical contexts Understand and use equivalencies between fractions, decimals and percentages ECM5

XMAS BREAK

Week/ Session	Content	Learning Objectives: students will be able to	Assessment of Learning	Teaching and Learning Activities	Resources	Functional Skills Standards (including ECM theme)
15	Recap of Fractions, decimals and percentages Feedback of first term's topics	Apply fraction, decimal and percentage in problem solving situations Review autumn term progress sheet and complete targets for spring term	Checking/marking of worksheet Directed questioning	<ul style="list-style-type: none"> •Worksheets - Problem solving involving hire purchase. •Feedback from tutor - evaluate students progress with regard to their learning and their personal development 	Worksheets Calculator Progress Record Form	<p>Add and subtract using halves, thirds, quarters, fifths and tenths.</p> <p>Add, subtract, multiply and divide decimals up to three places and check answers</p>
16	Metric & Imperial measurement	Categorise metric and imperial units of length, distance, weight, capacity Read scales to different levels of accuracy, including reading between marked divisions	Observation of activity Observation of measuring tasks to varying degree of accuracy with the appropriate instrument.	<ul style="list-style-type: none"> •Discuss the appropriate units of measure for length, distance, weight, capacity, and the use of metric and imperial units •Activity - estimate, measure and record length and weights and capacities of supplied items •Paired activity - read both metric and imperial amounts for lengths, weights and capacities. 	Whiteboard Quiz questions Worksheets Measuring tape Bathroom and kitchen scales Flip charts <i>Smartboard</i>	Calculate, measure and record dates and times in different formats and know the relationship between units of time, for example second, minute, hour, day, week, month and year.

17	Conversion of metric and imperial units	<p>Calculate with units of measure within the same system</p> <p>Use a measuring instrument accurately</p> <p>Convert metric units to imperial units and vice versa</p>	<p>Observation of activity. Q&A.</p> <p>Observation of measuring activity</p> <p>Checking/marking the progress/completed worksheet</p>	<ul style="list-style-type: none"> • Discussion - metric and imperial units • Work out the best value of products of different weights or capacities. • Board work - How to convert between different units (review \times & \div by 10, 100 and 1000) • Worksheets - Converting between different units (calculate cost of petrol per gallon) • Activity -match metric and imperial amounts with different units (<i>smartboard</i>) 	<p>Whiteboard Worksheets Liquids and containers <i>Smartboard</i></p>	<p>Calculate with units of measure between systems, using conversion tables and scales, and know how to use approximate conversion factors</p> <p>Estimate, measure and compare length, distance, weight, capacity and temperature, including reading Celsius and Fahrenheit scales and conversion tables.</p>
18	Area and perimeter of composite shapes	<p>Use given formulae to find areas of composite shapes (e.g. non-rectangular rooms or plots of land)</p> <p>Break down a composite shape into regular shapes</p>	<p>Observation of activity. Q&A.</p> <p>Checking/marking the progress/completed worksheet</p>	<ul style="list-style-type: none"> • Discussion - finding the perimeter of composite shapes, such as rooms, which are not drawn to scale and do not have all the measurements included, and devise ways of finding the lengths of all the edges • Activity - Calculate how much tiles required for the floor, ceiling tiles and wallpaper border needed. • Calculate the cost of both 	<p>Whiteboard Worksheets Matching cards Measuring instruments <i>Smartboard</i></p>	<p>Know what is meant by perimeter, circumference, diameter and radius.</p> <p>Understand and use given formulae for finding perimeters and areas of common and composite shapes, circumference and area of circular surfaces</p>

				the floor and ceiling tiles.		
19	Scale Drawing	<p>Draw an accurate scale plan of the new beauty salon using a scale expressed as a ratio</p> <p>Accurately work out distances from the scale on a map.</p>	<p>Observation of activity</p> <p>Successful completion of task. Q&A</p>	<ul style="list-style-type: none"> Discuss scales and how they are used. Work from several examples such as <i>If the scale is 1:100 on a plan, what would a centimetre represent? What would 10 cm represent?</i> Activity - Produce a scale drawing of the salon showing furniture layout. Use different scales, e.g. 1:20, 1:10, and 1:50. 	<p>Tracing paper</p> <p>Whiteboard</p> <p>Internet</p> <p>Smartboard</p>	<p>Work out dimensions from scale drawings.</p> <p>Estimate amounts using proportions, for example the length of the room is about three times its width, and the stockroom is about two-thirds full.</p>
20	Measurements and scale drawings	<p>Measure a room and present the dimensions in form of scale drawing.</p> <p>Calculate the area and perimeter of the room.</p>	<p>Observation of set task.</p> <p>Check marked work.</p>	<ul style="list-style-type: none"> Learners to measure the café and plan a redecoration Produce a scale drawing of café Set homework 	<p>Measuring tape</p> <p>Rulers</p> <p>Whiteboard</p>	<p>Know that measurements must be in the same units when calculating perimeters, areas or volumes.</p> <p>Understand the symbol for pi and know its approximate value</p> <p>Understand and use given formulae for finding volumes of common shapes</p>

HALF TERM

Week/Session	Content	Learning Objectives: students will be able to	Assessment of Learning	Teaching and Learning Activities	Resources	Functional Skills Standards (including ECM theme)
21	2D and 3D shapes	Use common 2D representations of 3-D objects Solve problems involving 2-D shapes and parallel lines	Feedback to learner Observation of activity Checking/marking the progress/completed worksheet	<ul style="list-style-type: none"> Investigate and describe different representations of 3-D objects in 2-D, e.g. nets of solids, plans, elevations. Discuss practical examples of using parallel lines, e.g. hanging wallpaper, laying tiles or paving stones. Activity - Use the properties of parallel lines to solve everyday problems 	2-D and 3-D objects Drawing papers Internet Whiteboard	Recognise and use common 2D representations of 3D objects, for example in maps and plans. Solve problems involving 2D shapes and parallel lines, for example laying carpet tiles
22	Extracting Data	Extract and interpret information from lists, tables, charts and graphs	Observation of activity. Q&A	<ul style="list-style-type: none"> Discuss the difference between continuous and discrete data. A useful example is that the size of shoe someone wears is discrete, but the length of their foot is continuous. Board work - Look at the 	Whiteboard Holiday brochure Graph paper <i>Smartboard</i> <i>Internet</i>	Know how to extract discrete and continuous data from tables, spreadsheets, bar charts, pie charts and line graphs with more than one line.

				<p>use of different scales and their effect on the graph. Comment on trends from the slope of the graph.</p> <p>Activity - Online game, Extract information from tables in catalogues, brochures, web sites.</p>		
23	Organising and representing data.	<p>Measure the height of everyone in the class and present information as a chart / graph.</p> <p>Collect and record data from exchange rates or a particular share issue over a period of time. Display the data on a chart or graph</p>	<p>Check correct information included on chart</p> <p>Observation of activity and correct completion of chart or graph</p>	<ul style="list-style-type: none"> • Discussion - Use given sets of data and discuss the most suitable form of representation. • Activity - Measure and record classmates' height; present the data in a suitable form. • Worksheets - Plot a graph showing exchange rates over a period. 	<i>Whiteboard</i> <i>Internet</i> <i>Tape rule</i>	<p>Draw conclusions from scatter diagrams, understanding that correlation does not imply causality.</p> <p>Understand how to use scales in diagrams, charts and graphs.</p>
24	Present findings in a suitable way	Present outcome of investigation using a pie chart and bar chart.	<p>Check correct information included on chart</p> <p>Observation of activity Correct completion of chart</p>	<ul style="list-style-type: none"> • Activity - investigate the menu offered in the canteen on Tuesday and find out the most and least popular. • Present findings using pie chart. 	<i>Canteen</i> <i>Menu</i> <i>Graph</i> <i>paper</i>	Know how to extract discrete and continuous data from tables, spreadsheets, bar charts, pie charts and line graphs with more than one line.
25	Collecting and presenting data	Carry out an investigation and present the outcome in a suitable form	Check result of investigation.	<ul style="list-style-type: none"> • Activity - collecting and presenting data - e.g. Investigate the most popular music 	Quiz questions Worksheets Square	Know how to extract discrete and continuous data from tables, spreadsheets, bar charts, pie charts and line

			Directed questioning	genre in the college to prepare for the end of year performance	Paper <i>Smartboard</i>	graphs with more than one line. Know how to choose a suitable format and scale to fit the data and ensure all charts, graphs and diagrams are labelled.
26	Averages & range	Calculate mean, median and mode. Discuss the distinctions that each average is useful for different purposes. Find the range and use it to describe the spread within sets of data	Observation of activity Listen to discussion points Peer checking - feedback to learners	<ul style="list-style-type: none"> • Discuss the use of mean, median and mode. • Discussion - the use of range in everyday language, e.g. price range, age range • Q&A - extracting information from different sources • Activity - Compare the distribution of pay scales in two organisations. • Paired Activity - Collect data of interest and compare the range 	Graph papers Whiteboard Computers - Excel to produce charts and graphs	Find the mean, median and mode and understand that each average is useful for different purposes. Use the range to describe the spread within a set of data, for example sales results. Use the average and range to compare two sets of data
27	Recap of data handling Feedback	Complete the revision questions on last term's topics Review spring term progress sheet and complete targets	Checking/marking of worksheet	•Worksheets - Investigate BMI of 20 people and calculation the percentage of each weight categories within your chosen sample	Worksheets Calculator Progress Record Form	Collect and represent discrete and continuous data, using ICT where appropriate ECM3

	to students	for summer term		<ul style="list-style-type: none"> • Feedback with tutor - evaluate students progress with regard to their learning and their personal development 		
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EASTER BREAK

Week/Session	Content	Learning Objectives: students will be able to	Assessment of Learning	Teaching and Learning Activities	Resources	Functional Skills Standards (including ECM theme)
28	Probability	Accurately record the range of possible outcomes of combined events in tree diagrams or in tables.	Checking/marking the progress/completed worksheet	<ul style="list-style-type: none"> • Discuss the possible outcomes of an event using simple examples such as tossing a coin, picking a single playing card from a pack, throwing a die, the possible gender of a baby, the outcome of a football match for one team • Activity - chances of winning using scratch cards 	Whiteboard Worksheets Quiz questions Squared paper <i>Smartboard</i>	<p>Understand that probability is an expression of likelihood and can be written as a fraction, decimal or percentage.</p> <p>Identify the range of possible outcomes of combined events and record the information in tree diagrams or tables.</p> <p><u>ECM3</u></p>

29	Practice test	Complete practice FS assessments	Check answers on practice test.	Completing the questions and activities on FS assessment	Assignments Calculators Protractors Pen / Paper Graph paper	Use and interpret discrete and continuous data, using ICT where appropriate, statistical measures, tables and diagrams Use statistical methods to investigate situations <u>ECM 3</u>
30	Feedback	Feedback on practice paper both as a class and individuals	Q & A	Discussion Direct questioning	Assignments Calculators Protractors Pen / Paper Graph paper	
31	Summative assessment Practice Test for some if needed	Start functional skills assessments	Mark work completed	Completing the questions and activities on FS assessment	Assignments Calculators Protractors Pen / Paper Graph paper	
32	Summative assessment	Continue / complete functional skills assessment	Mark work completed	Completing the questions and activities on FS assessment	Assignments Calculators Protractors Pen / Paper Graph paper	<u>ECM 3</u>

33	Summative assessment	Continue / complete functional skills assignment	Mark work completed	Completing the questions and activities on FS assessment	Assignments Calculators Protractors Pen / Paper Graph paper	<u>ECM 3</u>
33	Introduce Project 1- Redesigning the interior of a beauty salon	Discuss the appropriate research method and resources required to complete the task.	Observation of activity. Q&A	Gather as much information as possible from internet, brochures and flyers Select and cost the new furniture for the beauty room.	Project Calculators Pen Ruler Graph Paper	<u>ECM 3 & 5</u>
34	Presentation of Research findings and group feedback	Present findings of their research using appropriate charts and diagrams	Q&A. Observation of task	<ul style="list-style-type: none"> • Present their research findings to the whole class • Explain the rationale behind their choice of holiday destination • Discuss issues encountered and receive feedback from peers 	Project Feedback sheets <i>Computers</i>	<u>ECM 3 & 5</u>
35	Introduce Project 2- Financial management	Present personal monthly budget plan to the group	Observation of presentation Q&A	<ul style="list-style-type: none"> • Discuss ways of managing spending • Calculate monthly budget • Present their research findings to the whole class • Explain the rationale behind their spending • Discuss problem encountered and receive feedback from peers 	Project Feedback sheets <i>Computers</i>	<u>ECM 3 & 5</u>

36	Whole Class Evaluation and Review Progress	Review individual student's progress sheets	Q&A	<ul style="list-style-type: none"> • Whole class evaluation of tasks • Discuss progression opportunities for the next academic year 	Progress sheets Questionnaire	<u>ECM 3 & 5</u>
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