Scheme of Work – Functional Skills Level 1 (Construction)

Course delivery information: Functional Skills Level 2 (Construction)

Duration: 36 weeks

Aims:

Performance - Learners can:

- Understand practical problems in familiar and unfamiliar contexts and situations, some of which are non-routine
- Identify, obtain and utilise necessary information to tackle problems
- Select and apply mathematics in an organised way to find solutions to practical problems for different purposes
- Use appropriate checking procedures at each stage

Interpret results, consider the appropriateness of conclusions, and communicate solutions to practical problems, providing explanations

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	Tell the KS/BS/FS requirements Answer questions on the Profiler assessment	Q&A Profiler Assessment	• Introduce the Key/Basic/Functional Skills – discuss assessment and portfolio requirements etc. • Paper or computer-based diagnostic assessments	Handouts Whiteboard Assessments *Computers*	
2	Initial assessment 1:1 feedback	Complete the Profiler assessment Complete autumn term progress sheets	Profiler Assessment	• Continue paper/computer-based diagnostic assessments	Assessments *Computers*	
3	Language of Maths Place value	Read, write order and compare large numbers Discuss negative numbers in practical contexts Read temperatures on a thermometer Use negative numbers in a practical context, e.g. temperature below zero, loss in trading	Observation of ordering activity Q&A Peer checking: Correctly read and record temperature – feedback to learners Discussion on government spending figures on public services	• 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 *(smartboard)* • Paired activity - Describe a set of numbers (more than, less than, equal to) *(smartboard)* • Paired activity – measure and record body temperatures	Matching cards Thermometers Worksheets *Computer* *Smartboard*	Read, write, order and compare positive and negative numbers of any size. Understand the meaning of negative numbers in a practical context, for example temperature below zero, loss in trading.
4	Multiples, factors and prime	Use mental and written methods of calculation to generate results when	Successful completion of problem solving worksheet & mental	Discuss different methods that can be used for mental and written calculations and share	Activity cards Worksheets	Understand multiple and factor, and relate them to multiplication and division

	numbers	solving problems using whole numbers of any size Complete calculations using the words *multiple*, prime number and *factor* and relate them to multiplication and division facts	maths game Observation of activity	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.	Follow on game cards Dominoes *Smartboard Computer Number square*	facts. Understand primes and know prime numbers up to 20. Give the level of accuracy of results
5	Ratio and Proportion	Solve problems involving the number of parts in a given ratio, and the value of one part	Checking/Marking of progress/completion of problem solving worksheet Peer checking: Scale quantities up (or down), using direct proportion, e.g. recipes, cement mixes, etc. – Observation of calculating actual measurements from a scale drawing.	• Discussion – ratio in everyday situation *(smartboard)* • Worksheets – problem solving • Group activity – actual measurement from a scale drawing	Activity cards Worksheets Scale drawing *Smartboard Computer*	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	Make distinction that words and symbols in expressions and formulae rule represent variable quantities (numbers), not things Evaluate expressions and make substitutions in given formulae in words and symbols to produce results.	Observation of Smartboard activity - Matching expressions Peer checking – Worksheet on how to calculate area and volume from a given formula	• Discussion – examples of practical applications of algebra. • Board work - match expressions in words and symbols. • Convert expressions from words to symbols, and vice versa. *(smartboard).* • Worksheets - Evaluate	Whiteboard Worksheets Calculators *Smartboard Computer*	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. Understand that the contents of brackets must be worked out first.

				simple formulae using brackets, e.g. perimeter = 2 (l + w). •Paired activity - changing temperature from Fahrenheit to Celsius, changing between metric and imperial units.		
7	Recap of first half term topics and completion of mini project.	Complete mini project. Q & A session	Direct questioning Mark the assignment and give feedback	•Learners to complete mini project (work out profit & loss in a business) and answer oral questions (e.g. House hold or small business budgeting) •Set homework	Mini project	Use efficient methods to carry out calculations involving two or more steps, including efficient use of a calculator. Understand that when there is no operator between a number and a variable, two variables, or a bracket, multiplication is implied. Make substitutions in given formulae in words and symbols. **ECM5**

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 Know how to reduce a fraction to its simplest form	Checking/marking of progress/completion of worksheet	•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 *Smartboard Computer worksheet*	Know how to change fractions to equivalent fractions with a common denominator. Identify equivalences between fractions, decimals and percentages. Understand that quantities must be in the same units to evaluate and compare.
9	Equivalent fractions	Match equivalent fractions	Observation of matching cards game	•Discussion – examples of fractions and its equivalencies in everyday life (use leaflets, adverts and headlines). Understand that fractions add up to one whole •Activity – Write fractions of an hour as decimals on a time sheet *(smartboard)* •Card activity – matching equivalent fractions, decimal and percentages	Leaflets Whiteboard Matching cards Worksheets Drag and drop exercise.	Know how to change fractions to equivalent fractions with a common denominator Evaluate one number as a fraction or percentage of another.

10	Decimals	Write down the value of figures in numbers of up to three decimal places Add, subtract, multiply and divide decimals up to three places	Successful completion of task Checking/marking of progress/completion of worksheet	•Discussion - rounding answers on a calculator and the degree of accuracy that might be appropriate, e.g. calculations with money, precise measurements) •Activity – Compare times from sprint races that are recorded in seconds to three decimal places.) •Search for goods on European online shopping sites and convert the prices from € to £ sterling	Whiteboard Ordering cards *Smartboard computers*	Add, subtract, multiply and divide decimals up to three places and check answers in the context of measurements and money
11	Percentage of quantities	Order and compare percentages and demonstrate understanding of percentage increase and decrease. Calculate VAT of given amounts.	checking/marking the progress/completed]task Peer-checking	•Discuss quick ways of finding VAT •Use interest rates to compare the cost of a loan with credit facilities. •Paired Activity - Practise examples in context, e.g. percentage increase or decrease of plumbing materials Add VAT to a completed repair. Use any methods.	Worksheets Interest rates from banks. Internet	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.
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	•Discussion – percentages using the attributes of the group, e.g. what percentage of the group is male, •Activity – match calculations to answers	Whiteboard Matching cards *Smartboard* *Computers* *Calculators*	Evaluate one number as a fraction or percentage of another. Understand that quantities must be in the same units to

				Smartboard / skillswise) •Activity – Use a calculator to check the answers to calculations done by other methods (manual or by another person).		evaluate and compare.
13	Equivalent fractions, decimals and percentages	Complete a table of equivalent fractions, decimals and percentages including in real life context.	Observation of activity. Q&A	•Boardwork – show learners how to convert between fractions, decimals and percentages. •Paired activity – complete a table of equivalencies •Matching game (*SkillIswise)*	Whiteboard Matching cards Worksheets *Computers*	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	•Learners to complete mini project (e.g. finding the most competitive prices to re-decorate a spare room into an office) •Set homework according to test results	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/	**Content**	**Learning Objectives:**	**Assessment of Learning**	**Teaching and Learning**	**Resources**	**Functional Skills Standards**

Session		students will be able to		Activities		(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	•Worksheets – Problem solving with fractions, decimals and percentages. •Feedback with tutor – evaluate students progress with regard to their learning and their personal development	Worksheets Calculator Progress Record Form	Add and subtract using halves, thirds, quarters, fifths and tenths. Add, subtract, multiply and divide decimals up to three places and check answers
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.	•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 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 *Smartboard*	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	Calculate with units of measure within the same system Use a measuring instrument accurately Convert metric units to imperial units and vice versa	Observation of activity. Q&A. Observation of measuring activity Checking/marking the progress/completed worksheet	• 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 x & ÷ by 10, 100 and 1000) • Worksheets – Converting between different units • Activity –match metric and imperial amounts with different units *(smartboard)*	Whiteboard Worksheets Liquids and containers *Smartboard*	Calculate with units of measure between systems, using conversion tables and scales, and know how to use approximate conversion factors Estimate, measure and compare length, distance, weight, capacity and temperature, including reading Celsius and Fahrenheit scales and conversion tables.
18	Area and perimeter of composite shapes	Use given formulae to find areas of composite shapes (e.g. non-rectangular rooms or plots of land) Break down a composite shape into regular shapes	Observation of activity. Q&A. Checking/marking the progress/completed worksheet	• 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 the wall area for painting, excluding doors and windows. Use plans drawn on plain paper to find the areas of composite shapes. Calculate any missing dimensions, and use a	Whiteboard Worksheets Matching cards Measuring instruments *Smartboard*	Know what is meant by perimeter, circumference, diameter and radius. Understand and use given formulae for finding perimeters and areas of common and composite shapes, circumference and area of circular surfaces

				formula to find the area of each component		
19	Scale Drawing	Draw an accurate scale plan of a room using a scale expressed as a ratio Accurately work out distances from the scale on a map.	Observation of activity Successful completion of task. Q&A	• Discuss scales and how they are used. Work from several examples such as *If the scale is 1:100 on a plan, what would a centimetre represent? What would 10 cm represent?* • Activity – Produce simple plans and scale drawings, with different scales, and work out actual measurements, e.g. house plans, room plans, templates for making something, etc. Use different scales, e.g. 1:20, 1:10, and 1:50.	Tracing paper Whiteboard Internet *Smartborad*	Work out dimensions from scale drawings. Estimate amounts using proportions, for example the length of the room is about three times its width, the stockroom is about two-thirds full.
20	Measurements and scale drawings	Measure a room and present the dimensions in form of scale drawing. Calculate the area and perimeter of the room.	Observation of set task. Check marked work.	•Learners to the mini project on scale drawing using appropriate scale. •Set homework	Measuring tape Rulers Whiteboard	Know that measurements must be in the same units when calculating perimeters, areas or volumes. Understand the symbol for pi and know its approximate value Understand and use given formulae for finding volumes

						of common shapes

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	• 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, e.g. finding the amount of coving needed to go round a ceiling by using the corresponding floor measurements.	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	• 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 use of different scales and their effect on the graph. Comment on trends from the slope of the graph. • Activity – Online game, Extract information from tables in catalogues, brochures, web sites.	Whiteboard Holiday brochure Graph paper *Smartboard* *Internet*	Know how to extract discrete and continuous data from tables, spreadsheets, bar charts, pie charts and line graphs with more than one line.
23	Organising and representing data.	Measure the height of everyone in the class and present information as a chart / graph. 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	Check correct information included on chart Observation of activity and correct completion of chart or graph	• 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.	*Whiteboard* *Internet* *Tape rule*	Draw conclusions from scatter diagrams, understanding that correlation does not imply causality. Understand how to use scales in diagrams, charts and graphs

24	Present findings in a suitable way	Present outcome of investigation using a pie chart and bar chart.	Check correct information included on chart Observation of activity Correct completion of chart	• Activity – investigate the menu offered in the canteen on Tuesday and find out the most and least popular. • Present findings using pie chart.	*Canteen Menu* *Graph paper*	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. Directed questioning	Activity – collecting and presenting data – e.g. Investigate the most popular music genre in the college to prepare for the end of year performance.	Graph papers Whiteboard Computers – Excel to produce charts and graphs	Know how to choose a suitable format and scale to fit the data and ensure all charts, graphs and diagrams are labelled. **ECM3**
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	• 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, e.g. local house prices in	Whiteboard Worksheets Charts, tables and graphs Quiz questions Squared paper	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

				different area		
27	Recap of data handling Feedback to students	Complete the revision questions on last term's topics Review spring term progress sheet and complete targets for summer term	Checking/marking of worksheet	• Worksheets – Problem solving with data handling • Feedback with tutor – evaluate students progress with regard to their learning and their personal development	Worksheets Calculator Progress Record Form	Collect and represent discrete and continuous data, using ICT where appropriate **ECM3**

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	• 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 – Identify the possible outcomes of the gender of twins	*Smartboard* Quiz questions Worksheets Square Paper *Smartboard*	Understand that probability is an expression of likelihood and can be written as a fraction, decimal or percentage. Identify the range of possible outcomes of combined events and record the information in tree diagrams or tables.
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 ECM 3
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	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	ECM 3
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	ECM 3
33	Introduce Project 1- Planning a Holiday	Discus the appropriate research method and resources required to complete the task.	Work as a group to determine the things that should be considered when going on holiday.	Gather as much information as possible from internet, brochures and flyers	project Calculators Protractors Pen Ruler Graph Paper	ECM 3 & 5
34	Presentation of Research findings and group feedback	Present findings of their research using appropriate charts and diagrams	Q&A. Observation of task	• Present their research findings to the whole class • Explain the rationale behind their choice of holiday destination • Discuss issues encountered and receive feedback from	Project Feedback sheets *Computers*	ECM 3 & 5

				peers		
35	Introduce Project 2- Financial management	Present personal monthly budget plan to the group	Observation of presentation Q&A	• 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 *Computers*	ECM 3 & 5
36	Whole Class Evaluation and Review Progress	Review individual student's progress sheets	Q&A	• Whole class evaluation of tasks • Discuss progression opportunities for the next academic year	Progress sheets Questionnaire	ECM 3 & 5