Functional Skills Mathematics Level 2 assessment

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Version 1

Marking scheme
PAPER-BASED

V1

Sample 5

	Mark	Represent	Analyse	Interpret	Open	Fixed					
1A	4	2	2	0	4	0					
1B	1	1	0	0	0	1					
1C	4	2	2	0	4	0					
1D	2	1	1	0	2	0					
1E	4	0	0	4	4	0					
1F	4	0	1	3	4	0					
1G	3	1	2	0	0	3					
1H	3	0	0	3	3	0	8	8	9	21	4
2A	4	3	1	0	4	0					
2B	2	1	1	0	2	0					
2C	5	2	3	0	5	0					
2D	4	1	3	0	0	4					
2E	5	2	3	0	5	0					
2F	5	3	2	0	5	0	11	14	0	21	4
3A	2	1	2	1	4	0					
3B	4	0	2	0	0	2					
3C	3	1	2	0	0	3					
3D	2	1	1	0	2	0					
3E	4	0	0	4	0	4					
3F	6	0	0	6	6	0					
3G	4	1	1	2	4	0	5	8	12	16	9
	75	23	29	23	58	17					
		31%	38%	31%	77%	23%					

NB incorrect money format should only be penalised **once** on the whole paper but do not penalise any subsequent incorrect format.

Maths Level 2: Task 1 – Applying for a mortgage

Step	Total marks	Marks	Marks awarded for
1A	**4**	**4**	**all values correct** **Wurton** **(£) 112 000** **Homestead** **(£) 136 000** **Moving Day** **(£) 140 000**
		3	any two values correct
		2	any one value correct
		1	(£) 40 000 and (£) 16 000 seen in a calculation **or** x2 **or** x3 and x1 **or** x3.5
1B	**1**	**1**	**all values correct** **Wurton** **(£) 137 000** **Homestead** **(£) 161 000** **Moving Day** **(£) 165 000** ***follow through 1A***
1C	**4**	**3**	**(£) 14 400 (Wurton) AND (£) 20 000 (Moving Day)**
		2	(£) 14 400 (Wurton) **or** (£) 20 000 (Moving Day)
		1	method for calculating percentage seen eg ÷100 x9 eg x0.125
		1	**(£) 32 000 (Homestead)**
1D	**2** **no marks for repeat calc**	**2**	**a complete correct check of any original calculation seen in 1A or 1C using a different method** **eg a reverse calculation OR a calculation using approximate values** **original calculation must be seen**
		1	a complete check which is not finished **or** method for reverse calculation if check result inaccurate
1E	**4**	**1**	clear table structure with rows and columns and some suitable headings/labels
		1	headings/labels for house price, maximum borrow, maximum price, deposit needed and deposit saved or equivalents
		2	all data correctly entered for their headings/labels with units
		1	all data correctly entered for their headings/labels with one omission or without units
1F	**4**	**1**	**No (Wurton) and suitable explanation eg mortgage is not enough** ***follow through 1A and 1C***
		1	**No (Homestead) and suitable explanation eg deposit is not enough** ***follow through 1A and 1C***
		1	**Yes (Moving Day) and suitable explanation eg mortgage and deposit sufficient to cover price of house** ***follow through 1A and 1C***
		1	**suitable mortgage company AND correct amount borrowed eg Moving Day (£) 140 000**
1G	**3**	**3**	**(£) 700**
		2	(£) 8 400 for AR seen **or** (£) 675 from (£) 135 000 borrowed
		1	correct substitution in formula **or** value for 6% seen eg 0.06 or ÷100 x6 **or** ÷12 seen

1H		**3**	**three comments relevant to one or more review prompts, accept any reference to any specific aspect of the task done ie other information or sensible answers or methods or difficulties or tackling a similar problem, and related to the task.** **Do not accept any generic comment – eg my answers are sensible because I checked them *ie unqualified*** **Do not accept comments that relate to lack of information which is actually provided**	
			some acceptable comments	**some unacceptable comments**
			eg I would have liked to have known if I could buy a cheaper house **eg the results seemed sensible because the repayments seem manageable** **eg my methods worked well as I could choose a suitable mortgage** **eg I found calculating the repayments difficult** **eg I wouldn't do anything differently as I was able to choose a mortgage and calculate the repayments**	**eg I had all the information I needed (ie no specific reference to the task)** **eg my answers seemed sensible (ie no specific reference to the task)** **eg my methods worked well (ie no specific reference to the task)** **eg I found 1F difficult (ie no specific reference to the task)** **eg I wouldn't do anything differently (ie no specific reference to the task)**
		2	two comments	
		1	one comment	
				Total for Task 1 25 marks

Example table for 1E

House Price £160 000			
Company	**Wurton**	**Homestead**	**Moving Day**
Maximum amount they can borrow	£112 000	£136 000	£140 000
Maximum house price	£137 000	£161 000	£165 000
Deposit needed	£14 400	£32 000	£20 000
Deposit saved £25 000			

Maths Level 2: Task 2 – Athletics track			
Step	**Total marks**	**Marks**	**Marks awarded for**
2A	**4**	**4**	**three correct values for lengths** **Line** / **Length (m)** A / 84 (m) B / 74 (m) C / 37 (m)
		3	two values correct with/without units
		2	one value correct with/without units
		1	8.4 cm **and** 7.4cm **and** 3.7cm seen for diagram measurements
2B	**2**	**2**	**correct explanation of scale used in 2A with reference to scale AND length of scaled line AND actual length** **eg 2cm = 20m AND 8.4cm = 84m** **eg 1 square = 1m AND 8.4 squares = 8.4m** **eg scale 1:100 AND 8.4 x 100 = 840cm = 8.4m**
		1	incomplete explanation of scale used eg 2cm = 2m for reference to scale only eg 8.4cm = 84 m for reference to actual and scaled measurements only
2C	**5**	**5**	**1.2 m or 120cm or 1200mm WITH UNITS**
		4	1.2 or 120 or 1200
		3	9.6(m) or 960(cm) or 9600(mm) **or** complete correct method with a calculation or rounding error
		2	0.45(m) or 45(cm) or 450(mm)
		1	x9 seen **or** 5(cm) or 0.05(m) for conversion of 50mm **or** 1005(cm) for conversion of 10.05m
2D	**4**	**4**	**400m** ***follow through 2A***
		3	400.36m for bracketed term **or** complete correct method with one calculation or rounding error
		2	232.36m for $2\pi C$ **or** correct substitution into formula
		1	168 for 2A **or** −0.36 seen
2E	**5**	**5**	**all values for distances correct** **Lane** / **Distance from start line** 1 / 0m 2 / + 7.85(m) 3 / +15.7(m) 4 / +23.55(m) 5 / +31.4(m) 6 / +39.25(m) 7 / +47.1(m) 8 / +54.95m

		4	complete correct method with one calculation or rounding error
		if 4 or 5 marks not awarded, apply the following two-part mark scheme	
		3	**7.85(m)**
		2	54.95(m) **and** ÷ 7 **or** 7.*85*(m) URT **or** 9.1*583333*(m) URT for ÷6 or 6.86*875*(m) URT for ÷8
		1	54.95(m) **or** ÷ 7
		2	**any three values for distances correct** **OR all five values for their staggered distance**
		1	any two values for distances correct **or** three values using their staggered distance
2F	**5**	**5**	**27.43 km/h**
		4	27.4*2857143* URT km/h
		3	complete correct method with one calculation or rounding error
		2	7.6*19047619* URT (metres per second) **or** 457.*1428571* URT (metres per minute) **or** 131.25 seconds for 1km
		1	105 seconds seen **or** x60 or x3600 **or** x1.25
			Total for Task 2 25 marks

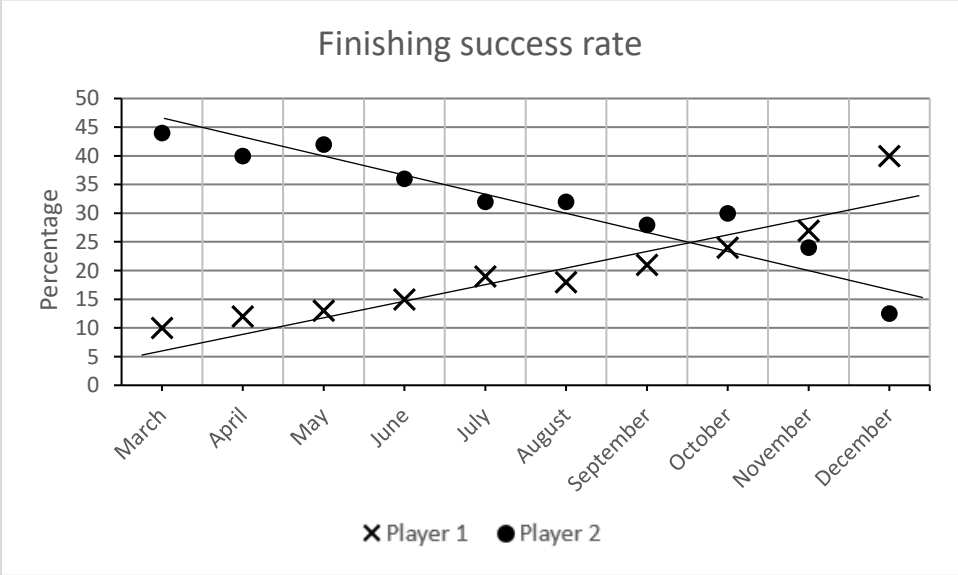
Maths Level 2: Task 3 – Darts tournament			
Step	**Total marks**	**Marks**	**Marks awarded for**
3A	**2**	**2**	**Player 1 AND explanation including 2-1 result AND total scores seen for 501**
		1	Player 1 with reference to either the 2-1 result **or** total scores for 501
3B	**4**	**3**	**correct values for both averages with corresponding choice indicated** **Average / Player 1 / Player 2** **Mean / 103.*0714286* URT / 99.*85714286* URT** **Mode / 100 and 140 / 140 and 180** **Median / 110 / 121**
		2	one correct value for their choice of average **or** both values if no choice indicated or incorrect choice
		1	attempted correct method for their average eg ÷ 14 (mean) eg order data to find middle values (median) eg finding frequency of values (mode)
		1	**suitable explanation for choice of average** **eg mean- considers all the data** **eg median- excludes any extreme values** **there is no suitable explanation for mode**
3C	**3**	**3**	**40% AND 12.5%**
		2	40% **or** 12.5%
		1	$\frac{2}{5}$ or $\frac{1}{8}$ or equivalent seen
3D	**2** **no marks for repeat calc**	**2**	**a complete correct check of any original calculation seen in 3A or 3B or 3C using a different method** **eg a reverse calculation OR a calculation using approximate values** **original calculation must be seen**
		1	a complete check which is not finished **or** method for reverse calculation if check result inaccurate
3E	**4**	**1**	**round 1 result**
		2	**Player 1 / Player 2** **10 / Scores 100 or more / 8** **3 / Scores 140 or more / 6** **0 / Number of 180s / 3**
		1	any two values correct
		1	**their averages and finishing success rate percentages entered correctly**
3F	**6**	**2**	**both points plotted correctly on the chart**
		1	one point plotted correctly on the chart

		1	**one trend line (line of best fit) drawn for given data with Player 1 showing positive correlation with approximately equal plots either side of the trend lines**
		1	**one trend line (line of best fit) drawn for given data with Player 2 showing negative correlation with approximately equal plots either side of the trend lines**
		1	**valid comment made for Player 1** **eg finishing success rate is getting better**
		1	**valid comment made for Player 2** **eg finishing success rate is getting worse**
3G	**4**	**2**	**0.6 OR 60% OR 3/5 OR 3 in 5 chance OR 3 out of 5** **do not allow 3:5**
		1	9/15 or 9 in 15 **or** 3:5
		2	**probability scale showing either 0–1 or 0–100% or 'impossible' / 'certain' as end points AND showing their probability ± 2 percentage points**
		1	probability scale drawn showing their probability ±4 percentage points with end points labelled correctly Do not award this mark if scale labelled 1 – 15 or similar
			Total for Task 3 25 marks

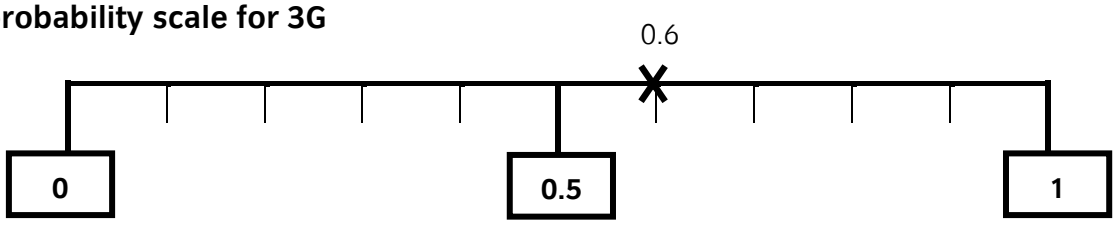
Example scorecard for 3E

Round 1 Scorecard		
Player 1		**Player 2**
103	**Average Score**	**100**
10	**Scores 100 or more**	**8**
3	**Scores 140 or more**	**6**
0	**Number of 180s**	**3**
40%	**Finishing success rate**	**12.5%**
Round 1 result	**Winner: Player 1 won by: 2-1**	

Example graph for 3F



Example probability scale for 3G



Level 2 Sample paper 5			
Coverage and Range (Technical Skills)	**Task 1**	**Task 2**	**Task 3**
C2.1 Understand and use positive and negative numbers of any size in practical contexts	✓	✓	✓
C2.2 carry out calculations with numbers of any size in practical contexts, to a given number of decimal places	✓	✓	✓
C2.3 Understand, use and calculate ratio and proportion, including problems involving scale		✓	
C2.4 Understand and use equivalences between fractions, decimals and percentages	✓		✓
C2.5 Understand and use simple formulae and equations involving one- or two-step operations	✓	✓	
C2.6 recognise and use 2D representations of 3D objects		✓	
C2.7 find area, perimeter and volume of common shapes		✓	
C2.8 use, convert and calculate using metric and, where appropriate, imperial measures		✓	
C2.9 collect and represent discrete and continuous data, using ICT where appropriate			✓
C2.10 use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate	✓	✓	✓
C2.11 use statistical methods to investigate situations			✓
C2.12 use probability to assess the likelihood of an outcome			✓