Mark Scheme (Results)

June 2014

Pearson Edexcel GCE in Applied ICT (6953)
Unit 3: The Knowledge Worker

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.

- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.

- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.

- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.

- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.

- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.

- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Activity 1		Understanding the Situation			
		Any 10 of			
	A1	10x10 grid		**1**	
	A2	1mm square (1mm by 1mm) (wire mesh)		**1**	
	A3	Size/weight of stones measured in carats		**1**	
	A4	1 carat = 0.2 gram; 1 carat = $\frac{1}{5}$ gram (accept correct equivalent answers e.g. 5 carats = 1 gram)		**1**	
	A5	Stone for grid ½ (0.5) carat		**1**	
	A6	Demand can be predicted		**1**	
	A7	By using a formula (A6 must have been awarded)		1	
	A8	Based on price (A6 must have been awarded)		**1**	
	A9	Each month 3 designs to be produced		**1**	
	A10	Model to keep track of amount of each gem used		**1**	
	A11	And amount remaining (stock)		**1**	
	A12	Gems / stones made from waste products		**1**	
	A13	Therefore no cost (A12 must have been awarded)		**1**	
	A14	Each month the amount of each gem powder available must be input / imported to the model		**1**	
	A15	Pixie plate is 1cm by 1 cm		**1**	
				Max 10	10
	B1	£50 to £100	Must have a currency symbol	**1**	
	B2	£500 to £750	Limits to range must be as given	**1**	
	B3	£1000 to £2000	Accept £50-£100	**1**	
					3

The expansion mark cannot be awarded without the statement. However the statement may be implicit in the expansion.

	C1	The amount of gem powder used in creating the Pixie Plates (not designs)	Should not exceed the amount available that month.	**1,1**	
	C2	100 gems must be used in each design	Otherwise wire mesh will show / plate is not complete	**1,1**	
					2
			Total Marks for Activity 1		15

Activity 2		Computer Modelling		
		Stones Print: columns B-H; rows 7-14		
	A1	Weights and Costs imported correctly	1	
	A2	Cells H8 to H14 contain correct formulae (=F8/0.2, =F8*5)	1	
				2
		Designs – 1 Print: columns B-L; rows 17-25		
	B1	Working formula in D18 =COUNTIF(C7:L16,B18)	1	
	B2	Working formula in D24 =COUNTIF(C7:L16,B24)	1	
	B3	Absolute addressing used on COUNTIF range C$7:L$16 or $C$7:$L$16 Formula must be replicatable down	1	
	B4	Correct formula in cell F18 =Stones!G8	1	
	B5	Correct formula in cell F24 =Stones!G14	1	
	B6	Correct formula in cell I18 =D18*F18/2	1	
	B7	Correct formula in cell I24 =D24*F24/2)	1	
				7
		Designs – 2 Print Columns N-X; rows 17-25		
		Warning: Be careful of the VLOOKUP option. As it is unnecessary there are a lot of ways it can be correct. The FALSE is not needed as the gems are in alphabetical order. The gem code can be picked up from a large number of places and can even be a literal.		
	C1	Correct formulae in all three cells for Row 18 (Ignore absolute addressing) =COUNTIF(O7:X16,N18) =Stones!G8 =P18*R18/2	1	
	C2	Correct formulae in all three cells for Row 24 (Ignore absolute addressing) =COUNTIF(O7:X16,N24,) =Stones!G14 =P24*R24/2	1	
	C3	Correct absolute addressing for Column P/Q =COUNTIF(O$7:X$16,N18) Must be fully replicatable	1	
	C4	Correct absolute addressing for Column R/S =Stones!$G8	1	
	C5	Correct, fully replicatable formula for U/V/W =P18*R18/2 (no absolute addressing needed)	1	
				5

		Designs – 3 Print: columns Z-AJ; rows 17-25		
	D1	Correct formulae and relative addressing in all three cells for Row 18 =COUNTIF(AA$7:AJ$16,Z18) (May not be Z18 could be any cell containing C) =Stones!$G8 =AB18*AD18/2	**1**	
	D2	Correct formulae and relative addressing in all three cells for Row 24 =COUNTIF(AA$7:AJ$16,Z24) (May not be Z24 could be any cell containing T) =Stones!$G14 =AB24*AD24/2	**1**	
				2
		Stock Control – 1 Print: columns A-F, rows 6-15		
	E1	Correct formulae in cells D7, E7, F7 =Designs!I25, =Designs!U25, =Designs!AG25	**1**	
		=IF(D7>0, (50000000/D7^2),0)		
	E2	In cell D8 Condition statement and False statement correct (D7>0, 0)	**1**	
	E3	In Cell D8 True statement correct (50000000/D7^2) Allow (50000000/(D7*D7)) Or (50000000/D7/D7)	**1**	
	E4	Bonus for fully correct formula =IF(D7>0, (50000000/D7^2),0) Must use indices	**1**	
	E5	D9 correct and replicated (*watch for absolute addressing row or column and row*) =Designs!D18*'Stock Control'!D$8	**1**	
	E6	E9 correct and replicated (*watch for absolute addressing row or column and row*) =Designs!P18*'Stock Control'!E$8	**1**	
	E7	F9 correct and replicated (*watch for absolute addressing row or column and row*) =Designs!AB18*'Stock Control'!F$8	**1**	
				7

		Stock Control – 2 Print: columns A-B, G-J, rows 7-15		
	F1	Correct formulae in cell G9 =SUM(D9:F9) allow D9+E9+F9 replicated down to G15	**1**	
	F2	Correct formulae in cell H9 =G9/2 or =G9*0.5 replicated down to H15	**1**	
	F3	Correct formulae in cell I9 =H9*0.2 or =H9/5 replicated down to I15	**1**	
	F4	Correct formulae in cell J9 =Stones!F8-'Stock Control'!I9 replicated down to J15	**1**	
				4
		Designs – 4 Print: columns AL-AS, rows 17-24		
	G1	Correct formulae in cell AN18 and replicated (='Stock Control'!G9)	**1**	
	G2	Correct formulae in cell AP18 and replicated (='Stock Control'!J9)	**1**	
				2
		Using the model Print: columns B:AS; rows 7-25		
	H1	Column width in worksheet has been reset to 2 for all designs	**1**	
	H2	All designs 100 stones (no red)	**1**	
		H3-H6 are only awardable if there are correct formulae in 'Stock Control' D8:F15		
	H3	Have only used available stones (no red)	**1**	
		A design must use 100 stones. If any stone has run out then no designs using that stone can marked.		
	H4	1 design between £50 and £100	**1**	
	H5	1 design between £500 and £750	**1**	
	H6	1 design between £1000 and £2000	**1**	
				6
		Printouts (8 printouts)		
	I1	All printouts, and no more, in right order.	**1**	
	I2	Row and column headings and gridlines (on at least 4 worksheets)	**1**	
	I3	Correct header & footer (at least 4 worksheets)	**1**	
	I4	Correct rows and columns printed (at least 4 worksheets)	**1**	
				4
		Total Marks for Activity 2		**39**

Activity 3		Wall Mount Print: columns Y-AI; rows 7-15		
		Wall Mount 1		
	A1	Working formula in AA8 (=COUNTIF(C7:V26,Y8)	**1**	
	A2	Working formula in AC8 (=Stones!G8)	**1**	
	A3	Working formula in AF8 (=AA8*AC8)	**1**	
	A4	All formulae replicated with suitable absolute addressing (works with or without column formatting on COUNTIF) (=COUNTIF($C$7:$V$26,Y8), =Stones!G8, =AA8*AC8)	**1**	
				4
		Wall Mount 2 Print: columns Y-AI; rows 17-27		
	B1	Working formula in AA21 (=AA8*AC18, =AA8*200)	**1**	
	B2	Working formula in AC21 (=AA21, =AA21)	**1**	
	B3	Working formula in AE21 (=AC21*0.2, =AC21/5)	**1**	
	B4	All 3 formulae replicated with suitable absolute addressing =AA8*$AC$18, =AA21, =AC21*0.2 Candidate is expected to realise that the model is reusable and the number of wall mounts produced may be different from 200.	**1**	
	B5	Formula in AG takes away AE21 from either 'Stock Control'!J9 OR Stones!F8 OR Designs!AP18	**1**	
	B6	Bonus for using 'Stock Control'!J9	**1**	
	B7	Replicated – must be fully correct formulae	**1**	
				7
		Reuse the Model Print: columns C-V; rows 7-26 and columns Y-AI; rows 7-27		
		All formulae must be working for these marks to be awarded		
	C1	Design corresponds to data	**1**	
	C2	Design 400 stones (no red)	**1**	
	C3	Have only used available stones (No red)	**1**	
		A design must use 400 stones. If any Gem has run out then the design cannot be marked.		
	C4	At least 3 types of stone used	**1**	
	C5	At least 4 types of stone used	**1**	
				5
		Printouts (4)		
		All printouts, and no more, in right order are required to access D1, D2 and D3.		
	D1	Row and column headings and gridlines (All worksheets)	**1**	
	D2	Correct header & footer(All worksheets)	**1**	
	D3	Correct rows and columns printed(All worksheets)	**1**	
				3
		Total Marks for Activity 3		19

Activity 4	User guide – Indicative content
	Title e.g. Using the Pixie Plates Design System. • System helps you design the Pixie Plates while helping keep an eye on stock. The new designer is to produce 3 designs per month plus possibly a wall mount and the must be in the stated ranges as far as price goes. The number sold will be predicted and therefore the amount of a gem left, there must be enough gem powder to fulfil the order. • Each month the price of each type of gem will need to be input, the source of this could be the company as the scenario indicates or it could be a site on the internet. The amount of gem powder must also be input, the data source for this should be manufacturing. • Codes for stones, entry into design, where the price is displayed, have we got enough gem powder, number of stones used in design. Tip: For cheapest design fill with Tourmaline using replication to provide a basis for start. Evaluation of the model with respect to ease of use and constraints. (i.e. it would be better if…) • Model allows you to see visually how things are being used up, it doesn't help you create a design using your own methods of designing. • It would be better if there was formatting to show when you exceed key values. • It would be good if the model predicted if you lacked enough gems to fill the background once it detected what colour you were using. • Can't copy or rotate/move designs as you build them. • More difficult to reset the designs. • Could improve the UI experience by adding buttons and macros. Diagrams (if included) : • Relevant • Used in explanations • Fit for purpose (embedded in report)

Level	Marks	Descriptor
	0	No rewardable content
1	1-5	There should be a description of what the model does but the price ranges and constraints may not be present. The key data and data sources will not all be identified though there may be extra ones such as how many are sold for a particular price. There will be a simple description about putting the codes into the design but this may not be illustrated and may not include where information about price etc is. Possibly not how to use tips. Spelling, punctuation and the rules of grammar are used with limited accuracy.
2	6-10	The user guide will be titled and one of the data inputs identified (or both and an extra). Data sources may be vague. The instructions will use screen shots to illustrate instructions and some of the indicators will be pointed out but may not be explained fully. There will be some evaluative comments about the effectiveness of the model. Some tips may be included.

		Spelling, punctuation and the rules of grammar are used with some accuracy.
3	11-15	The report will be titled and both of the data inputs identified (no unrelated extras). Data sources will be well described. The instructions will probably use screen shots to illustrate instructions and all of the indicators will be pointed out and explained fully. There will be developed evaluation, looking at the models' effectiveness. Evaluation may identify several issues with the model and suggest improvements. Tips will be included. Spelling, punctuation and the rules of grammar used with considerable accuracy.
		Total Marks for Activity 4

	S1	Authenticating Work (All WP pages have task number, Name, centre number).
	S2	Appropriate Structure (Pages in correct order & Folder assembled correctly)
		SWW 2
		Total Marks for Paper = 90