Appendix 1 Forms
Form 4 Session plan

Teacher	James Hamilton	Date	15/11/10	Room	
Course/topic	**Introduction to Binary Numbers**	**Time**	**10:00:00**	**Duration**	**30m**
Aim	• **To be able to convert small binary numbers to decimal** • **To be able to convert small decimal numbers to binary**				

Timing	Objectives/learning outcomes The learner will:	Resources	Teacher activities	Learner activities	Assessment
0	Revise decimal number system	Powerpoint; place value squares - units, tens, hundreds, blank squares; counters (could be sweets)	Introduce lesson aims Ask students what number system we use daily. Show students a slide of numbers to pick from. Ask (a) group(s) to read out the number of counters on each place value square – write on board. e.g.: 3 x 1000 + 2 x 100 + 4 x 10 + 2 x 1 = 3242 Ask students what is the pattern in the place values.	students, in groups, to order the place value squares, and fill in the last one. students to put counters on squares showing a decimal number.	Observation
~5	Introduce binary place values Convert binary to decimal	slides, a4 dot cards: 1 dot, 2 dot,etc	Ask students how many numbers decimal uses (hint: base **10**).	4 learners hold cards.	

Timing	Objectives/learning outcomes The learner will:	Resources	Teacher activities	Learner activities	Assessment
~12 **20** **~29**	Convert decimal to binary Practise conversions Close class	dot cards worksheet Slides	Ask how many numbers binary uses (hint: base **2**). Start with units column (student with 1 dot card). Ask class, if decimal column values are multiplied by 10, what would base 2 column values be multiplied by – ask what the next column value would be and invite a student to hold that card, etc for 4 columns. Ask class how would you convert a decimal to a binary. Get students to come up with some random numbers to convert. Teacher explains worksheet and walks around class checking if people need help. End class with quick discussion on use of binary numbers with computers and lastly with binary joke	Class has to convert some random binary numbers. Learners hold dots forward if they have a 1 in their column, and blank forward if they have a 0 – class counts dots to convert numbers. Students swap with another 4 students. Class converts decimal to binary by making the dots on the cards add up to the decimal number. Students choose some decimal numbers, convert to binary and pass on to next student. Next student converts from binary to decimal. And checks answer.	Observation worksheet.

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