A Level Computer Science

Essential Bridging Work

If you intend to enrol on this course you must complete the following bridging work ahead of your first lesson and bring it with you. It should take you about 4 hours to complete the work.

Topic / Context	**The Binary Number System** All modern day computer systems are digital/electronic devices that have been programmed to perform a specific function or a task. To understand how these computational devices work you will develop problem solving skills, programming skills and skills in mathematics. Computer Science uses a particular type of maths known as the Binary Number System which is fundamental to your understanding of many topics covered on the course.
Task	**The Binary Number System** Learn about the Binary Number System by completing sections 31-33 (Binary Format to Adding 8-bit Binary Numbers) from the following website: https://tinyurl.com/ljfueaz Including all activities and tests. Using the BBC Bitesize website: http://tinyurl.com/n9b5bdt test yourself on the topics "Introducing Binary" and "Numbers and Binary Addition". Take a screenshot/print out of your score. (Use the revise sections to learn any areas of difficulty) Use research to learn how to represent fractional numbers in Binary. How is 0.5 represented? How is 0.25 represented? What is 0101.11 in Denary? Create a table of all 4 bit binary numbers between 0000 and 1111 with their equivalent denary representation. Complete: The Binary Number System workbook from: **http://tinyurl.com/zbxgmze** If you would like a further challenge: Learn how to convert a Binary number into its negative form
Resources	**Online Research** Other than the resource links in the task - please see: https://www.mathsisfun.com/binary-digits.html https://www.mathsisfun.com/binary-number-system.html https://www.youtube.com/watch?v=bsNWzQ3S8pE https://www.youtube.com/watch?v=Y4Q9PnjKhac
Presentation	Produce a **handwritten** explanation and guide on how to convert from Denary to Binary and vice versa, how to add up in Binary and also how to convert fractional numbers. Use examples throughout. Produce a table of the results for $2^0=$ through to $2^{20}=$ this will be used regularly in lessons so should be presented well. Complete the questions from the Binary Number System workbook as per task above.