Franklin
Sixth Form College

A Level Computer Science

Essential Bridging Work

Please complete and bring to your enrolment appointment. You will also need to bring to your first lesson for the course. It should take you about 4-5 hours to complete the work.

Please complete the below work in preparation for your start at Franklin this September.
This work should be brought with you to enrolment and your first day at Franklin.
If you aren't attending enrolment on site please just bring this when you first come to the college in September.
This should be completed in time for enrolment, work can be in a written or electronic format.
Any questions please contact our admissions department – admissions@franklin.ac.uk

Topic / Context	The Binary Number System & Programming
	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. Computer Science also relies on the use of Pseudocode, programming techniques and Data Types in order to write code to solve problems.
Task	The Binary Number System

1) 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)

2) 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.

3) 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?

4) Complete: The Binary Number System workbook from: **http://tinyurl.com/zbxgmze**

5) Once you have mastered Binary Positive numbers – continue to learn about 2's complement:
https://www.youtube.com/watch?v=YtMv4u-9poQ

https://www.youtube.com/watch?v=sEqbPvBwwW8&t=10s

Based on these videos – choose five negative numbers between -50 and -127 and represent these using the twos complement method

6) Learn to convert Binary to Hex and Vice Versa:
    https://www.youtube.com/watch?v=I4ZZuTJ6Fco&t=245s

Programming

The following two exercises are to get you started on your journey to learn C#

1) Complete the learning video and questions from here:
    https://edpuzzle.com/join/tenozra

2) Start to learn to code using C# - complete as many tutorials from this you feel able to – the more tutorials completed, the better understanding of this you will have for September: http://www.learncs.org/

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 set of notes on all exercises set in the bridging work ready to present at enrolment. These should include screenshots of any computer-based activities and hand written notes to accompany binary tasks. Do ensure any maths based exercises show full working out. 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. We look forward to reviewing your preparation work for Computer Science.