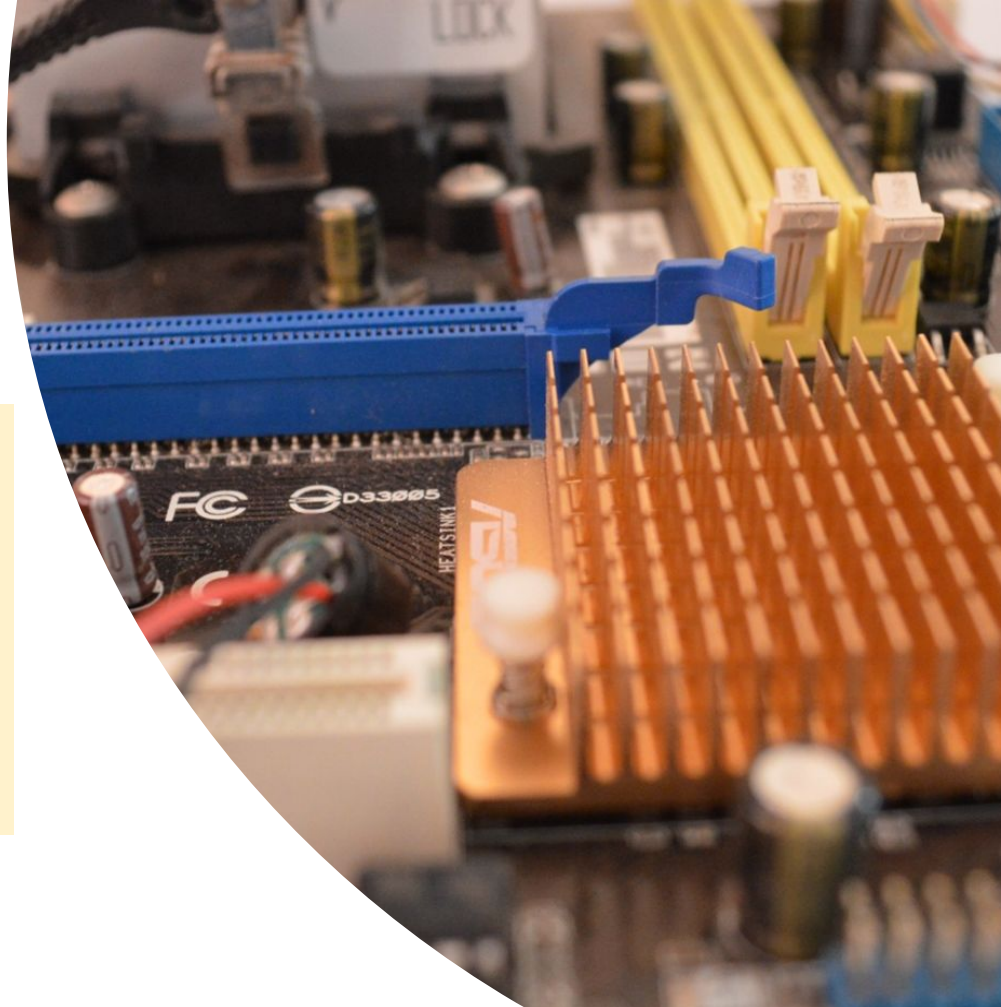


Computer Science Summer Homework

- The topic of **Computer Science** is at the heart of the modern world
- Studying it can make you extremely sought after in today's job market
- The transition from GCSE to A level is significant, this includes:
 - An increased emphasis on **technical content**
 - An increased emphasis **independent research**

This workbook is designed to allow you to practice some of these skills and build on your existing knowledge.

Please complete by your first lesson back in September.



1 - Tell me about yourself

In this simple task you get the opportunity to tell me your choices and reasons behind choosing to study Computer Science. Please answer all questions as best you can.

1. Why did you choose to study A level Computer Science?	
2. What other courses have you chosen to study at Key Stage 5, and what made you choose this combination?	
3. What are you hoping to achieve from studying Computer Science?	
4. How would you describe yourself as a learner at GCSE? What skills were you good at, what areas would you like to improve on?	
5. What are your other hobbies and interests outside of school? Anything related to Computing?	

2 - Getting to grips with terminology

An important aspect of being successful with your study of Computer Science is getting to grips with subject related terminology. There are over 240 specific terms you will need to learn!

Below are a handful of the key terms you will need to become familiar with.

Control Unit

Register

Busses

Von Neuman Architecture

Optical Storage

Operating System

Intermediate Code

Device Driver

Compiler

Assembly Language

Machine Code

Lossy Compression

Hashing

Normalisation

TCP/IP Stack

Packet Switching

ASCII

Problem Decomposition

1. Research each of the key terms and write a definition.
2. Resist the urge to simply cut and paste a definition from the first website you find. Many definitions found on The Internet are overly complicated and wordy.
3. Ask yourself:
 - Does my definition make sense?
 - Is it succinct, to the point?
 - Does the definition have appropriate depth and detail for A'Level?
 - Could I give this definition to another student so they could revise from it?

3 - An introduction to the basics of programming

Learning to code is a fun and essential part of A Level Computer Science. This task is ideal if you haven't done the GCSE in Computer Science or you simply want a nice refresher ahead of starting your A Level course.

1. Head over to the web site: <https://www.learnpython.org>
2. Complete the following python tutorials under the heading:
 - Hello, World!
 - Variables and Types
 - Lists
 - Basic Operators
 - String Formatting
 - Basic String Operations
 - Conditions
 - Loops
 - Functions
3. Each section presents you with theory, code to run and exercises to try out.
4. You can use www.replit.com to run your own python code in the cloud.
5. Take screenshots of all the outcomes along with your code.



This is most suited for students who have not previously gained programming skills from GCSE.

The chosen language here is Python, however, it is the underlying programming concepts which are important.

The list of topics here cover the standard set of programming concepts students would be expected to know having completed GCSE Computer Science.