Computing Transition Work

Preparing for A-Level Computer Science

We are delighted that you have chosen to study A-Level Computer Science at MBA. We look forward to seeing you in September with your completed summer work.

Summer Work Instructions:

Computer Science is at the heart of the modern world. Gaining a qualification in this field will enable you to become extremely sought after in today's job market. The transition from GCSE to A-Level is significant and includes:

- An increased emphasis on **technical content**
- An increased emphasis on **independent research**

Part 1: Independent Research Task

Emerging computer technology

In this task you get to investigate any area of emerging computer technology which interests you.

You can pick any area which interests you, but examples could be:

- Artificial intelligence
- Robotics
- Automated self-driving cads
- Quantum computing

In no more than ONE side of A4 summarise the area you have chosen under the following four headings:

1. What is it?
2. What are the possible Social, Moral, Cultural and Ethical **benefits** of this technology on society
3. What are the possible Social, Moral, Cultural and Ethical **risks** of this technology on society
4. My conclusion on this technology and what it will mean for our world 10 years from now

Part 2: An introduction to the basics of programming

Programming basics

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 website: https://missionencodeable.com/get-started
2. Complete Level 1 to Level 9 of the Python Tutorials
3. There are many online Python IDEs that you can use to code these exercises. Our favourite can be found here: https://replit.com, alternatively you can download a desktop version of Python here: https://www.python.org/downloads/

Additional note:

This task is most suited to students who have not previously gained much / or any programming experience from the GCSE Computer Science course.

Although the language chosen here is Python, and we will be studying other languages, it is the underlying programming concepts which are important.

The tutorials cover the standard set of programming concepts you would be expected to know having completed a GCSE in Computer Science and so will prepare you well for the A-Level course.