# Year 11 Transition Booklet –

# A Level Computer Science 2023-24



**"Everyone should learn how to code, it teaches you how to think!”**

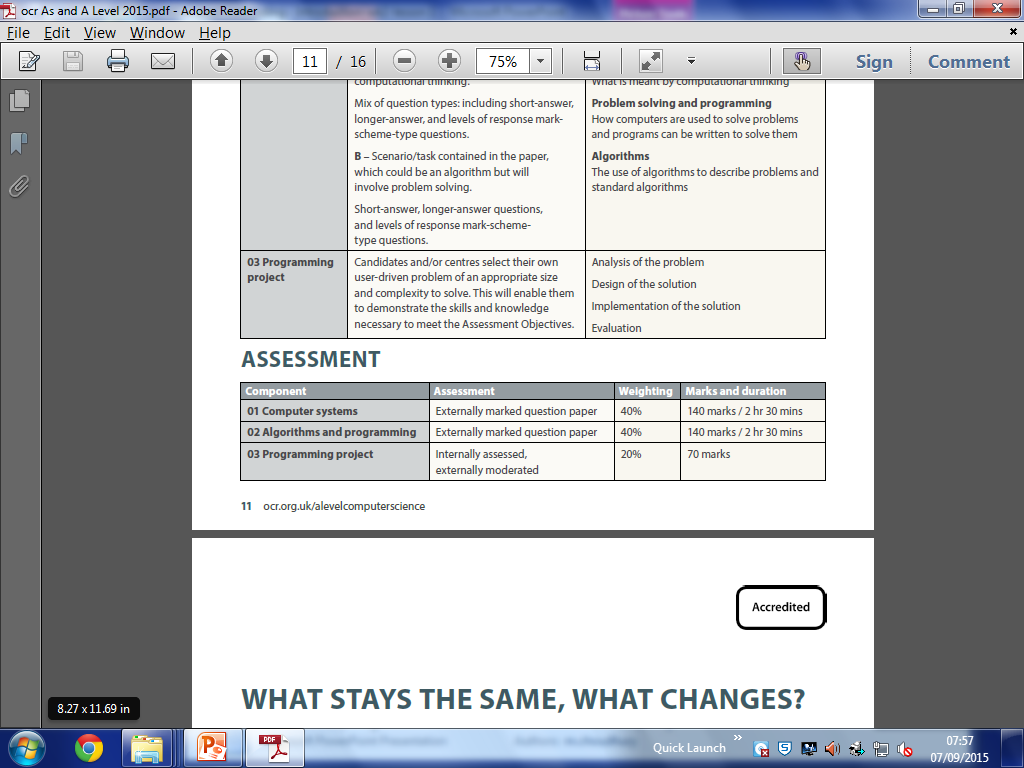
Steve Jobs

**Computer Science: Transition Guide**

**A Level Computer Science**

Examination Board: OCR

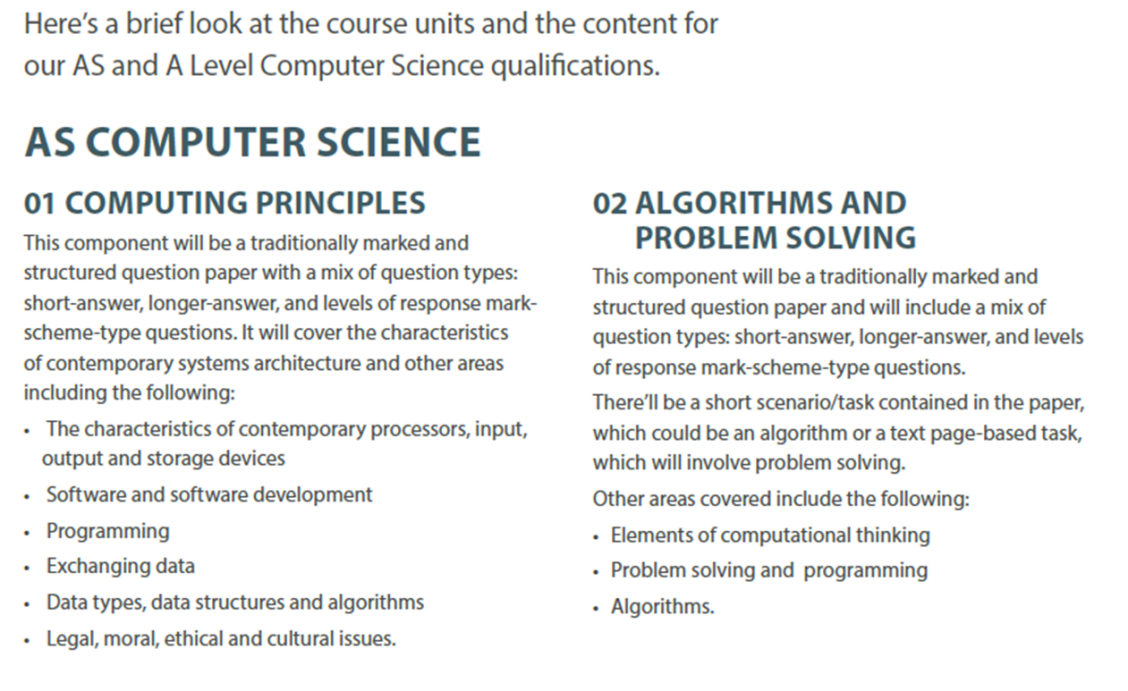
Within the course there are 3 components:



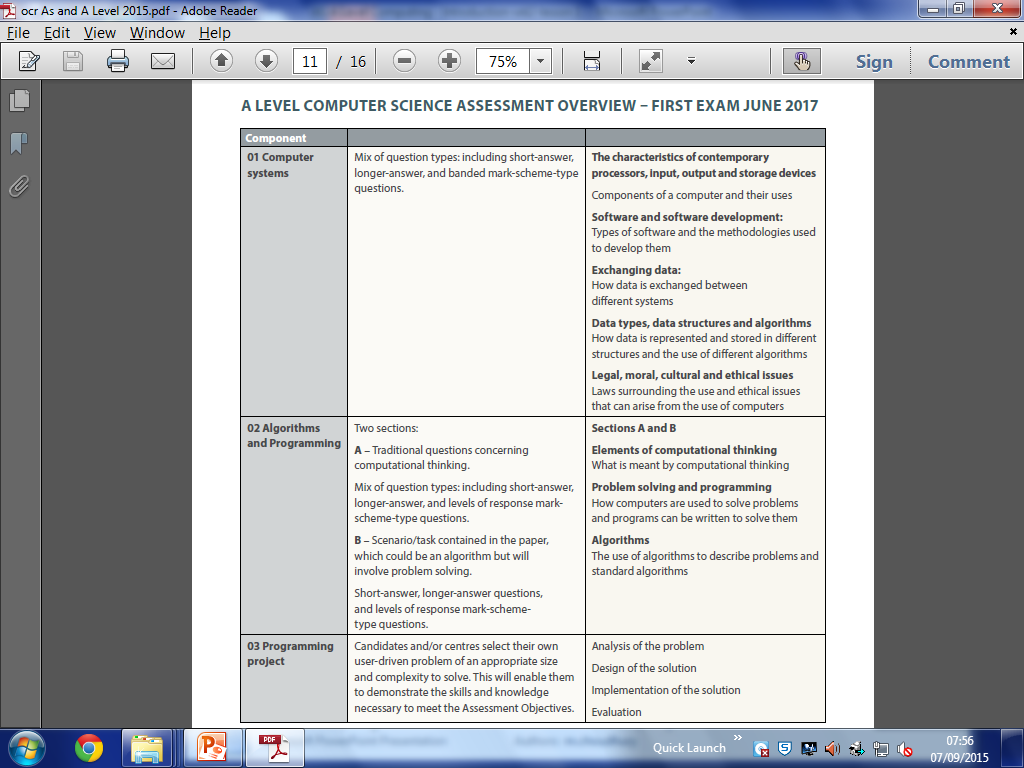
**Resources you will be using in this course:**

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| **Specification** | **Textbook** | **Lesson Materials** |
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**Year 12:**



**Year 13:**



**Transition Activity: Week 1 - 24/07/23 (Python Programming)**

The following Tasks will need to be attempted before during this week. Your knowledge in these topics will be assessed in a classroom test.

**Task 1: Programming**

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| --- | --- | --- |
| |  |  | | --- | --- | | **Programming Task 1:**  Visit [www.w3schools.com/python](https://www.w3schools.com/python/) and work  through Python Exercises.  You must cover the following topics:  Python Syntax  Python Variables  Python Numbers  Pyton Strings  Python Operators  Python Lists  Python Sets  Python Dictionaries  Python If…Else  Python While Loops |  | |
| **Task 2: Programming exercises:**  Register with [www.codecademy.com](http://www.codecademy.com) and work through “Programming with Python” tutorial. |

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| **Task 3 - Week 1 Assessment**  **(To be completed after you have completed Task 1 and 2 above)**  <https://docs.google.com/forms/d/e/1FAIpQLSf67ldnR0TcB3WErju3Z5AaleGkDEHSQwjM2c19VbHJf-Wnbg/viewform?usp=sf_link> |

**Transition Activity: : Week 2 – 31/07/23 (Systems Architecture)**

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| **Task 1 : Understanding Computer Architecture**  Visit the Teach-ICT.com website and read through topics on “1.1 Architecture”, and **make essential notes and mindmap** from the link below. You will need the following username and password for the  Teach-ICT website:  **Link to Teach-ICT.com**  <https://teach-ict.com/2016/A_Level_Computing/OCR_H446/OCR_H446_home.html>  **Login details for Teach-ICT.com**  Username: e10rh  Password: python8    **Topics to cover**:  Main Parts of a CPU, Registers within the CPU, Fetch-Decode-Execute Cycle, CPU performance factors, System performance factors, Von Neumann and Harvard |

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| **Task 2 - Week 2 Assessment**  **(To be completed after you have completed Task 1 above)**  <https://docs.google.com/forms/d/e/1FAIpQLSe1ycC8Jle0l4D-wfsLvnHKOIz9Ucd3K0Y2pw9ZCyRB3K7XAQ/viewform?usp=sf_link> |

**Transition Activity: : Week 3 – 07/08/23**

**Data Types, Data Structures and Algorithms**

**Use the teach-ict.com website to develop your knowledge and attempt these task.**

**Task 1** Converting between denary, binary and hex

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| --- | --- | --- | --- | --- |
| **No** | **Denary** | **Binary** | **Hex** | Add 00011110 to the Binary value in column 3 |
| **1** | **1** |  |  |  |
| **2** | **5** |  |  |  |
| **3** | **10** |  |  |  |
| **4** | **22** |  |  |  |
| **5** | **40** |  |  |  |
| **6** | **77** |  |  |  |
| **7** | **91** |  |  |  |
| **8** | **121** |  |  |  |
| **9** | **144** |  |  |  |
| **10** | **168** |  |  |  |
| **11** | **170** |  |  |  |
| **12** | **200** |  |  |  |
| **13** | **211** |  |  |  |

**Task 2**

Create a program that analyses a passage of text from a file and then counts:

● How many words

● The average length of a word

● How many times each word occurs

● How many words start with each letter of the alphabet?

● The aim of this exercise is to test your ability to develop algorithms

**Task 3** Binary Truth Tables

Write the truth tables for the expressions

NOT (A AND B)

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and ((NOT A) OR (NOT B))

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| --- | --- | --- | --- | --- |
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2. What do you notice about these tables?

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| **Task 4 - Week 3 Assessment**  **(To be completed after you have completed Task 1 above)**  <https://docs.google.com/forms/d/e/1FAIpQLScEsAmXJVGU02sYLoLSmZWZGZkBD1UP0mNUQ7tzAK7aeGUcrw/viewform?usp=sf_link>​ |