

Computer Science Bridging Work

OCR Computer science AS level

Introduction:

Welcome to the OCR A Level Computer Science course at Kings Langley School. You have chosen to study a subject that is both dynamic and engaging, and which will help you to develop the real-life skills that will allow you to successfully progress through life. You will study topics and issues that are relevant today – you will address key contemporary developments such as artificial intelligence, cybersecurity, data science, and the Internet of Things (IoT), and relate these to the changing nature and needs of technology in the 21st Century. By doing this, you will develop the knowledge and skills needed to analyse data, think critically about issues, and make informed decisions – all skills that are crucial for further study and employment.

The idea behind the bridging course is to give you a head start so that you are already familiar with some of the key concepts and terms you will be using throughout the 2-year course.

Focus of Bridging Work:

Computer Science information is not always to be found in textbooks. You need to take the principles that you learn in class and apply them to real-world scenarios and case studies. The technological landscape can change so quickly that it is vital to keep up to date with as much tech news and developments as you can.

Television and Online Resources:

- **Television:** Try to watch a variety of computer science and technology-related programmes, including documentaries and news channels such as the BBC, Sky News, and Bloomberg.
- **Online Resources:** Explore platforms like TED Talks, Coursera, and Khan Academy, which offer valuable insights into cutting-edge technologies and theoretical concepts. Remember to consider tech advertisements and product launches: they often showcase the latest innovations and can give you an excellent insight into emerging trends and consumer technology.

By engaging with these resources, you can enhance your understanding of computer science concepts and prepare yourself for the challenges and opportunities of the tech world.

Wider Reading

- **Teach-ICT OCR H046 Syllabus:** [OCR H046 AS-Level Computer Science](#)
 - Username: SE41LE
 - Password: Gateway2
- **Teach-ICT Glossary of Computer Science terms:** [Computer Science Glossary of Terms](#)
- **A level topic — Isaac Computer Science:** [Revision resources](#)
- **Practice Python:** [Online Python](#)
- **Python Tutorial:** [w3schools.com](#)

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- **OCR A level (H046-H446) Videos — Craig 'n' Dave:** [OCR AS/A level Computer Science Videos](#)
- **BBC News - Click:** [Exploring the latest tech innovations shaping our lives](#)

Bridging Tasks:

Task 1: Exploring Programming Languages

Objective: Get hands-on experience with different programming languages.

Activity:

1. **Research:** Choose three programming languages (e.g., Python, Java, C++) and write a summary of each, highlighting their uses, advantages, and disadvantages.
2. **Practice:** Write a simple program in each language (e.g., a program that calculates the area of a circle) and share your code on a platform like GitHub.

Task 2: Understanding Algorithms

Objective: Develop an understanding of algorithms and their importance in problem-solving.

Activity:

1. **Research:** Find three real-world examples of algorithms (e.g., Google Search, GPS navigation, online shopping recommendations) and explain how they work.
2. **Design:** Create a flowchart for a simple algorithm, such as a sorting algorithm (e.g., bubble sort) or a process for making a decision.

Task 6: Exploring Cybersecurity

Objective: Understand the basics of cybersecurity and its importance.

Activity:

1. **Research:** Write a report on a recent cybersecurity threat or attack (e.g., a data breach, ransomware attack) and explain the measures that could have been taken to prevent it.

These tasks will prepare you for the OCR A level computer science course, ensuring you have a solid foundation in key concepts and practical skills.
