

# **Welcome to Computer Science**

Mr K Win – BSc (Hons)

Subject in charge of Computing

Sir William Borlase's Grammar School

# Famous Faces of Computer Science



**Alan Turing**  
(1912 – 1954)

**Bill Gates**  
(1955 – Current)



**Ada Lovelace**  
(1815 – 1852)

**Sir Timothy Berners-Lee**  
(1955 – current)



**Larry Page** (1973 – Current)

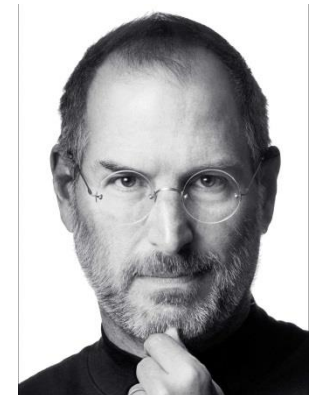


**Grace Hopper**  
(1906 – 1992)

**Mark Zuckerberg** (1984 – Current)



**Steve Jobs** (1955 – 2011)



# What is Computer Science?

- Computer Science is part of the English Baccalaureate (EBACC) and **Science, Technology, Engineering and Maths (STEM)**.
- Computer Science is a well respected **academic subject**. It is not an ICT.
- Computer Science involved mainly 2 parts. **Theory** and **Programming**.

# Why Study Computer Science?

1. It is **part of everything we do** and the skills to understand the digital world are in high demand.
2. It allows you to **solve complex problems** while offering opportunities for **creativity** and **innovation**.
3. It enables you to be part of a cutting edge science and **helps with almost every career**.
4. It is an **essential** part of well rounded **academic preparation** and allows you to make a positive difference in the world.

# Careers in Computer Science

- Pretty much any career relate to Science, Technology, Engineering and Maths (**STEM**).
- Also in many other fields such as Business, Retail, Banking, Transport, Telecom, Advertising, Research, Medicine, Education, Entertainment and Digital Media.
- Programmer, Software Engineer, Data Analyst, Network Manager, Database Administrator, Animation and Game Designer, Web Developer, Consultant, Cyber Security Officer

# What are we learning?

## The Computational Thinker: Concepts & Approaches



### Concepts

Logic  
predicting & analysing

Algorithms  
making steps & rules

Decomposition  
breaking down into parts

Patterns  
spotting & using similarities

Abstraction  
removing unnecessary  
detail

Evaluation  
making judgement

Tinkering  
experimenting & playing

Creating  
designing & making

Debugging  
finding & fixing  
errors

Persevering  
keeping going

Collaborating  
working together

### Approaches

# Programming Languages in SWBGS

C#



**Visual Basic**

JavaScript

HTML + CSS

 python

## 2a. Overview of AS Level in Computer Science (H046)

---

Learners must take both components (01 and 02).

Content Overview	Assessment Overview	
<ul style="list-style-type: none"><li>• The characteristics of contemporary processors, input, output and storage devices</li><li>• Software and software development</li><li>• Programming</li><li>• Exchanging data</li><li>• Data types, data structures and algorithms</li><li>• Legal, moral, ethical and cultural issues</li></ul>	Computing principles (01) 70 marks 1 hour and 15 minutes written paper	50% of total AS level
<ul style="list-style-type: none"><li>• Elements of computational thinking</li><li>• Problem solving and programming</li><li>• Algorithms</li></ul>	Algorithms and problem solving (02*) 70 marks 1 hour and 15 minutes written paper	50% of total AS level

# OCR – AS Specification H046



## 2a. Overview of A Level in Computer Science (H446)

Learners must take three components (01, 02 and 03 or 01, 02 and 04).

Content Overview	Assessment Overview	
<ul style="list-style-type: none"><li>The characteristics of contemporary processors, input, output and storage devices</li><li>Software and software development</li><li>Exchanging data</li><li>Data types, data structures and algorithms</li><li>Legal, moral, cultural and ethical issues</li><li>Elements of computational thinking</li><li>Problem solving and programming</li><li>Algorithms to solve problems and standard algorithms</li></ul> <p><i>The learner will choose a computing problem to work through according to the guidance in the specification.</i></p> <ul style="list-style-type: none"><li>Analysis of the problem</li><li>Design of the solution</li><li>Developing the solution</li><li>Evaluation</li></ul>	Computer systems (01) 140 marks 2 hours and 30 minutes written paper	40% of total A level
	Algorithms and programming (02*) 140 marks 2 hours and 30 minutes written paper	40% of total A level
	Programming project (03* or 04**) 70 marks Non-exam assessment	20% of total A level

# OCR – A2 Specification H446

# Links

## Code Stars

- <https://www.youtube.com/watch?v=dU1xS07N-FA>
- <https://www.youtube.com/watch?v=QvyTEx1wyOY>
  
- <https://www.youtube.com/watch?v=FC5FbmsH4fw>
- <https://www.youtube.com/watch?v=6XvmhE1J9PY>
  
- <http://www.bbc.co.uk/news/technology-41928847>
- <http://www.bbc.co.uk/news/business-36510266>