

SUBJECT KS4: Year 11 Computer science



(Topic)

Summarise key knowledge/skills covered

SUMMER
3:2

Revision

- 2.2 Programming fundamentals
- 2.3 Producing robust programs
- 2.4 Boolean logic
- 2.5 Programming languages and Integrated Development Environments



**EXAM
PREPARATION**

(Topic)

Summarise key knowledge/skills covered

SUMMER
3:1



**EXAM
PREPARATION**

Revision

- 1.1 Systems Architecture
- 1.2 Memory and storage
- 1.3 Computers networks, connections and protocols
- 1.4 Network security

Programming languages & Integrated Learning Development Environment

Students will learn about:

- the characteristics and purpose of different levels of programming language:
- High-level languages
- Low-level languages
- The purpose of translators " The characteristics of a compiler and an interpreter
- The differences between high- and low-level programming Languages
- The need for translators
- The differences benefits and drawbacks of using a compiler or an interpreter



Producing Robust Programs/ Defensive design

In this unit, students will:

Gain an understanding of the issues a programmer should consider to ensure that a program caters for all likely input values

- Understanding of how to deal with invalid data in a program
- Authentication to confirm the identity of a user
- Practical experience of designing input validation and simple authentication (e.g. username and password)
- Understand why commenting is useful and apply this appropriately

SPRING
2:1

AUTUMN
1:2

Computer Networks , Connections & Protocols

In this unit, students will learn about

- The characteristics of LANs and WANs including common examples of each
- They will Understand the different factors that can affect the performance of a network, e.g.:
 - Number of devices connected
 - Bandwidth
- The tasks performed by each piece of hardware
- The concept of the Internet as a network of computer networks
- A Domain Name Service (DNS) is made up of multiple Domain Name Servers
- A DNS's role in the conversion of a URL to an IP address
- Concept of servers providing services (e.g. Web server" Web pages, File server " file storage/retrieval)
- Concept of clients requesting/using services from a server
- The Cloud: remote service provision (e.g. storage, software, processing)
- Advantages and disadvantages of the Cloud
- Advantages and disadvantages of the Star and Mesh topologies
- Apply understanding of networks to a given scenario

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1:1



**OUR LEARNING
JOURNEY**