KS4- LEARNING JOURNEY

Exam Paper

Paper 2 Testing

Paper 2 Revision

Paper 1 Testing

Paper 1Revision

Paper 2 Testing

Paper 2 Revision

Exam Paper 1

2.3 Producing Robust Programs
Understanding why defensive programming is necessary. Using defensive designs (is that dangerous?) Then I have to test it all to make sure it works and debug if it doesn't, is that normal, boundary, invalid or erroneous? I will have to refine!
Create code which is easy to maintain. Know the purpose of testing and types used for validation.

End of Unit Test

Programming Challenge

Programming Project
Complete at least 20 hours of programming challenges, carried out at intervals throughout the course, with a period of time towards the end to complete the challenges.

Paper 1Revision

Paper 1Testing

2.1 Algorithms
Using abstraction, decomposition and algorithmic thinking to define a problem. Create structure diagrams & flowcharts. How to efficiently search and sort data. Writing algorithms using Python.What are binary, bubble, merge, insertion sorts. How do I identify bugs and fixes? What are trace tables?

End of Unit Test

Programming Challenge

1.5 System Software
What are operating systems & interfaces? What is memory, peripheral, user and file management? What is utility software and why do they need encryption, defragmentation and file management & data compression?

End of Unit Test

1.4 Network Security
What forms of attack happen to computers and networks?
What's malware, phishing (i-fish), brute force attacks (dangerous) DoS (about?) Interception & theft (sounds dodgy).
How to prevent attacks (who from?) What is an SQL injection, Firewalls, who needs password encryption and security.

End of Unit Test

1.6 Ethical, Legal and Cultural Concerns
What are the issues created and addressed by technology and the impact on society including ethical, legal, cultural, environmental and privacy? Legislation, Data Protection, computer misuse, copyright and licences

End of Unit Test

Programming Challenge

1.3 Computer Network Connections & Protocols
What are LANS & WANs? What factors affect the performance of networks? What does client server and peer to peer mean? What hardware do you use on a LAN? What is the Internet really? What is a DNS, hosting, the cloud, web server and client mean? Routers & switches ? What are star and mesh network topologies? Wired or wireless,? What is Ethernet, WiFi and Bluetooth connections and how do they work? Why is cryptography and encryption. What are private and public keys and how do they work? What's an IP and MAC address? How do I learn these TCP/IP, HTTP, HTTPS, FTP, POP, IMAP, SMTP, and what are layers?

End of Unit Test

Programming Challenge
Introduction to programming techniques & activities using flipped learning approach

2.5 Programming Languages & IDEs
What are the characteristics of languages; high and low-level. What is the purpose of translators, compilers, interpreters? What is Little Man Computer? Tools in an IDE; editors, error diagnostics, run-time environments & translators.

PAPER 1

2.4 Boolean Logic
Creating simple logic diagrams and truth tables. Combine Boolean and logic operators to solve problems.

2.2 Programming
Using variables, constants, operators, inputs/outputs . Sequences, selection & iteration. Arithmetic, integers, Boolean, Characters & string manipulation, using appropriate data types and casting Use string manipulation & file handling, open, read, write, close. Storing data in records. Using SQL to search for data. Using arrays to solve problems, 2D as well as sub programs & random number generation.

End of Unit Test

End of Unit Test

How can 10 = 2?

1.2 Memory & Storage
What is primary & secondary storage. What is the purpose of RAM and ROM, and the differences between them? What is Virtual memory? What is flash memory? What are the common types of storage, their uses ? What types are use for what? What is data capacity?
What's a nibble (is that break time?)
Data What is binary, denary, hexadecimal and ASCII? What is a character set? What are bitmaps, image resolution, colour depth and metadata? How can sound be sampled and stored? How does sampling rates, duration and bit depth affect the size of sound files and quality of its playback? What is compression?
What is the difference between lossy and lossless compression?

START

Introduction
Specification requirements. Mark
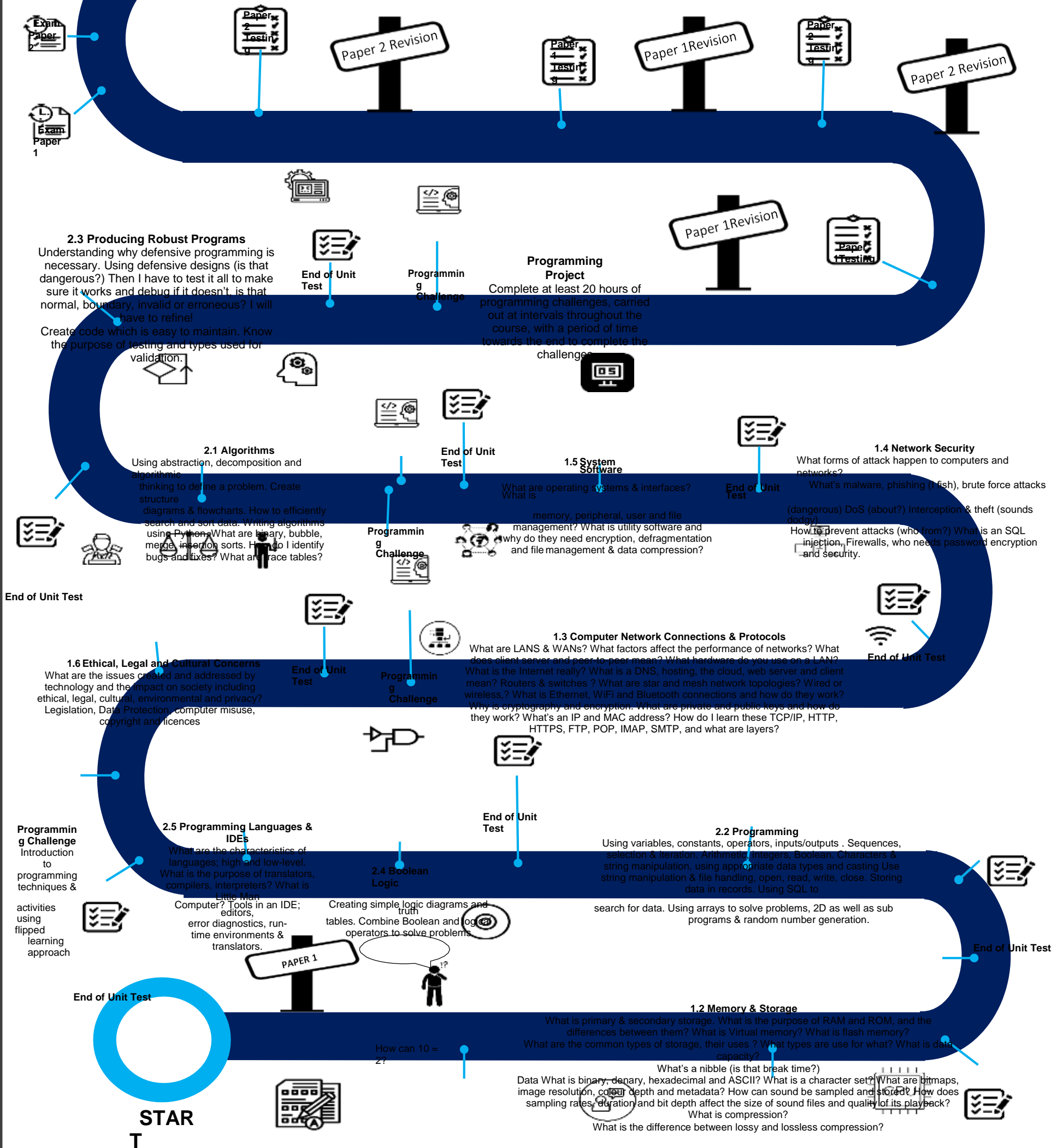
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Course calendar. Where to find resources.
Folder Setup. Workbooks. Homework
Definitions Tests Handouts. Understanding of
flipped and unflipped learning. What is a
computer?

1.1 Systems Architecture
What is the CPU and how does it
function? What are the components it is
made of and what are the common
characteristics which affect
performance?
What are embedded systems?
What is the Von Neumann
Architecture?

End of Unit Test