Armfield Academy – Department of Computer Science

Year 11 Curriculum Overview

Half Term 1			
Date	1.3.1: Networks and Topologies 1.3.2: Wired/Wireless, Protocols and Layers 1.4.1: Threats to Computer Systems and 1.4.2: Identifying and Preventing Vulnerabilities		
	Lesson 1	Lesson 2	Lesson 3
Week 1	What is the difference between a LAN and a WAN, and what are common real-world examples of each?	How do factors like number of devices and bandwidth affect network performance?	How can we analyse a real-world network and evaluate whether it is a LAN or WAN, and why its performance might be limited? Application: OCR-style questions involving scenario analysis and network setup recommendations.
Week 2	What hardware is needed to connect stand-alone computers in a LAN (e.g., switches, routers, NICs, etc.)?	What are the characteristics, advantages and disadvantages of star and mesh topologies?	Can you evaluate which network topology is best suited to a scenario and justify the hardware required to implement it? Application: past paper questions on topologies and draw comparisons based on cost, scalability, and reliability.
Week 3	What is the Internet, and how do DNS, hosting, and the Cloud work together to deliver online content?	How do clients and servers interact in a network, and what are the pros and cons of using cloud services?	How can we explain the role of DNS and evaluate whether the Cloud is suitable for a school's file access system? Application: OCR-style tasks: describing DNS-IP conversion, identifying web services, and evaluating remote storage.
Week 4	What are the differences between wired and wireless networks, and when should each be used?	What are MAC and IP addresses, and how do they help identify and route data across networks?	Can you recommend a wired or wireless setup for a business, justifying your choice using addressing, security, and flexibility? Application: Students complete a past paper scenario recommending network types.
Week 5	What are protocols, and what are the purposes of TCP/IP, HTTP/HTTPS, FTP, POP, IMAP, and SMTP?	What is the concept of layers in networking, and why is using layered protocols beneficial?	How can we match protocols to services and explain the advantages of using layers in communication? Application: Students complete exam-style matching and explanation tasks involving protocols and their functions.
Week 6	What are common threats to systems, such as malware, phishing, brute force, DoS, interception and SQL injection?	How do these attacks work, and what are the purposes and techniques used in each?	Can you identify which attacks are occurring in different case studies and explain how they work and what damage they cause? Application: Students complete multiple-choice and scenario-based OCR exam questions on threats.
Week 7	What tools and strategies are used to prevent vulnerabilities, such as firewalls, passwords, anti-malware, and encryption?	How can we apply user access levels, physical security, and penetration testing to protect systems?	Can you complete a mock exam task combining network design, security threats, and prevention strategies? Application: 30-minute final assessment covering topics from 1.3.1 to 1.4.2 using OCR-style mock questions with mark scheme review.
Half Term 2			
Date	1.5.1: Operating Systems 1.5.2: Utility Software and 1.6.1: Ethical, Legal, Cultural & Environmental Issues + Legislation		
	Lesson 1	Lesson 2	Lesson 3
Week 1	What are the core functions of an operating system, and how do they manage memory, files, users, and hardware?	What are utility programs and how do encryption, defragmentation, and compression improve system performance?	How do operating systems and utilities work together to manage devices and data efficiently? Application: OCR-style exam questions: Matching OS features to scenarios (e.g., file access, user login) Explaining what utility software would be appropriate in situations (e.g., secure transmission, full hard drive)
Week 2	What are the ethical, legal, cultural, environmental, and privacy issues caused by digital technology?	How do different digital technologies impact society through these issues?	How can we discuss and evaluate the impacts of technology based on ethical, legal, cultural, environmental, and privacy issues? Application: OCR-style questions: Analyse a scenario's impact on privacy or culture

			Identify ethical dilemmas in AI or data use Suggest ways to reduce environmental harm from tech
Week 3	What is the purpose of key legislation in Computer Science, and what specific actions do they allow or prohibit?	Why is software licensing important, and what are the features of open source and proprietary software?	How do you recommend software licences for given scenarios, considering benefits and drawbacks? Application: OCR-style tasks: Recommend a licence for a start-up or school project, evaluate why proprietary software might be preferred for businesses Discuss ethical and legal implications of software use
Week 4	Mock Preparation	Mock Preparation	Mock Preparation
Week 5	Mock Preparation	Mock Preparation	Mock Preparation
Week 6	Python Challenges	Python Challenges	Python Challenges
Week 7	General Class Feedback from mocks on learning gaps	Areas Identified that need to be worked on leading up to the next mocks in Feb	
Half Term 3			
Date	Exam Preparations		
	Lesson 1	Lesson 2	Lesson 3
Week 1	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 2	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 3	Second Mock Paper 1	Second Mock Paper 2	Class Mark Paper 1 with feedback
Week 4	Class Mark Paper 2 with Feedback	General Class Feedback from mocks on learning gaps	Areas Identified that need to be worked on.
Week 5	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 6	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Half Term 4			
Date	Exam Preparations		
	Lesson 1	Lesson 2	Lesson 3
Week 1	Third Mock Paper 1	Third Mock Paper 2	Class Mark Paper 1 with feedback
Week 2	Class Mark Paper 2 with Feedback	General Class Feedback from mocks on learning gaps	Areas Identified that need to be worked on.
Week 3	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 4	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 5	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Half Term 5			
Date	Exam Preparations		
	Lesson 1	Lesson 2	Lesson 3
Week 1	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 2	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 3	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 4	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.

Week 5	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.
Week 6	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.	Learning gaps will be prioritised for reteaching and targeted practice in these lessons.