	Assessment statement	Obj	Teacher's notes
2.1.13	Construct a logic diagram using AND, OR, NOT, NAND, NOR and XOR gates.	3	Problems will be limited to an output dependent on no more than three inputs. The gate should be written as a circle with the name of the gate inside it. For example: OR **LINK** Thinking logically, connecting computational thinking and program design, introduction to programming.

Topic 3—Networks (9 hours)

3.1 Networks (9 hours)

	Assessment statement	Obj	Teacher's notes
Network fundamentals			
3.1.1	Identify different types of networks.	2	Examples include local area network (LAN), virtual local area network (VLAN), wide area network (WAN), storage area network (SAN), wireless local area network (WLAN), internet, extranet, virtual private network (VPN), personal area network (PAN), peer-to-peer (P2P). **S/E**, **INT** Globalization has been accelerated by the technical advances linked to network development.
3.1.2	Outline the importance of standards in the construction of networks.	2	**INT** Standards enable compatibility through a common "language" internationally.
3.1.3	Describe how communication over networks is broken down into different layers.	2	Awareness of the OSI seven layer model is required, but an understanding of the functioning of each layer is not.
3.1.4	Identify the technologies required to provide a VPN.	2	
3.1.5	Evaluate the use of a VPN.	3	**S/E**, **AIM 9** The use of a VPN has led to changes in working patterns.

	Assessment statement	Obj	Teacher's notes
Data transmission			
3.1.6	Define the terms: protocol, data packet.	1	
3.1.7	Explain why protocols are necessary.	3	Including data integrity, flow control, deadlock, congestion, error checking.
3.1.8	Explain why the speed of data transmission across a network can vary.	3	
3.1.9	Explain why compression of data is often necessary when transmitting across a network.	3	**S/E**, **INT** Compression has enabled information to be disseminated more rapidly.
3.1.10	Outline the characteristics of different transmission media.	2	Characteristics include: speed, reliability, cost and security. Transmission media include: metal conductor, fibre optic, wireless.
3.1.11	Explain how data is transmitted by packet switching.	3	
Wireless networking			
3.1.12	Outline the advantages and disadvantages of wireless networks.	2	**S/E** wireless networks have led to changes in working patterns, social activities and raised health issues.
3.1.13	Describe the hardware and software components of a wireless network.	2	
3.1.14	Describe the characteristics of wireless networks.	2	Include: WiFi; Worldwide Interoperability for Microwave Access (WiMAX); 3G mobile; future networks. **S/E**, **INT** Connectivity between different locations.
3.1.15	Describe the different methods of network security.	2	Include encryption types, userID, trusted media access control (MAC) addresses. **S/E** Wireless networks have led to concerns about the security of the user's data.
3.1.16	Evaluate the advantages and disadvantages of each method of network security.	3	