

Year Group: 12	Subject: Computer Science	Term: Spring 2022
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Topic	Key Learning points	Assessments
Exchanging data	<ul style="list-style-type: none"> • Lossy vs Lossless compression. • Run length encoding and dictionary coding for lossless compression. • Symmetric and asymmetric encryption. • Different uses of hashing. • Relational database, flat file, primary key, foreign key, secondary key, entity relationship modelling, normalisation and indexing. • Methods of capturing, selecting, managing and exchanging data. • Normalisation to 3NF. • SQL – Interpret and modify. • Referential integrity. • Transaction processing, ACID (Atomicity, Consistency, Isolation, Durability), record locking and redundancy. 	An end of unit formal assessment carried out under exam conditions.
Networks and web technology	<ul style="list-style-type: none"> • Characteristics of networks and the importance of protocols and standards. • The internet structure: <ul style="list-style-type: none"> • The TCP/IP Stack. • DNS • Protocol layering. • LANs and WANs. • Packet and circuit switching. • Network security and threats, use of firewalls, proxies and encryption. • Network hardware. • Client-server and peer to peer. • HTML, CSS and JavaScript. • Search engine indexing. • PageRank algorithm. • Server and client side processing 	An end of unit formal assessment carried out under exam conditions.