

WGS AS Level Scheme of Work

Unit 2 – Living in the digital world. 14 week scheme (Weeks 1 – 14)

| Topic | Learning Objectives | AQA Specification Reference | | Week Number | |
|---|--|-----------------------------|--|-------------|--|
| ICT systems and their components | <p>What is meant by the term ICT</p> <p>Systems and ICT systems</p> <p>Component parts of an ICT system</p> | 3.2.1 | <p>What is ICT?</p> <p>What is a system?</p> <p>Input-process-output</p> <p>What is an ICT system?</p> <p>How and why organisations use ICT systems</p> <p>Case study - Driver Vehicle and Licensing Authority</p> <p>Components of ICT systems</p> <p>People</p> <p>Data</p> <p>Procedures</p> <p>Software</p> <p>- Main components</p> <p>Information</p> <p>Case study – IATA</p> <p>Case study: Mobile sports ticketing</p> <p>- E-ticketing trial at Arsenal and Manchester United</p> | 8 | <p>For all resources: refer to blog http://kerryturner.wordpress.com</p> <p>Textbooks: 1. Mott, Leeming & Williams. 2. Doyle.</p> |
| Data and information | <p>What is the difference between information and data?</p> <p>What data types are available in data management software such as Access?</p> <p>Why do we code data?</p> <p>Is “good” data simply correct or are there any other measures of good data?</p> <p>What examples can we use to demonstrate that information is a commodity and so has value?</p> | 3.2.2 | <p>An Industrial Society to an Information Society</p> <p>Data and information</p> <p>What is data?</p> <p>Types of data</p> <p>- Bits and bytes</p> <p>Coding and encoding</p> <p>Encoding and coding data</p> <p>- Encoding data</p> <p>- Coding</p> <p>- Bar codes</p> <p>Processing data</p> <p>- What is processing?</p> <p>What is information?</p> <p>Quality of information</p> <p>- What makes information valuable?</p> <p>- <i>Accuracy</i></p> <p>- <i>Up to date</i></p> <p>- <i>Complete</i></p> <p>- <i>From a reliable source</i></p> <p>- <i>Relevant</i></p> | 9 | |
| People and ICT systems | <p>What are the main considerations when designing and implementing a new ICT system?</p> <p>What factors must be considered in connection with end users?</p> <p>What are the main types of</p> | 3.2.3 | <p>ICT systems: design and purpose</p> <p>Characteristics of users</p> <p>How users interact with ICT systems</p> <p>Graphical user interfaces (WIMPs)</p> | 10 | |

| | | | | |
|---|--|-------|---|-------|
| | <p>user interface?</p> <p>What jobs / careers are available in the ICT industry?</p> <p>What essential skills are required by ICT professionals and end users?</p> <p>What are the characteristics of effective teams?</p> | | <ul style="list-style-type: none"> - Menu-driven interfaces - Command line interfaces <p>Interface design for effective communication</p> <p>Providing appropriate help and support for users</p> <p>Some benefits and limitations of user interfaces</p> <ul style="list-style-type: none"> - Graphical user interfaces - Command-line interfaces - Menu-driven interfaces <p>Working in ICT</p> <p>Jobs available in the ICT industry</p> <p>Essential skills for the ICT professional</p> <ul style="list-style-type: none"> - Good written communication skills - Good oral communication skills - Problem-solving skills - Patience - Willingness to work flexible hours - Teamwork - Characteristics of an effective ICT team | 11 |
| <p>Transfer of data in ICT systems</p> | <p>What is the difference between a LAN and a WAN?</p> <p>What are the advantages of networks over stand-alone systems?</p> <p>What do we mean by peer to peer and client / server networks?</p> <p>The Internet and the World Wide Web</p> <p>Protocols</p> | 3.2.4 | <p>What is an ICT network?</p> <p>Advantages</p> <ul style="list-style-type: none"> - Sharing of resources - Communication - <i>Intranets and extranets</i> <p>Characteristics of a network</p> <p>Network design</p> <ul style="list-style-type: none"> - Peer-to-peer networks - Client-server networks <p>Case study – adapted from an article in <i>PC Plus</i> May 2006</p> <ul style="list-style-type: none"> - Interconnected digital home <p>Use of communication technologies</p> <ul style="list-style-type: none"> - The Internet <p>The World Wide Web</p> <p>Standards</p> <ul style="list-style-type: none"> - De facto standard - De jure standard <p>Protocols</p> | 12-13 |

| | | | | |
|---|--|-------|--|-----|
| Safety and security of ICT systems | <p>What are the main threats to ICT systems and data?</p> <p>How can systems be protected from these threats?</p> <p>How can systems be recovered following data loss?</p> <p>What are the main Acts of Parliament governing computer use?</p> | 3.2.5 | <p>The need to protect data in ICT systems</p> <p>Threats to ICT systems</p> <ul style="list-style-type: none"> - Employees <p>Human error</p> <p>Viruses</p> <p>Spyware</p> <p>Reasons for security breaches</p> <ul style="list-style-type: none"> - Types of threat - Means of control of threat - Data encryption - <i>Conventional encryption</i> <p>How are ICT systems protected?</p> <p>Ways of protecting ICT systems</p> <ul style="list-style-type: none"> - Hardware measures - Software measures - Procedures <p>Legislation to protect ICT systems</p> <p>Data Protection Act 1998</p> <ul style="list-style-type: none"> - Getting access to your data - Exemptions to the act <p>Computer Misuse Act</p> <ul style="list-style-type: none"> - Introduction - Definition - What can happen to individuals under the law - Example 1: Unauthorised access to computer material - Example 2: Unauthorised access to a computer with intent to commit a further crime - Example 3: Unauthorised modification of computer material - Action to deal with misuse - <i>Preventive measures</i> - <i>Computer security</i> <p>Copyright, Designs and Patents Act 1988</p> | 1-3 |
|---|--|-------|--|-----|

| | | | | | |
|--|---|--------------|--|-----------|--|
| <p>Procedures for backup and recovery</p> | <p>What data should be backed up and how often? What do we mean by full backup, incremental backup, differential backup and on-line backup? What media are available for storage? Who is responsible for backup?</p> | <p>3.2.6</p> | <p>Backup Backup strategies - What data needs to be backed up? - <i>Full backup</i> - <i>Differential backup</i> - <i>Incremental backup</i> - How often should data be backed up? - When does the data need to be backed up? - How should the data be backed up? Types of storage media used in backup - Magnetic tape - Hard disks - Optical disk - Remote backup storage Recovery Responsibilities for backup and recovery Where is valuable data stored? Need for continuity of service Case study: Fulcrum Pharma - Disaster recovery plan used during the Buncefield fuel depot fire Case study: Widfowl and Wetlands Trust - More efficient data backups from multiple sites</p> | <p>4</p> | |
| <p>Uses of ICT systems</p> | <p>What are the different functions that ICT can perform? What are limitations of ICT systems? Are there applications for which ICT is not suitable? What are the three main types of processing?</p> | <p>3.2.7</p> | <p>What ICT can provide Fast, repetitive processing Vast storage capacity Improved search facilities Improved presentation of information Improved accessibility of information and services Case study – new information accessibility from the Internet - Solar radiation from SoDa Improved security of data and processes Is the use of ICT systems always appropriate? Limitations in what ICT systems can be used for ICT systems have limitations in the information that they produce Appropriateness of solutions Types of processing Batch Interactive Transaction processing</p> | <p>14</p> | |

| | | | | |
|--|---|-------------------------|---|------------|
| Factors and consequences of ICT | <p>What do we use ICT for in our everyday lives?</p> <p>What factors influence what we use ICT systems for?</p> <p>How has our use of ICT affected our lives?</p> <p>How has the use of ICT affected life in general?</p> | <p>3.2.8; 3.2.9</p> | <p>Factors influencing the use of ICT systems</p> <p>Cultural</p> <p>Economic</p> <p>Environmental</p> <p>Ethical</p> <p>Legal</p> <p>Social</p> <p>Consequences of the use of ICT</p> <ul style="list-style-type: none"> - Consequences of the use of ICT for individuals - Changing employment <p>Case study</p> <ul style="list-style-type: none"> - ICT at British Airways <p>Changing face of computer use in society</p> <ul style="list-style-type: none"> - E-learning - E-government - E-commerce - Access to information <p>Consequences of the use of ICT for society</p> | <p>5-6</p> |
|--|---|-------------------------|---|------------|