ICT AS PLC: Personalised Learning Checklist

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.1** Data, Information, knowledge and processing | **Red** | **Amber** | **Green** |
| 1. describe the term data, using an example, clearly identifying the fact that data has no meaning; |  |  |  |
| 1. describe what is meant by the term information, using an example to show how data can become information through the use of context, structure and meaning; |  |  |  |
| 1. compare different methods used to convey information: text, pictures, videos, animation, sound and LED, and give advantages, disadvantages and examples of the use of each; |  |  |  |
| 1. describe what is meant by the term knowledge, distinguishing the difference between information and knowledge; |  |  |  |
| 1. describe different data types: Boolean, real, integer, string, date/time, selecting an appropriate data type for a given situation; |  |  |  |
| 1. give examples of different sources from which data can be derived, for example, gathered from original source or gathered from an indirect source and explain the advantages and disadvantages of using each source; |  |  |  |
| 1. describe the terms static and dynamic data and compare the use of static information sources (eg CD-ROM) with dynamic sources (eg the internet); |  |  |  |
| 1. describe the following and how they can affect the quality of the information produced: accuracy, relevance, age, completeness, presentation, level of detail; |  |  |  |
| 1. explain the advantages and disadvantages of encoding data, and describe different methods that can be used to encode data; |  |  |  |
| 1. describe and give examples of the following validation methods: range, type, check digit (modulus 11 and ISBN), length, lookup, picture/format and presence, and their purpose, indicating that these methods can only ensure reasonable data is input to a system and that there is no certainty of accuracy; |  |  |  |
| 1. describe and give examples of the following verification methods: double entry with automatic comparison and proof reading, and understand that verification does not ensure the data is correct but that it is entered correctly and reduces errors; |  |  |  |
| 1. describe the difference between backing up and archiving of data and give reasons why they are necessary; |  |  |  |
| 1. describe the costs of producing information in terms of hardware, software, consumables and personnel; |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.2 Software and hardware components of an information system** | **Red** | **Amber** | **Green** |
| 1. describe the difference between hardware and software, and explain the lack of standardisation affecting both hardware and software; |  |  |  |
| 1. identify an appropriate input, output or storage device for a given situation and justify the choice made; |  |  |  |
| 1. describe specialist hardware devices for physically disabled users: puff-suck switch, foot mouse, eye typer, Braille printers, keyboards, speakers and microphones and justify their use for given situations; |  |  |  |
| 1. describe specialist software for physically disabled users: predictive text, sticky keys, zoom and voice recognition and justify their use for given situations; |  |  |  |
| 1. describe different types of software (operating systems, user interfaces, utilities, applications software) and give examples of how and where each type of software would be used; |  |  |  |
| 1. describe the characteristics of different styles of user interface, command-based, forms, dialogue, natural language, wimp interfaces (windows, icons, menus, pointer), and their appropriate uses. |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.3 Characteristics of standard applications software and application areas** | **Red** | **Amber** | **Green** |
| 1. describe different types of applications software and justify their use for given tasks; |  |  |  |
| 1. describe the characteristics and use of the following systems: personnel, stock control, invoicing, booking, timetabling, route finding and training l |  |  |  |
| 1. describe the purpose and characteristics of wizards, style sheets, templates and macros, describing the advantages and disadvantages of their use; |  |  |  |
| 1. describe the design considerations for tailored data-entry screens; |  |  |  |
| 1. describe how standard/generic applications software can be tailored using buttons, forms, form controls, menus and templates and give examples of the use of each; |  |  |  |
| 1. explain the advantages and disadvantages of tailoring standard/generic applications software; |  |  |  |
| 1. explain why an organisation needs a consistent house style; |  |  |  |
| 1. describe how master documents/slides, styles, style sheets and templates can be used to create a consistent house style; |  |  |  |
| 1. explain the need for different file types and the advantages and disadvantages of having different file types |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.4 Spreadsheet concepts** | **Red** | **Amber** | **Green** |
| 1. describe the characteristics of modelling software and give reasons why a model might be used; |  |  |  |
| 1. describe how variables, formulae, rules and functions are used in modelling software; |  |  |  |
| 1. describe how a data model may be used for answering ‘what-if?’ questions and explain the advantages of being able to answer such questions using a spreadsheet; |  |  |  |
| 1. describe and explain the purpose and use of worksheets, workbooks, rows, columns, cells and ranges in spreadsheet software; |  |  |  |
| 1. describe absolute and relative cell referencing, and give examples of uses of each method; |  |  |  |
| 1. explain the advantages and disadvantages of using a spreadsheet to create and run simulations. |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1. 5 Relational database concepts** | **Red** | **Amber** | **Green** |
| 1. describe the terms typically used in relational database terminology: tables, primary keys, fields, records, relationships, foreign keys, duplicate data, referential integrity, entity, attribute, explaining the role and purpose of each; |  |  |  |
| 1. identify tables, records, fields, primary keys and foreign keys, and interpret and create entity relationship diagrams for a given scenario; |  |  |  |
| 1. identify the characteristics of data in unnormalised (0NF), first normal form (INF), second normal form (2NF) and third normal form (3NF); |  |  |  |
| 1. describe the advantages and disadvantages of normalisation; |  |  |  |
| 1. describe the components of a data dictionary; |  |  |  |
| 1. select appropriate data types for a given set of data, and explain the advantages and disadvantages of alternative data types; |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.6 Applications software used for presentation and communication of data** | **Red** | **Amber** | **Green** |
| 1. describe the characteristics of documents: character, paragraph, sections, frames, headers, footers, footnotes and pages, and how they should be used; |  |  |  |
| 1. describe how word processing and desktop publishing (DTP) software can be used with data from a spreadsheet or database for mail merge, and describe the advantages and disadvantages of using this technique; |  |  |  |
| 1. describe how a document can be reformatted to suit the needs of a given application; |  |  |  |
| 1. describe the advantages and disadvantages of using clip art images and collections of thumbnail images; |  |  |  |
| 1. describe the differences between vector and bitmap graphics and evaluate their suitability for given applications; |  |  |  |
| 1. describe the advantages and disadvantages of using graphic libraries and their use in the following applications: interior design, landscaping, cartography and network design; |  |  |  |
| 1. compare image libraries, clipart libraries and graphic libraries; |  |  |  |
| 1. describe the features of presentation software: text, images, sound, video, animation, slide transition, hyperlinks, hotspots, buttons; |  |  |  |
| 1. compare delivering a presentation using printed acetate and using a computer and projector describing the advantages and disadvantages of each; |  |  |  |
| 1. compare and give advantages and disadvantages of different modes of navigation (automatic and manual transition) and identify and give examples of when the use of each method is more suitable; |  |  |  |
| 1. describe nonlinear and hierarchical presentations giving the advantages and disadvantages of each. Identify and give examples of where each may be more suitable. |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Content: 3.1.7 The role and impact of ICT** | **Red** | **Amber** | **Green** |
| 1. discuss the impact of ICT on society, organisations and individuals; |  |  |  |
| 1. discuss possible future developments in ICT and their impact on the following areas: transport, medicine, the disabled, education, entertainment, digital piracy, shopping, marketing and communication; |  |  |  |
| 1. discuss the main aspects, purpose and implications of the Data Protection Act (1998), Computer Misuse Act (1990), Copyright, Designs and Patents Act (1988), Regulation of Investigatory Powers Act (2000), Electronic Communications Act (2000) and Freedom of Information Act (2000) and subsequent changes/updates; |  |  |  |
| 1. explain methods for combating ICT crime and protecting ICT systems: physical security, firewalls, backup, encryption, biometric security, software patches/updates, ‘anti-virus’ and anti-spyware software, access rights, auditing, education of users, user IDs, passwords and methods for ensuring passwords remain effective; |  |  |  |
| 1. describe the advantages and disadvantages of networking computers; |  |  |  |
| 1. describe the purpose and activities of professional bodies, eg BCS; |  |  |  |
| 1. explain the advantages and disadvantages of belonging to a professional body; |  |  |  |
| 1. describe health problems related to working with ICT: repetitive strain injury, carpal tunnel syndrome, ulnar neuritis, deep vein thrombosis, eyesight defects, fatigue, backache and stress; |  |  |  |
| 1. describe safety problems related to working with ICT: trailing wires, risk of fire and electrocution, unsecured equipment, food and drink and proximity to water; |  |  |  |
| 1. describe appropriate measures for avoiding health and safety problems. |  |  |  |
| 1. discuss the impact of ICT on society, organisations and individuals; |  |  |  |