

Model Assignment

Assessment Material

OCR Level 1/2 Cambridge National Certificate in ICT

OCR Level 1/2 Cambridge National Diploma in ICT

Unit R009: Exploring Computer Hardware and Networks

Please note:

This OCR model assignment is to be used to provide evidence for the unit identified above. Alternatively, centres may ‘tailor’ or modify the assignment within permitted parameters (see Information for Teachers). It is the centre’s responsibility to ensure that any modifications made to this assignment allow learners to show that they can meet all of the learning outcomes and provide sufficient opportunity for learners to demonstrate achievement across the full range of marks.

INSTRUCTIONS TO TEACHERS

The OCR administrative codes associated with this unit are:

- unit entry code R009
- certification codes Certificate J810 / Diploma J820

The accreditation numbers associated with this unit are:

- unit reference number A/503/6031
- qualification reference(s) Certificate 600/4776/8
Diploma 600/4778/1

Duration: Approximately 10 hours

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Model Assignment: Information for Learners

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Unit R009: Exploring Computer Hardware and Networks

Scenario for the Assignment

Urban Mobile

Urban Mobile is a new and exciting chain of phone shops. They understand that young people want to own the latest phone models that look good and have lots of features.

A new high street shop is due to open soon. The shop unit is currently empty. Rather than just having a few phones for people to look at and handle, creating queues in the shop, Urban Mobile have decided to use tablet computers for customers to view the different handsets and read about their features.

The shop will also need a Point of Sale terminal and a computer to be used in the office. The office computer will be used to store the stock database and to produce a weekly 'hot deals' advertising flyer which is handed out to customers on Saturdays. The A4 sized flyers will be printed in colour from a printer that will be attached to the office computer.

Read through all of the tasks carefully, so that you know what you will need to do to complete this assignment.

Important:

- You will need to have access to the marking criteria. Your teacher can explain the marking criteria if you need further clarification.
- You will need to draw upon relevant skills/knowledge/understanding from other units you have studied in this qualification.

Your Tasks

Task 1: Select the computer systems

Learning Outcome LO1 is assessed in this task.

Urban Mobile has asked you to design a desktop computer system for use in the office. It will be used for general tasks including accessing the internet and designing the weekly 'hot deals' leaflet. It will also need to be connected to a colour printer to produce the leaflet to be handed out to potential customers.

The shop will have a number of **tablet computers** for customers to use to browse for handsets and compare their features on Urban Mobile's **intranet web pages**. Customers will be able to enjoy multimedia presentations showing each phone's features, order a customised phone and set up a contract using the tablet. Urban Mobile requires everybody to be able to enjoy these features, so they would be very interested in your suggestions as to how the systems could be made more accessible for visually impaired or blind users.

Evidence that you need to produce for this task is:

- specification details for **all of** the hardware requirements for Urban Mobile
- consideration of the reasons for your choices of hardware.

Task 2: Plan and design the network

Learning Outcome LO2 is assessed in this task.

Urban Mobile would like to have a wireless network in the shop but is concerned about security. The tablet computers, office computer and Point of Sale terminal all need to be connected to the internet.

Once the network has been installed, each device will need to be given an IP address.

Urban Mobile will need to buy a suitable internet access package from a provider. Urban Mobile will access its intranet pages by using the tablet computers in the shop.

The office computer will be used to store stock records for the shop. This information will **not** be shared via the internet. Every time a phone is sold using a tablet computer, the stock records are updated. Potential customers can also check availability of products. Urban Mobile want to make sure that their LAN is secure and would like to investigate what other services they could provide to potential customers for example, beaming advertisements direct to their phone handsets.

Evidence that you need to produce for this task is:

- a plan of a network and internet service that meets the user requirements, showing the components and how they would be laid out
- consideration of the reasons for your choices of the network components, configuration and internet service.

Task 3: Test and Evaluate the Network

Learning Outcome LO3 is assessed in this task.

As with any new system, the Urban Mobile network will need to be tested to ensure that it works correctly. It would be very helpful for the staff to have a handy guide to learn how simple faults can be identified and corrected e.g. the tablet computers will not connect to the wireless network, the office computer cannot connect to the internet or the printer is not connected to the office computer.

Evidence that you need to produce for this task is:

- a troubleshooting guide for the proposed Urban Mobile network.

You should demonstrate your ability to draw upon **relevant** skills/knowledge/understanding from other units you have studied.

Information for Teachers

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Unit R009: Exploring Computer Hardware and Networks

Guidance on using this assignment

You will need to refer to the marking criteria grid when completing this assignment.

1 General guidance

- 1.1 OCR assignments are available to download free of charge from our website:
www.ocr.org.uk
- 1.2 OCR assignments are intended to be used for summative assessment of learners. The OCR specification gives more information on the arrangements for assessing internally assessed units.
- 1.3 This assignment has been designed to meet the full assessment requirements of the unit. Learners will need to take part in a planned learning programme that covers the underpinning knowledge, understanding and skills of the unit.

2 Before carrying out the assignment

- 2.1 Learners should be provided with a copy of the *Information for Learners* section of this assignment.
- 2.2 Learners will not need to carry out any preparations prior to undertaking the assessment tasks, such as collating resources to use in the assessment
- 2.3 We have estimated that it will take approximately 10 hours to complete this assignment. This is the recommended time but centres can decide how the time can be allocated between each part or individual task in the assessment. Centres are also permitted to spread the overall assessment time across several sessions and therefore it is permissible for evidence to be produced over several sessions.

3 When completing the assignment and producing evidence

- 3.1 Each learner must produce individual and authentic evidence for each task within the assignment.
- 3.2 Centre staff may give support and guidance to learners. This support and guidance should focus on checking that learners understand what is expected of them and giving general feedback that enables the learner to take the initiative in making improvements, rather than detailing what amendments should be made. It is not acceptable for teachers/deliverers to provide answers, to work through answers in detail or to detail specifically what amendments should be made.
- 3.3 Learners may use information from any relevant source to help them with producing evidence for the tasks.
- 3.4 Learners must be guided on the use of information from other sources to ensure that confidentiality is maintained at all times.
- 3.5 We have specified what evidence the learner is expected to produce. Usually, the type of evidence provided may be modified, with the exception of certain types of evidence listed below under '*Permitted changes*'. It is important to note that it is possible to generate the evidence in a variety of formats. Centres must advise learners as to the most appropriate format of evidence. The nature of this assessment means that learners are free to use the format that they feel is most appropriate for the purpose and target audience for each individual task.

4 Presentation of work for marking and moderation

- 4.1 Centres wishing to produce digital evidence in the form of an e-portfolio should refer to the appendix in the specification on guidance for the production of electronic assessment.
- 4.2 Centres may wish to discourage learners from excessive use of plastic wallets for presentation of their evidence as this may hinder the assessment process. Instead centres may wish to encourage learners to present their work so that it is easily accessible, e.g. spiral bound, stapled booklet, treasury tag.

5 Scope of permitted model assignment modification

The model assignment is self-contained in its present form. The set of tasks form a coherent whole addressing all the learning outcomes and allowing access to the full range of marks.

You must not change the following:

- the learning outcomes
- the marking criteria
- the requirements for supervision and authentication as described in the specification (Section 4 *The centre assessed units*).

Permitted changes:

The model assignment can be modified in terms of the areas described below but centres must be sure that learners still have the opportunity to cover all of the learning outcomes and to access the full range of marks:

- the order of the tasks are logical however, it is possible to design the network (Task 2) before specifying the computers (Task 1).
- the learner's assignment, which can be contextualised or amended to suit local needs. The context given represents one with which most young people will be familiar however a different type of organisation could be selected. This may present the opportunity to choose a local scenario which could add an element of realism to the tasks.
- the diversity of computer systems must be considered. A contextualised assignment should not focus solely on one type of computer e.g. a desktop PC.
- task 1 encourages candidates to consider access needs of disabled users. In this instance, visually impaired and blind users are the focus. However, a contextualised assignment could include the needs of mobility or hearing impaired users for example.
- each specific task may be appropriately contextualised to match with any permitted changes you have made to the scenario.
- the format it takes
- the type of evidence, **with the exception of:**
 - A complete specification for computer systems
 - A network plan
 - A troubleshooting guide

Permitted changes (continued):

OCR has ensured that in the language used and the tasks and scenario provided we have avoided discrimination, bias and stereotyping and support equality and diversity. In the development of qualifications and assessments we use the guidance given in the Ofqual publication *Fair access by design*, notably this includes:

- using language and layout in assessment materials that does not present barriers to learners
- using stimulus and source materials in assessment materials (where appropriate) that do not present barriers to learners.

If centres wish to modify the model assignment we strongly advise that staff responsible for modifying the model assignment and the quality assurance of it refer to the publication *Fair access by design*.

If modifications are made to the model assignment, whether to just the scenario or to both the scenario and individual tasks, it is up to the centre to ensure that all learning outcomes can still be met and that learners can access the full range of marks.

6 Specific guidance on the task

Learners should be provided with a copy of the marking criteria for this unit when completing the assignment. Teachers should ensure that candidates understand the marking criteria and may explain it to them.

Task 1 requires candidates to produce a specification for an entire computer system as well as a recommendation for a model of tablet computer.

Candidates will need access to websites to find suitable information. At lower mark bands, they may find a complete specification and then list the component parts in the task. Higher mark band responses will customise the specification by selecting individual components and then justifying their choices. However, it is vital that the specification includes all required parts.

Candidates are required to think about how the systems should be adapted to meet the needs of blind and visually impaired users. A simple response will be to provide sound output and provide headphones however, a higher mark band response may involve considering other methods e.g. Braille devices.

Task 2 requires candidates to design a network and describe LAN and WAN services. The LAN design should show all required components. They should suggest a suitable ISP contract although a lower mark response may provide a home user package rather than one for business. Network components should be correctly identified such as router, switch, wireless access point, network card, UTP cable etc.

The topology should be correctly identified e.g. cell topology of the WiFi network, star topology of the cabled devices. At the high mark band, this may also include the Point to Point connection of the business router with the ISP router. A high mark band candidate may also mention use of Bluetooth as a method of beaming information to potential customers connecting via a cell topology.

They should consider LAN services that could be provided e.g. permitting WiFi connection to customer mobile devices to allow them to check availability. Candidates should also mention other WAN services such as email. Low mark band responses may suggest static assigned IP addresses but high mark bands must explain how they can be assigned via DHCP. IPv4 addresses are still acceptable although a high mark band response may indicate IPv6.

Task 3 requires candidates to produce a troubleshooting guide. Centres may be equipped to allow candidates to build a LAN and carry out suitable testing and troubleshooting. Alternatively, candidates may research typical faults and their solutions to produce their guide. The faults should be straightforward and simple to resolve. Suitable examples would be how to fix a printer connection to a PC, troubleshooting a connection to a wireless network or a PC not connecting to the internet.

This task assesses the quality of written communication. It is expected that although the guide may take a number of different formats, it should be checked to ensure that spelling, punctuation and grammar errors have been corrected. Technical terms should be used correctly and clearly explained in higher mark band responses.