



General Certificate of Secondary Education
June 20XX

Information and Communication Technology

45203/TN

Unit 3 Practical Problem Solving in ICT

Specimen Teachers' Notes

To be printed and given immediately to the teacher(s) responsible for GCSE ICT

Open on receipt

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1 Introduction

These Teachers' Notes contain both instructions and guidance about conducting and marking Unit 3 Practical Problem Solving in ICT. Information about the standardisation of teachers, moderation and other matters relating to Unit 3 can be found in the specification.

2 What this unit is about

Practical Problem Solving is about students learning the basics of the life skill of problem solving methodology. The unit requires students to organise their thoughts *logically* and to think *creatively* to produce an ICT solution, and a report on a realistic problem provided by AQA. Students are required to model the solution to the problem but are not required to use 'real' data.

AQA will provide six problems in the form of Candidate Booklets in September each year. Each student must provide an ICT solution to **one** of them. One generic booklet of *Teachers' Notes* (45203/TN) will also be provided in September each year.

All work produced by students must be kept in a Portfolio. The purposes of the Portfolio are to:

- contain the information which could be used by another person who is interested in how the solution was produced to help them to do something similar
- capture all the material which the student want to submit for marking first by his/her teacher and later for moderation by the Moderator.

We understand that students will not always be familiar with the context of the problems that are provided by AQA. In these circumstances either the students(s) or their teacher should find a real end-user or someone who is prepared to act in the role of an end-user (although students must create or otherwise provide their own data). This person could either be a teaching colleague or another responsible adult from outside the centre. For example, if the problem is to devise an ICT solution to help in the organisation of a school/college foreign exchange visit to another country, a teaching colleague in the Language Department may be willing to simulate the role of the organiser. The same 'end-user' can be used by all the candidates doing the same problem or different end-users for the same problem. Fellow students must not be used as real or realistic end-users.

3 How and when are the problems to be made available by AQA

In September each year six problems will be provided by AQA. The problems are provided for candidates entered for Unit 3 in the following examination series:

- **June 20XX***
- **January 20YY and June 20YY**
- **January 20ZZ and June 20ZZ.**

Each problem is provided in a *Candidate Booklet* in PDF format through the e-AQA secure server. Candidate Booklets for subsequent years of the examination will also be made available through the e-AQA secure server.

Within a centre each candidate must choose one problem. Teachers may limit the choice of problems made available, but each candidate must have a choice of at least two. The problem chosen by the candidate should be explored by the candidate to 'generate' a solution.

* The first six Candidate Booklets, each containing one problem, will be published on the second Monday in September 2010 for Portfolios submitted in June 2011, January 2012, June 2012, January 2013 and June 2013. The six problems will be reviewed for publication in autumn 2013 for Portfolios submitted in January 2014 and the next 3 series.

4 Levels of Controlled Assessment in Unit 3

Controlled Assessment is a form of internal assessment where the control levels for each stage of the assessment process (Task Setting, Task Taking and Task Marking) have been defined by QCDA and must be met by all Awarding Bodies. The control levels which must be applied to GCSE ICT are:

- Task Setting: High
- Task Taking: Medium
- Task Marking: Medium.

For the purposes of this unit, the word 'Task' has been replaced by the word 'Problem'.

What these levels of control mean for both you and your candidates is explained later in these Teachers' Notes under the titles Controlled Assessment Problem Setting, Problem Taking and Marking in Sections 6a, 8 and 9, respectively.

5 Controlled Assessment Adviser Service available from AQA

Every September each centre will be assigned a Controlled Assessment Adviser who will be available to assist teachers with any centre-specific matters relating to Unit 3. Contact details of Advisers will be provided when you inform us that you are to use the specification.

6a Controlled Assessment – Problem Setting

Six Candidate Booklets (Code: XXXX3/CB1 to CB6) each containing one problem set by AQA will be published to centres using the e-AQA secure server on the second Monday in September. (Teachers can gain access to the e-AQA server through their Examinations Officer.)

Each candidate must complete a Portfolio of evidence for 'Practical Problem Solving in ICT' based upon his/her chosen problem for the year in which the candidate is to be entered for the examination. Each problem will set up a situation in which ICT must be used to provide a solution. The problems will be similar to those which candidates may meet in education, the community or in the work place.

6b Contextualisation of the AQA Problems

A high level of control for problem setting is required by the QCDA Controlled Assessment criteria. This means that AQA must set the problems for Unit 3. However, centres are permitted to contextualise one or more problems if an element of it needs to be changed to meet the availability of and access to an individual centre's resources.

If an amendment is needed, centres must first contact their Controlled Assessment Advisor **before** candidates start work **as their work may not be acceptable unless the amendment is accepted by us**. Centres must provide details as to why it is felt the problem needs to be contextualised. Advice on this matter from the Controlled Assessment Advisor must be obtained in writing and must be submitted together with Unit 3 work when requested for moderation. We reserve the right to reject any proposals which would significantly change the nature of a problem or give undue advantage or disadvantage to a candidate.

7 Making use of the Candidate Booklets

The problems are intended to explore a realistic situation. Candidates are required to model the solution to the problem but are not required to use 'real' data. Each problem should be explored by candidates to 'generate' a solution.

8 Controlled Assessment – Problem Taking

Controls in relation to the taking of a problem can be specified in a number of areas as follows.

8a Authentication

It is essential that teachers are able to confirm that the work submitted by each candidate is their own unaided work. To ensure that this can be done, all work, with the exception of research, must be completed under **informal supervision**.

Informal supervision means that teachers must ensure that:

- in cases of collaborative work, the contributions of individual candidates are recorded accurately
- plagiarism does not take place
- work can be authenticated as the candidate's own
- sources used by candidates are clearly recorded and acknowledged.

In practice, what does this mean? Candidates do not need to be under the direct supervision of teaching staff at all times, but it is expected that the majority of work undertaken by the candidate and which is submitted for assessment will be carried out in the classroom (or read 'computer room' throughout). This is so that the teacher is able to state with confidence that the work being submitted by the candidate has not been plagiarised or downloaded from an Internet site.

It may be the case that the candidate needs to complete some work outside the classroom environment (for example, as part of a homework task). This is acceptable provided that the teacher has supervised the candidate in carrying out a significant proportion of this work in the classroom and is satisfied that the quality of work subsequently submitted is of an identical standard as that seen in the classroom. In short, it is the responsibility of the teacher to be able to authenticate that the work submitted is solely that of the candidate concerned.

There may be instances where candidates wish to word process parts of their work but resources within the centre do not permit a whole class to do this. Provided that the teacher has supervised the candidate whilst they have drafted their work in class, it would be acceptable for this candidate to word process the work outside the classroom environment. The draft version would need to be submitted together with the word processed version and it would be the responsibility of the teacher to authenticate that the work submitted for assessment (word processed version) is in line with the work carried out in class.

It is expected that the majority of the work would be carried out within the classroom. On occasion, when work is conducted away from the classroom, this must be clearly documented by the teacher on the Candidate Record Form. There may be occasions when circumstances require that some work cannot be carried out in the classroom. For example, a candidate may run out of time in a lesson and wish to finish off some design planning work at home. Provided that the teacher has supervised the majority of the work carried out in the classroom, it is permissible for the candidate to take this work home in order to complete the task. The teacher will then, of course, need to inspect the product to ensure that the quality of work carried out at home is consistent with the quality of work seen in the classroom. It is not permissible for a

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candidate to carry out a significant part of the work outside the classroom as this would not allow the teacher to authenticate this work.

There may also be occasions when a candidate has not completed all aspects of the work e.g. for medical reasons. Where this is the case or, indeed, in any instance where there has been some third party assistance, this must be clearly documented on the Candidate Record Form and, of course, ***the candidate cannot be credited for work that they themselves have not done*** or been involved in producing.

If a teacher has any doubts about the authenticity of work that has been completed at home they may choose to ask the candidate to complete the same work again in the classroom or question the candidate about the content/nature of the work undertaken.

8b Research

Research, which may also include practical research, may be completed under **limited supervision**. This means that, whilst candidates can carry out research at home (using the Internet, etc) any material collected or produced as a consequence will not contribute directly to assessable outcomes. The candidate could gather the necessary research material related to a particular project and then analyse this research under informal supervision conditions. It is this analysis and selection of suitable research material, ***completed under informal supervision***, which will count towards the candidate's assessable outcome. For the GCSE in ICT we are keen to ensure that candidates avoid the temptation to include significant amounts of unnecessary research material and, instead, seek to encourage them to be more focussed in their selection of relevant research.

8c Feedback to candidates

Candidates are free to revise and redraft a piece of work before submitting the final piece. Teachers can review draft work and provide ***generic advice*** to ensure that the work is appropriately focussed but, whilst candidates may be guided as to the approach they may wish to adopt, the outcome must remain their own. The advice can be provided in either oral or written form and can be used to evaluate progress to date and propose suggested ***broad*** areas for improvement. It is ***not*** permissible, however, to provide advice on ***specific*** improvements to meet the criteria, give detailed feedback on errors or omissions, or to indicate how ***specific*** improvements to presentation or content can be made.

A clear distinction must be drawn between providing feedback to candidates as part of work in progress and reviewing work once it has been submitted by the candidate for final assessment. Once work is submitted for final assessment it may not be revised. Having reviewed a piece of work that has been submitted for final assessment, therefore, it is not acceptable for teachers to give, either to individual candidates or to groups, detailed advice and suggestions as to how the work may be improved in order to meet the marking criteria.

Any support or feedback given to individual candidates ***which has not been provided to the class as a whole*** must be clearly recorded on the Candidate Record Form.

8d Working with others: opportunities for collaborative work

Working with others should be encouraged wherever possible in this unit as it is an important life and work skill. The following activities (numbering is from the marking criteria in Section 10, below) specifically offer candidates an opportunity to work collaboratively:

Part 1a
Part 1b
Part 2a
Part 2g.

Where the opportunity to work collaboratively is taken up, it is essential that candidates individually document the work that they have produced. For example in Part 1a, candidates could discuss the order in which aspects could be carried out and how long they may take. The evidence that the individual candidate has to produce will be in the form of paragraphs and/or bullet/numbered points printed out in the Portfolio.

It is the responsibility of the teacher to ensure that the work of each individual candidate that may have worked as part of a group is their own unaided work and can be assessed as such.

8e Time limits

It is recommended that candidates should spend approximately 25 hours on their controlled assessment task for Unit 3. It is not expected that this time should be monitored or recorded by teachers but candidates should be encouraged not to exceed this approximate time allocation. It is expected that candidates will be selective in their choice of material to include in their Portfolio and will be mindful of the approximate time allocated to the work and manage this time appropriately.

8f Use of resources

Candidates are permitted to use resources provided by the centre. If there are any candidates who require the use of any special equipment, the Examinations Officer should contact AQA's Exams Office Support for guidance.

Candidates are free to choose whatever tools/emerging technologies that are available in fulfilling the success criteria for this unit.

9 Controlled Assessment – Task Marking

Page 9 onwards show tables giving:

- the Marking Criteria for Unit 3 (as in the specification)
- information on the evidence to be provided by the candidate to prove achievement (as given in the specification) and exemplification of appropriate evidence
- clarification of the Marking Criteria
- amplification of the Marking Criteria.

The exemplification of appropriate evidence, the clarification of the marking criteria and the amplification is additional to the specification and is not intended to replace the Marking Criteria themselves, but to support them. Teachers may issue any aspect(s) of the tables which begin on page 9, to assist candidates with their chosen task.

The Marking Criteria: the number of marks available in the criteria is related to the quality of the evidence (i.e. the ICT solution) provided by the candidate. No additional marks are given when candidates meet a criterion many times. An Assessment Tool is available from AQA to assist with the marking of this unit. (The Assessment Tool will facilitate teachers' marking of this unit and will be available via e-AQA.)

Evidence: this may be in the form of printouts, (legible) screenshots or diagrams, with annotation. Evidence must be presented as hard copy printout or on CD-ROM. In the tables below, suitable evidence is indicated for each criterion, with exemplification as to the possible nature of this evidence. For some criteria the report itself, Part 2e, will provide the necessary evidence. Each candidate must produce his/her own Portfolio.

Amplification: this indicates the minimum standard expected for the award of a particular mark. If a candidate's work does not meet the criterion shown for a given mark, then that mark cannot be awarded. *For example: in Part 1b 'anticipate and manage risks', if a candidate has included all, or almost all, risks, which are then not clearly anticipated and managed, then the candidate must not be awarded a mark in the 7–9 range. It is not the quantity which is significant but the quality of the candidate's response.*

10 The Marking Criteria for Unit 3

Quality of Written Communication

To be awarded a mark against the criteria specified below, candidates must meet the subject criteria given under the headings for each section and the Quality of Written Communication (QWC) criteria. In the event of a conflict between the subject and QWC criteria, teachers must apply a 'best fit' mark.

Quality of Written Communication strand	Section to be assessed
1. Using text which is legible and grammar, spelling and punctuation to make the meaning clear	2e, 2f, 2g
2. Using an appropriate form and style of writing	1a, 2b, 2d, 2e, 2f
3. Organising information clearly and coherently Using appropriate specialist vocabulary	1a, 1c, 2d In all sections

	Skills to be shown	Quality being assessed	Mark range	Evidence required
	Part 1: Planning and managing the problem:			<i>All evidence produced will be a printout in the Portfolio or stored on CD-ROM.</i>
FE*	1a Milestones Identify milestones with success criteria for evaluating progress and outcomes. Establish practical ways forward, include manageable steps, time and resource management (maximum 9 marks)	Explains the measurable milestones to be used in evaluation and uses these to clearly establish the manageable steps to achieve them, including time and resource management. Uses a form and style of writing entirely appropriate to purpose and content. Organises information clearly and coherently. Effective use of specialist vocabulary.	7–9	<i>The evidence will be in the form of a table/ paragraphs/bullets/ numbered points.</i>
		Describes the milestones, which are mostly measurable, to be used in evaluation and uses these to indicate most manageable steps to achieve them, including time and resource management. Uses a form and style of writing mostly appropriate to purpose and content. Mostly organises information. Reasonably good use of specialist vocabulary.	4–6	
		States some milestones, which could be partly used in evaluation and uses the milestones to indicate some steps to achieve them, including partial time or resource(s) needed. Uses a form and style of writing which is only partially appropriate to purpose or content. There is little evidence of organisation of information. Little use of specialist vocabulary but not always successful.	1–3	
		Inappropriate/no milestones presented and there are no steps listed.	0	

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Amplification	<p>Milestones evidence must be presented in the Portfolio:</p> <p>7–9 marks = explains all milestones required for the task in a measurable form (precisely explained methods, resources and completion dates), clearly breaks down each one into smaller manageable steps, which refer to the time to be taken and the resource(s) to be managed. The form and style of writing is entirely appropriate and information is clearly organised.</p> <p>4–6 marks = describes milestones required for the task in a mostly measurable form (describes methods, resources and completion dates), breaks down most of them into smaller manageable steps which refer to time to be taken and resource(s) to be managed. The form and style of writing is mostly appropriate and information is mostly organised.</p> <p>1–3 marks = states some milestones required for the task in a partially measurable form (states some methods, resources or completion dates), a few are broken down into smaller steps which refer to time to be taken or resource(s) needed. The form and style of writing is partially appropriate but there is little organisation of information.</p> <p>0 mark = there are no milestones presented or they are inappropriate.</p>
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FE	1b Risk Anticipate and manage risks (maximum 6 marks)	Shows clear anticipation by explaining the risks and manages them if they occur. Effective use of specialist vocabulary.	5–6	<i>A list of potential risks and how to deal with them in a table/ paragraphs/ bullet points. Stating how they will be managed and what actions may be needed.</i>
		Shows anticipation by describing most risks and manages them if they occur. Reasonably good use of specialist vocabulary.	3–4	
		Shows some anticipation by stating some risks and manages them if they occur. Little use of specialist vocabulary but not always successful.	1–2	
		There is no anticipation or management of risk in evidence.	0	

Amplification	<p>Risk evidence must be presented in the Portfolio:</p> <p>5–6 marks = there is clear anticipation of all or almost all risks for the task, with explanation about how to manage them, including a clear explanation of any actions which need to be taken if necessary.</p> <p>3–4 marks = there is reasonable anticipation of most risks for the task, with description about how to manage some of them, including some actions which need to be taken if necessary.</p> <p>1–2 marks = there is limited anticipation of some risks for the task, with reference to how to manage few of them.</p> <p>0 mark = there is no evidence of risk management.</p>
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FE	1c Progress Manage progress and outcomes (maximum 6 marks)	Clearly uses an effective 'checklist' or similar to manage the progress and confirm outcomes. Organises information clearly and coherently. Effective use of specialist vocabulary.	5–6	<i>Evidence of creating a suitable 'check list' or similar and using it to manage practical ways forward from the milestones.</i> <i>Evidence and comments to show that the 'checklist' has been used, for example in a blog or diary.</i>
		Uses a reasonable 'checklist' or similar to manage most of the progress and outcomes. Mostly organises information. Reasonably good use of specialist vocabulary.	3–4	
		Uses a simple 'checklist' or similar to manage some of the progress and outcomes. There is little evidence of organisation of information. Limited accuracy in terms of spelling, punctuation and grammar. Little use of specialist vocabulary but not always successful.	1–2	
		There is no progress management or outcome checking.	0	

Amplification

Progress evidence must be presented in the Portfolio:

5–6 marks = there is evidence of creating an effective 'checklist' or similar to manage all or almost all of the progress and outcomes required (including dates and times), and there is clear confirmation of using the 'checklist' or similar to show progress and the status of required outcomes (for example whether complete). Information is clearly organised.

3–4 marks = there is evidence of creating a reasonable 'checklist' or similar to manage most of the progress and most of the outcomes required (including some dates and times), and there is reasonable confirmation of using the 'checklist' or similar to mostly show progress and the status of required outcomes (for example whether complete). Information is mostly organised.

1–2 marks = there is a 'checklist' or similar which states some progress and outcomes required, including dates, times or whether complete. There is little organisation of information.

0 mark = there is no progress management or outcome checking.

FE	1d Managing storage Manage information storage and retrieval (maximum 6 marks)	Effectively manages and clearly understands the storage and retrieval of information. Effective use of specialist vocabulary.	5–6	<i>Screenshots/printouts of folders, filenames and versions used to store electronic information for the task.</i>
		Reasonably manages and understands the storage and retrieval of most information. Reasonably good use of specialist vocabulary.	3–4	
		Simply manages and understands the storage and retrieval of some information. Little use of specialist vocabulary but not always successful.	1–2	
		There is no management of information storage and retrieval.	0	

Amplification

Evidence of **storage** and **retrieval** must be presented in the Portfolio:

5–6 marks = there must be an explanation, of the clear use of appropriate filenames and versions of files within appropriately named folder(s), to show understanding.

3–4 marks = there must be a description, of the use of mostly appropriate filenames and some versions of files within named folder(s), to show understanding.

1–2 marks = there are statements, of the use of some different filenames or versions of files in a folder, to show some understanding.

0 mark = there is no evidence of managing the storage and retrieval of information.

Part 1 sub-total = 27 marks

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Part 2: Independently using ICT to:				
FE	2a Collect Information Consider alternative ways of collecting information, chooses and gathers information and reviews the information collected (maximum 9 marks)	Clearly explains alternative ways of collecting information and effectively chooses and gathers the information required. Clearly reviews the information collected. Effective use of specialist vocabulary.	7–9	<i>Evidence, for example, of questionnaires/ data capture forms created, with reasons for choice of “categories” (questions or data required). Evidence of it filled in and checked (only one ‘completed’ example is required). A comment on the suitability of the ‘completed’ questionnaires/data capture forms, with any inappropriate ones either rejected or replaced by another with explanation.</i>
		Describes alternative ways of collecting information and reasonably chooses and gathers most of the information required. Reviews the information collected. Reasonably good use of specialist vocabulary.	4–6	
		States alternative ways of collecting information and simply chooses and gathers some of the information required. Reviews some information collected. Little use of specialist vocabulary but not always successful.	1–3	
		No evidence is presented about choosing, gathering and reviewing information required.	0	
Amplification	In all cases evidence of information collected must presented in the Portfolio:			
	7–9 marks = clearly explains alternative ways of collecting information; chooses all or almost all the information needed (with an explanation of why needed), gathers information identified (using appropriate collection method(s) - only one ‘completed’ example of each type is needed) and reviews, with explanation, its usefulness and accuracy.			
	4–6 marks = describes alternative ways of collecting information; chooses most of the information needed (with a description of why needed), gathers most information identified (using reasonable collection method(s) - only one ‘completed’ example of each type is needed) and reviews, with description, most of its usefulness and accuracy.			
	1–3 marks = states alternative ways of collecting information; chooses some of the information needed (with a statement of why needed), gathers some information (using a collection method - only one ‘completed’ example is needed) and states its usefulness or accuracy in very few cases.			
0 mark = there is no evidence of ways of collecting information, choosing and gathering information, or reviewing information collected.				

FE	2b Select information Consider alternative ways of selecting information, access, search for, select and use ICT-based information and assess its relevance and fitness for purpose (maximum 9 marks)	Clearly explains alternative ways of selecting information and effectively accesses and searches for ICT-based information needed with a clear explanation of the selection and use of information which is relevant and fit for purpose. Uses a form and style of writing entirely appropriate to purpose and content. Effective use of specialist vocabulary.	7–9	<i>Evidence will include: screenshots of using searches or sorts (both showing the criteria used) and refining either. Printouts of results of searches/ sorts from a database/ spreadsheet.</i>
		Describes alternative ways of selecting information and accesses and searches for ICT-based information needed with a description of most of the selection and use of information, which is mostly relevant and fit for purpose. Uses a form and style of writing mostly appropriate to purpose and content. Reasonably good use of specialist vocabulary.	4–6	
		States alternative ways of selecting information and accesses and searches for ICT-based information needed with statements of some selection and use of information, which is partially relevant and fit for purpose. Uses a form and style of writing which is only partially appropriate to purpose or content. Little use of specialist vocabulary but not always successful.	1–3	
		There is no evidence of accessing and searching for information and no statement about why information was selected and used.	0	

Amplification

In all cases evidence of **information selected** must be presented in the Portfolio:

7–9 marks = clearly explains alternative ways of selecting information; there is evidence of all the data used, printouts of searching/ sorting all or almost all ICT-based information needed for the solution, with a clear explanation of why and how it was selected and used to make it relevant and fit for purpose. The form and style of writing is entirely appropriate.

4–6 marks = describes alternative ways of selecting information; there is evidence of all the data used, printouts of searching/sorting most of the ICT-based information needed for the solution, with a description of why and how it was selected and used to make it mostly relevant and fit for purpose. The form and style of writing is mostly appropriate.

1–3 marks = states alternative ways of selecting information; there is evidence of data used, at least one printout of searching/sorting some ICT-based information needed for the solution, with a statement of why or how it was selected and used to make some of it relevant or fit for purpose. The form and style of writing is partially appropriate.

0 mark = there is no evidence of accessing or searching/sorting ICT-based information or statement about selection and use.

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FE	2c Format information Enter and format information (including page layout, text and tables, images, numbers and records/cells) to suit its meaning and purpose (maximum 6 marks)	Enters and clearly explains formatting information which suits all or almost all its meaning and purpose. Effective use of specialist vocabulary.	5–6	<i>Evidence will include printouts which show and explain formatting of the document.</i>
		Enters and describes formatting information which suits most of its meaning and purpose. Reasonably good use of specialist vocabulary.	3–4	
		Enters and states formatting information which suits some of its meaning and purpose. Little use of specialist vocabulary but not always successful.	1–2	
		Information is formatted inconsistent with its meaning and purpose.	0	
Amplification	<p>Evidence of formatting must be presented in the Portfolio. The evidence must include: page layout, text, tables, images, numbers and records/cells to suit its meaning and purpose:</p> <p>5–6 marks = there is explained evidence of the entry and clear formatting of all information (includes all or almost all of elements listed above) to suit its meaning and purpose.</p> <p>3–4 marks = there is described evidence of most of the entry and formatting of information (includes most of elements listed above) to suit its meaning and purpose.</p> <p>1–2 marks = there is stated evidence of some of the entry and formatting of information (includes some of the elements listed above) to suit its meaning and purpose.</p> <p>0 mark = there is no evidence of information being entered and formatted to suit its meaning and purpose.</p>			

FE	2d Modelling with data Select and analyse data; model different scenarios, try alternatives and explore ideas, ask 'what if' questions to identify patterns or test hypotheses and interpret results (maximum 6 marks)	Appropriately selects and analyses data, effectively models different scenarios and explores alternative ideas. Asks suitable 'what if' questions to identify patterns or test hypotheses and interpret results.	5–6	<i>Evidence will include printouts which show and explain modelling with data in a system.</i>
		Selects and analyses most data needed, models different scenarios and explores an alternative idea, asking 'what if' questions to attempt to identify patterns or test a hypothesis and understand results.	3–4	
		Selects some data, models at least one different scenario or tries an alternative idea, asking simple 'what if' questions in an attempt to produce results.	1–2	
		There is no selection and analysis of data; no modelling of different scenarios or trying alternatives and exploring ideas, no asking 'what if' questions to identify patterns or test hypotheses and no interpreting results.	0	
Amplification	<p>Evidence of creating and using a computer model must be present in the Portfolio:</p> <p>5-6 marks = there is clear evidence of creating a computer model. The evidence must include: the selection and analysis of appropriate data to model different scenarios and explore alternative ideas, there must be evidence of asking 'what if' questions in order to identify patterns or test hypotheses and results must be interpreted.</p> <p>3-4 marks = there is evidence of creating a computer model. The evidence must include: the selection and analysis of most data needed to model different scenarios and explore an alternative idea, there must be evidence of asking 'what if' questions in order to attempt to identify patterns or test hypotheses and to understand results.</p> <p>1-2 marks = there is some evidence of creating a computer model. The evidence must include: the selection of some data, there is a model of at least one different scenario or a trial of an alternative idea, there must be evidence of asking a simple 'what if' question in an attempt to produce results.</p> <p>0 mark = there is no modelling with data or trying alternative ideas/scenarios or asking any 'what if' questions to test hypotheses or interpret results.</p>			

FE	2e Develop information Develops, presents and communicates information required for the solution in ways which are fit for purpose (maximum 12 marks)	Clearly develops, presents and communicates, by explaining evidence of the proposed solution(s) in ways which are fit for purpose and clearly show a high level of skill used. Uses a form and style of writing entirely appropriate to purpose and content. Organises information clearly and coherently. Response conveyed in wholly appropriate form and style of writing. Effective use of specialist vocabulary.	11–12	<i>The evidence must show a final version and include amendments to previous versions, with reasons/ comments to show the level of skill used.</i>
		Develops, presents and communicates, by effectively describing most evidence of the proposed solution(s) in ways which are mostly fit for purpose and show a good level of skill used. Uses a form and style of writing almost entirely appropriate to purpose and content. Organises information reasonably. Reasonably good use of specialist vocabulary.	9–10	
		Develops, presents and communicates, by describing some evidence of the proposed solution(s) in ways which are sometimes fit for purpose and show some of the level of skill used. Uses a form and style of writing mostly appropriate to purpose and content. Mostly organises information. Reasonably good use of specialist vocabulary.	6–8	
		Develops, presents and communicates, by stating, limited evidence of the proposed solution(s) in ways which are occasionally fit for purpose and shows a limited level of skill used. Uses a form and style of writing sometimes appropriate to purpose and content. There is some evidence of organisation of information. Limited use of specialist vocabulary when present.	3–5	
		Develops, presents and communicates very limited evidence of the proposed solution(s) in ways which are not fit for purpose and shows a very limited level of skill used. Uses a form and style of writing which is only partially appropriate to purpose or content. There is little evidence of organisation of information. Little use of specialist vocabulary but not always successful.	1–2	
		No development, presentation and communication of solution(s) present	0	

Amplification	<p>In all cases development evidence must be presented in the Portfolio:</p> <p>11-12 marks = there are all or almost all stages showing amendments to a previous version. There is evidence of appropriate choice of content, formats and layouts which include all or almost all of the following: headers and footer, tables, line spacing, text boxes, bullet points, numbering, alignment, font styles and sizes. There are reasons to explain choices, to explain what amendments were made and why they were made, which show the level of skill being used. The form and style of writing is entirely appropriate and information is clearly organised.</p> <p>9-10 marks = there are most stages showing amendments to a previous version. There is most evidence of choice of content, formats and layouts which include most of the following: headers and footers, tables, line spacing, text boxes, bullet points, numbering, alignment, font styles and sizes. There are reasons to describe choices, to describe what amendments were made and why they were made, which mostly show of the level of skill used. The form and style of writing is almost entirely appropriate and information is reasonably organised.</p> <p>6-8 marks = there are some stages showing amendments to a previous version. There is some evidence of choice of content, formats and layouts which include some of the following: headers and footers, tables, line spacing, text boxes, bullet points, numbering, alignment, font styles and sizes. There are statements about choices, what amendments were made and why they were made, which sometimes show the level of skill used. The form and style of writing is mostly appropriate and information is mostly organised.</p> <p>3-5 marks = there are few stages showing amendments to a previous version. There is little evidence of content, formats and layouts which include few of the following: headers and footers, tables, line spacing, text boxes, bullet points, numbering, alignment, font styles and sizes. There are few statements about choices, amendments made or why they were made, which show little of the level of skill used. The form and style of writing is sometimes appropriate and there is some organisation of information.</p> <p>1-2 marks = there are very few stages showing amendments to a previous version. There is very little evidence of content, formats and layouts which include very few of the following: headers and footers, tables, line spacing, text boxes, bullet points, numbering, alignment, font styles and sizes. There are very few statements about choices, what amendments were made or why they were made which show very little of the level of skill used. The form and style of writing is only partially appropriate and there is little organisation of information.</p> <p>0 mark = there are no earlier stages shown, there is no evidence of any choice of content, formats and layouts shown. There are no statements about amendments.</p>
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FE	2f Produce a report Produce a report which brings together a range of forms of information to suit content and purpose (maximum 12 marks)	Effectively presents a detailed report required, which appropriately brings together a wide range of different forms of information. Uses text in which accurate Spelling, Punctuation and Grammar make the meaning clear. Uses a form and style of writing entirely appropriate to purpose and content. Wholly appropriate form and style of writing. Effective use of specialist vocabulary.	11–12	<i>The report itself may be paper based or interactive (with evidence). The evidence is the printout of a separate report, of at least four pages, on the solution to the problem.</i>
		Presents a clear report on aspects required, which brings together many different forms of information. Uses text in which almost entirely accurate Spelling, Punctuation and Grammar make the meaning clear. Uses a form and style of writing which is almost entirely appropriate to purpose and content. Reasonably good use of specialist vocabulary.	9–10	
		Presents a reasonable report on aspects required, which brings together some forms of information. Uses text in which mostly accurate Spelling, Punctuation and Grammar make the meaning clear. Uses a form and style of writing mostly appropriate to purpose and content. Few errors in Spelling, Punctuation and Grammar. Reasonably good use of specialist vocabulary.	6–8	
		Presents a limited report on aspects required, which brings together few forms of information. Uses text in which limited Spelling, Punctuation and Grammar make some of the meaning clear. Uses a form and style of writing sometimes appropriate to purpose and content. Limited use of specialist vocabulary when present.	3–5	
		Presents a very limited report on aspects required, which brings together very few forms of information. Uses basic Spelling, Punctuation and Grammar. Uses a form and style of writing which is only partially appropriate to purpose or content. Little use of specialist vocabulary and not always successful.	1–2	
		No report is produced (0 mark)	0	

Amplification	<p>The Report must be presented as a separate document in the Portfolio. The report may be prepared using a combination of interactive presentation, publishing software, spreadsheet or database:</p> <p>11-12 marks = there is an effectively presented and detailed report required, which includes reasons for and explanations of the solution, with conclusions and recommendations. The report brings together a wide range of different forms of information. All the report is accurately spelt, punctuated and grammatically correct to make the meaning clear. The form and style of writing is appropriate.</p> <p>9-10 marks = there is a clear report on aspects required, which includes most of the reasons for and most of the descriptions of the solution with some conclusions and recommendations. The report brings together many different forms of information. Almost all the report is accurately spelt, punctuated and grammatically correct to make the meaning clear. The form and style of writing is almost entirely appropriate.</p> <p>6-8 marks = there is a reasonable report on aspects required, which includes some of the reasons for and some of the descriptions of the solution with few conclusions or recommendations. The report brings together some forms of information. Most of the report is accurately spelt, punctuated and grammatically correct to make most of the meaning clear. The form and style of writing is mostly appropriate.</p> <p>3-5 marks = there is a limited report on aspects required, which includes few reasons for or statements of the solution. The report brings together few forms of information. There is limited use in the report of accurate spelling, punctuation and grammar to make some of the meaning clear. The form and style of writing is sometimes appropriate.</p> <p>1-2 marks = there is a very limited report on very few aspects required, which includes very few reasons for or statements of the solution. The report brings together very few forms of information. There is only basic use of spelling, punctuation and grammar. The form and style of writing is only partially appropriate.</p> <p>0 mark = there is no report produced.</p>
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FE	2g Evaluate Evaluate the solution against the milestones set (maximum 10 marks)	Evaluates by clearly discussing the effectiveness of the solution and makes complete reference to the milestones set. Uses text in which accurate Spelling, Punctuation and Grammar make the meaning clear. Uses a form and style of writing entirely appropriate to purpose and content. Effective use of specialist vocabulary.	9–10	<i>The evidence is a printed evaluation to show how effectively the solution has met the milestones set.</i>
		Evaluates by describing the effectiveness of the solution and makes reasonable reference to the milestones set. Uses text in which almost entirely accurate Spelling, Punctuation and Grammar make the meaning clear. Uses a form and style of writing which is almost entirely appropriate to purpose and content. For the most part specialist vocabulary is used effectively.	7–8	
		Evaluates by making some reference to the milestones set in stating how the solution was produced. Uses text in which mostly accurate Spelling, Punctuation and Grammar make most of the meaning clear. Uses a form and style of writing mostly appropriate to purpose and content. Reasonably good use of specialist vocabulary.	5–6	
		Evaluates in a limited way by making limited reference to the milestones set in stating that a solution has been produced. Uses text in which limited Spelling, Punctuation and Grammar make some of the meaning clear. Uses a form and style of writing sometimes appropriate to purpose and content. Limited use of specialist vocabulary when present.	3–4	
		Lists the methods used. Uses basic Spelling, Punctuation and Grammar. Uses a form and style of writing which is only partially appropriate to purpose or content. Little use of specialist vocabulary but not always successful.	1–2	
		There is no statement of how the solution meets the milestones set.	0	

Amplification	<p>Evaluation must be presented in the Portfolio:</p> <p>9–10 marks = discusses in some cases how effectively the solution has been produced against the milestones set, by comparing with an alternative method, and makes complete reference to the milestones. The evaluation is accurately spelt, punctuated and grammatically correct to make the meaning clear. The form and style of writing is entirely appropriate.</p> <p>7–8 marks = describes in some cases how effectively the solution has been produced against the milestones set and makes reasonable reference to the milestones. Almost all the evaluation is accurately spelt, punctuated, and grammatically correct to make the meaning clear. The form and style of writing is almost entirely appropriate.</p> <p>5–6 marks = makes some reference to the milestones set by stating how most of the solution has been produced. Most of the evaluation is accurately spelt, punctuated and grammatically correct to make most of the meaning clear. The form and style of writing is mostly appropriate.</p> <p>3–4 marks = makes limited reference to the milestones set by stating that some of a solution has been produced. There is limited use in the evaluation of accurate spelling, punctuation and grammar to make some of the meaning clear. The form and style of writing is sometimes appropriate.</p> <p>1–2 marks = there are few statements about the methods used. There is only basic use of spelling, punctuation and grammar. The form and style of writing is only partially appropriate.</p> <p>0 mark = there is no statement about the solution meeting the milestones set.</p>
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FE	2h Evaluate others use of ICT Evaluate ways to improve the solution by working with others (maximum 9 marks)	Discusses ways to effectively improve the solution by working with others. Uses text in which accurate Spelling, Punctuation and Grammar make the meaning clear. Effective use of specialist vocabulary.	7–9	<i>Candidates must print out an explanation of how working with others could have been used to produce an even more effective solution.</i>
		Describes ways to reasonably improve the solution by working with others. Uses text in which mostly accurate Spelling, Punctuation and Grammar make most of the meaning clear. Reasonably good use of specialist vocabulary.	4–6	
		States way(s) to improve the solution by working with others. Uses basic Spelling, Punctuation and Grammar. Little use of specialist vocabulary but not always successful.	1–3	
		Fails to identify a way to improve the solution by working with others.	0	
Amplification	Evaluation others use of ICT must be presented in the Portfolio as a separate section: 7–9 marks = there are discussions of ways in which working with others could have made an impact on the solution produced. The evaluation is accurately spelt, punctuated and grammatically correct to make the meaning clear. 4–6 marks = there are descriptions of ways in which working with others could have reasonably improved the solution produced. Most of the evaluation is accurately spelt, punctuated and grammatically correct to make most of the meaning clear. 1–3 marks = there are statement(s) about how working with others could have affected the solution produced. There is only basic use of spelling, punctuation and grammar. 0 mark = there is no identification of ways working with others could improve the solution produced.			
			Part 2 sub-total = 73 marks Total = 100 marks	

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