

Accredited

# Information Technology

## ENTRY LEVEL Computing Specification

R353

Version 1

December 2012



## **WHY CHOOSE OCR ENTRY LEVEL CERTIFICATE IN COMPUTING?**

### **Engaging and fun**

This course provides candidates with opportunities to become familiar with how computer technology works and a look at what goes on 'behind the scenes'. Through the introduction of programming, this course will help candidates develop their problem solving skills. For many, it will be a fun and interesting way to develop these skills, which can be transferred to other subjects and even applied in day-to-day life.

### **Teacher involvement**

You can enjoy the freedom and excitement of teaching this qualification which has been developed to help you inspire your candidates. This course was developed with you in mind, using a clear and easy to understand format, making it straightforward for you to deliver.

### **Is there progression from Entry Level to GCSE?**

This course is designed to provide candidates with realistic targets, encouraging them to develop computing skills. This enables the more able learner to progress to GCSE Computing.



## Total Qualification Time (TQT)

Total Qualification time (TQT) is the total amount of time, in hours, expected to be spent by a learner to achieve a qualification. It includes both guided learning hours and hours spent in preparation, study and assessment. The Total Qualification time for Entry Level Certificate in Computing is 120 hours.

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# 1

## Introduction to Entry Level Certificate in Computing

### 1.1 Overview of OCR Entry Level Certificate in Computing

This qualification consists of one unit which is broken down into three strands.

Entry Level Computing R353	
<i>Hardware, Software and Logic</i> 24 marks (30% of qualification)	OCR set end of item tests, each approx 15 minutes in duration, to be taken after teaching a topic.
+	
<i>Programming</i> 40 marks (50% of qualification)	Programming task  Internally assessed, externally moderated.
+	
<i>Trends in Computing</i> 16 marks (20% of qualification)	Presentation  Internally assessed, externally moderated.

All three strands must be submitted along with a total mark across the strands out of 80.

### 1.2 Prior Learning/Attainment

Candidates attempting the Scratch programming task may be expected to move sprites around a 2D environment. They will therefore benefit from being familiar with learning objectives from the Key Stage 2 Mathematics National Curriculum.

### 1.3 Aims and objectives

The Entry Level Certificate in Computing should introduce candidates to the fundamental concepts of Computing. It should prepare and motivate some students to study Computing at Level 1 and beyond.

The Entry Level Certificate in Computing must enable candidates to:

- develop their understanding of the fundamental hardware of a computer system
- develop their understanding of common types of software
- develop an understanding of simple logic
- acquire the skills to write simple computer programs
- develop an understanding of the development of a computer technology and the effects it has had.

This course consists of one unit which has three strands.

## Specified Content

### 2.1: Hardware, Software and Logic

This strand consists of three broad sections on which the tests will be based.

Hardware	<p>Candidates should have knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>• components of a computer</li> <li>• internal components of a computer and their function</li> <li>• peripherals and their function.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>• identify the components of a computer e.g. input, output and storage devices</li> <li>• identify the basic function of the common internal components of a computer e.g. motherboard, CPU, RAM, ROM, graphics cards, sound cards, hard disks</li> <li>• identify the basic functions of common peripherals e.g. camera, keyboard, microphones, monitor, mouse, scanner, speakers, printer.</li> </ul>
Software	<p>Candidates should have knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>• functions of an operating system</li> <li>• types of application software in different contexts</li> <li>• types of system software in different contexts</li> <li>• types of utility software in different contexts.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>• state why an operating system is needed, including its functions</li> <li>• describe the difference between application software and system software</li> <li>• state the purpose of different application software e.g. presentation, desktop publishing (DTP), spreadsheet, database, image editing, web browsing, word processing</li> <li>• state the purpose of different system utilities e.g. computer security (antivirus, spyware protection and firewalls), disk organisation (formatting, file transfer, and defragmentation), and system maintenance (system information and diagnosis, system clean-up tools, automatic updating).</li> </ul>
Logic	<p>Candidates should have knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>• binary numbers</li> <li>• logic gates</li> <li>• sequencing of instructions.</li> </ul>	<p>Candidates should be able to:</p> <ul style="list-style-type: none"> <li>• convert between binary and denary numbers from 0 to 15</li> <li>• state the output of different logic gates AND, OR and NOT</li> <li>• sequence instructions into a logical order.</li> </ul>

## 2.2 Programming

In this strand, candidates will be expected to plan, write, test and evaluate a simple program. Their project will incorporate the following:

Planning	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>a method of planning the flow of a program (e.g. flowcharts, pseudo code or algorithms).</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>identify key requirements of a program</li> <li>plan a program they intend to write.</li> </ul>
Input, Output and Store Data	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>what a variable is</li> <li>what is meant by inputting and outputting data.</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>output to text or movement on screen</li> <li>store an input in a variable.</li> </ul>
Sequence	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>how instructions are executed in the sequence they are written.</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>write programs with instructions in the correct order.</li> </ul>
Selection	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>how programs can be made to only execute code if a condition is true</li> <li>using Boolean operators in conditions such as "equal to" (e.g. <math>a==b</math>) "not equal to" (e.g. <math>a!=b</math>), "less than" (e.g. <math>a&lt;b</math>) and "greater than" (e.g. <math>a&gt;b</math>).</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>make a program execute something IF a given condition is true.</li> </ul>
Iteration	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>what is meant by a loop.</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>use a loop in a program to execute statements multiple times.</li> </ul>
Arithmetic Operations	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>the arithmetic operators: + - * /.</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>use an arithmetic operator within a program.</li> </ul>
Comments	Candidates should have knowledge and understanding of: <ul style="list-style-type: none"> <li>why comments are used in a program.</li> </ul>	Candidates should be able to: <ul style="list-style-type: none"> <li>add suitable comments to their programs.</li> </ul>
Test and Evaluate		Candidates should be able to: <ul style="list-style-type: none"> <li>test a program works in the way it is expected to</li> <li>evaluate a program they have written.</li> </ul>



## 2.3: Trends in computing

In this strand candidates are expected to research a computing related technology (such as mobile phones, social networks). They will then communicate these findings through a presentation/report. Evidence may take the form of, but is not limited to, presentations, word processed reports, video or audio recordings.

Candidates should have knowledge and understanding of:

- a computing technology and how it has developed
- examples of that technology
- technical terms relevant to their chosen technology
- what are meant by ethical, social and legal considerations.

Candidates should be able to:

- describe a development in computing
- describe different examples of the use/ application of that technology and their impact
- use technical terms when describing their development
- describe examples of ethical, social and legal considerations related to their chosen development. (Ethical considerations are when we look at whether things that happen are considered as wrong or unfair. Legal considerations are when we look at whether things that happen are against the law. Social considerations are when things happen that change the way we live our lives).

## 3.1 Overview of the assessment in Entry Level Certificate in Computing

## R353: Computing

## Strand 1: Hardware, Software and Logic

30% of the total marks

24 marks

Candidates may take up to 15 minutes to complete each test.

OCR set end of item tests to be taken after teaching each topic area.

In preparation for the assessment, teachers must allow sufficient teaching time to increase the candidate's depth of knowledge and understanding.

The tests are available for downloading from Interchange. They are marked by the teacher using mark schemes provided by OCR and submitted to OCR together with all other strands.

## Strand 2: Programming

50% of the total marks

40 marks

Candidates may take up to 10-12 hours to complete this task.

Candidates complete one programming task.

The task can be chosen from the list provided by OCR, but the teacher may develop their own task.

In addition to the time spent completing the task, there should also be further teaching time to increase the candidate's depth of knowledge and understanding in preparation for the internal assessment.

The programming task is internally assessed and externally moderated.

## Strand 3: Trends in Computing

20% of the total marks

16 marks

Candidates may take up to 5 hours to complete this task.

Candidates complete one presentation task.

The task can be chosen from the list of suggested topics provided by OCR, but the teacher may develop their own task.

In addition to the time spent completing the task, there should also be further teaching time to increase the candidate's depth of knowledge and understanding in preparation for the internal assessment.

The presentation task is internally assessed and externally moderated.

## 3.2 Assessment availability

There is one assessment series each year in June.

The first series that candidates may be awarded this qualification is June 2013.

## 3.3 Assessment Objectives

Candidates are expected to demonstrate the following in the context of the content described.

<b>AO1</b>	<b>Demonstrate Knowledge and Understanding</b> Candidates demonstrate their ability to recall, select and communicate their knowledge and understanding of concepts, issues and terminology.
<b>AO2</b>	<b>Analysis, Evaluation and Application</b> Candidates demonstrate their ability to apply their knowledge and understanding in familiar and unfamiliar contexts.
<b>AO3</b>	<b>Communication and Presentation</b> Candidates demonstrate their ability to analyse and evaluate information, sources, arguments and interpretations.

## 3.4 Assessment Objective weightings

The relationship between the units and the assessment objectives of the scheme of assessment is shown in the following grid:

Unit	% of Entry Level			Total
	AO1	AO2	AO3	
Entry level Certificate in Computing (R353)	35	56	9	100%

% of Strand (% of Entry Level)			
Strand	AO1	AO2	AO3
Hardware, Software and Logic	100 (30)	0 (0)	0 (0)
Programming	0 (0)	100 (50)	0 (0)
Trends in Computing	25 (5)	30 (6)	45 (9)

### 3.5 Awarding of grades

The grades awarded for the Entry Level Certificate will be at three levels: Entry 1, Entry 2 and Entry 3. All mark schemes have been written to address the following targeted thresholds:

Specification Grade	Entry 3	Entry 2	Entry 1
Target	80%	60%	40%

## 4.1 Internal Assessment Tasks

Internal assessment tasks will be available from Interchange. Guidance on how to access internal assessment tasks from Interchange is available on the [OCR website](#).

## 4.2 Supervision and authentication of internally assessed work

OCR expects teachers to supervise and guide candidates who are undertaking work that is internally assessed. The degree of teacher guidance will vary according to the kind of work being undertaken. It should be remembered, however, that candidates are required to reach their own judgments and conclusions.

When supervising internally assessed tasks, teachers are expected to:

- offer candidates advice about how best to approach such tasks
- exercise supervision of the work in order to monitor progress and to prevent plagiarism
- ensure that the work is completed in accordance with the specification requirements and can be assessed in accordance with the specified mark descriptions and procedures.

The centre must ensure that sufficient work takes place under direct supervision to allow the teachers concerned to authenticate each candidate's work with confidence.

Teachers are required to declare that the work submitted for internal assessment is the candidate's own work by sending the moderator a centre authentication form (CCS160) for each unit at the same time as the marks. If a centre fails to provide evidence of authentication, we will set the mark for the candidate(s) to Pending (Q) for that component until authentication can be provided.

## 4.3 Production and presentation of internally assessed work

Candidates must observe certain procedures in the production of internally assessed tasks.

- Tables, graphs and spreadsheets may be produced using appropriate ICT. These should be inserted into the report at the appropriate place.
- Any copied material must be suitably acknowledged.
- Quotations must be clearly marked and a reference provided wherever possible.
- Work submitted for moderation or marking must be marked with the:
  - centre number
  - centre name
  - candidate number
  - candidate name
  - unit code and title
  - assignment title.

Work submitted on paper for moderation or marking must be secured by treasury tags. Work submitted in digital format (CD or online) must be in a suitable file structure as detailed in Appendix B at the end of this specification.

## 4.4 Annotation of candidate's work

Each piece of assessed work should show how the marks have been awarded in relation to the mark descriptions. The writing of comments on candidates' work provides a means of dialogue and feedback between teacher and candidate and a means of communication between teachers during internal standardisation of internally marked work.

### 4.5 Marking and moderation

All centres entering candidates are subject to quality control via moderation of a sample of candidates' work towards the end of the course. This specification offers the opportunity for moderation evidence to be submitted by post as well as electronically via the OCR Repository (see Entry codes in Section 7.1 Registration and entries of this specification).

All internally assessed tasks are marked by the teacher and internally standardised by the centre.

Marks are then submitted to OCR, after which moderation takes place in accordance with OCR procedures. The purpose of moderation is to ensure that the standard of the award of marks for work is the same for each centre and that each teacher has applied the standards appropriately across the range of candidates within the centre. The moderator will select the sample and advise the centre where the work is to be sent (postal moderation). Centres entering candidates via the OCR Repository must ensure that the sample is uploaded on receipt of the moderator's selection.

The sample of work that is presented for moderation must show how the marks have been awarded in relation to the marking criteria.

Each candidate's work should have a cover sheet attached to it with a summary of the marks awarded for the task. If the work is to be submitted in digital format, this cover sheet should also be submitted electronically within each candidate's folder. The cover sheet is available on the OCR website.

#### 4.5.1 Use of 'best fit' approach to marking criteria

The assessment tasks should be marked by teachers/assessors according to the OCR marking criteria using a 'best fit' approach. For each of the marking criteria, teachers/assessors select the band descriptor provided in the marking grid that most closely describes the quality of the work being marked.

Marking should be positive, rewarding achievement rather than penalising failure or omissions. The award of marks must be directly related to the marking criteria.

Teachers/assessors should use their professional judgement to decide first which band descriptor best describes the overall quality of the answer. A mark is then awarded within the mark range identified for that descriptor:

- highest mark - if clear evidence of the qualities in the band descriptor is shown, the highest mark should be awarded
- lowest mark - if the answer shows the learner to be borderline (i.e. they have achieved all the qualities of the bands below and show limited evidence of meeting the criteria of the band in question) the lowest mark should be awarded
- middle mark - this mark should be used for learners who are secure in the band. They are not 'borderline' but they have only achieved some of the qualities in the band descriptor.

Further refinement can be made by using the intervening marks.

Teachers/assessors should use the full range of marks available to them and award full marks in any band for work that fully meets that descriptor. This is work that is 'the best one could expect from learners working at that level!'

## 4.6 Minimum requirements for internally assessed work

If a candidate submits no work for an internally assessed strand, then the candidate should be indicated as being absent from that strand on the mark sheets submitted to OCR. If a candidate completes any work at all for an internally assessed unit, then the work should be assessed according to the criteria or mark scheme and the appropriate mark awarded, which may be zero.

## 4.7 Submitting the moderation samples via the OCR Repository

The OCR Repository allows centres to submit moderation samples in electronic format to the OCR Repository via Interchange: please check Entry codes in Section 7.1 Registration and entries of this specification. Instructions for how to upload files to OCR using the OCR Repository can be found on OCR Interchange.

### 5.1 Free resources available from the OCR website

The following materials will be available on the OCR website [www.ocr.org.uk](http://www.ocr.org.uk):

- Entry Level Certificate in Computing Specification
- Specimen assessment materials
- Teachers Handbook

### 5.2 OCR Professional Development Programme

Here at OCR we are constantly looking for ways in which we can improve the support we offer to teachers. Most recently we have been considering the increasing challenges that schools face in releasing teachers for INSET, and how OCR can make its professional development programme more accessible and convenient for all by offering a number of courses online.

Thousands of users have already visited our new online training site to view and download the free material that is now available. If you haven't already, register today and take a look at the variety of support we offer.

#### Our new improved programme includes:

**Self-managed learning** – the training you want, where and when you want it

If you want to better understand the specification or keep abreast of information about previous examinations then these are for you. Available on demand 24 hours, 7 days a week with no travel or training costs, these self-contained units allow you to manage your own learning at a pace that suits you. New content is added daily, and the site currently has free material available in over 90 subjects for teachers to download, as well as several training videos and online presentations.

**Live broadcasts** – information and training straight to your classroom

Free broadcast events streamed live over the internet focussing on improving your delivery skills and understanding of our qualifications. These interactive sessions via single presenter webinars, studio discussions and multi-site broadcasts give you the chance to hear advice and guidance from our subject specialists and senior assessors who will be taking your questions live, or pre-submitted, and providing you with an immediate response.

**Premier professional development** – inspiring and advancing your teaching

Don't miss your opportunity to attend our range of face-to-face premier professional events giving you the opportunity to keep up to date with the latest developments in your subject area, visit subject related venues and obtain new and interesting approaches to teaching certain topic areas.

Providing professional development for teachers at a reduced cost for centres, this is your opportunity to gain new insights and ideas from leaders in their field and to interact with a large number of subject specialist teachers.

**Face-to-face** – A portfolio of more traditional INSET events

Training sessions to help you understand and manage GCSE controlled assessment, A Level coursework and to support some vocational courses, we currently have over 275 events scheduled to take place in England and Wales.

#### What to do next?

Check out our self-managed learning at [www.ocronlinetraining.org.uk](http://www.ocronlinetraining.org.uk)

For further information and to book your place on our premier professional development, face-to-face and live broadcast events visit [www.ocreventbooker.org.uk](http://www.ocreventbooker.org.uk)

**Sign up for updates** at [ocr.org.uk/updates](http://ocr.org.uk/updates) and be the first to find about our exciting Professional Development Programme.

#### Need more help?

You can contact our team at [professionaldevelopment@ocr.org.uk](mailto:professionaldevelopment@ocr.org.uk)



## 5.3 OCR Support Services

OCR Interchange has been developed to help you to carry out day to day administration functions online, quickly and easily. The site allows you to register and enter candidates online. In addition, you can gain immediate free access to candidate information at your convenience. Sign up at <https://interchange.ocr.org.uk>.

**6.1 Access arrangements for Entry Level Certificate in Computing**

Arrangements for candidates with special needs for Entry Level Certificate specifications are based on the principle that the centre is best able to assess the needs of the candidate and the appropriateness of the arrangement required. Arrangements for candidates with special needs should not advantage nor disadvantage a particular candidate, nor should they reduce the reliability and validity of the assessment.

The arrangements for candidates with special needs are more flexible than those currently available at GCSE and as such it should not be assumed that any arrangements made at Entry Level Certificate Level will automatically be available at GCSE or GCE Level. Please consult the JCQ booklet *Access Arrangements, Reasonable Adjustments and Special Consideration*,. Entry Level Forms are available on the JCQ website (Forms 11-13).

The following arrangements can be made for candidates without permission being sought:

- mechanical and technological aids may be used by candidates who are physically dependent on them (screen readers must not be used in reading texts)
- instructions regarding the conduct of any In-Course tests may be simplified
- language support staff may provide linguistic help (please see regulations relating to readers and scribes, sign language and oral language modifiers)
- bilingual and word exchange lists may be used.

For information relating to permission to use the following special arrangements, please consult the JCQ booklet *Access Arrangements, Reasonable Adjustments and Special Consideration*.

Under certain circumstances:

- the teacher may act under the candidate's instructions to perform simple physical actions which the candidate is unable to undertake; (please see regulations on the use of practical assistants)
- mechanical and technological aids may be used by candidates who generally use them in their normal work; (for screen readers, please see regulations relating to readers)
- communicators or signers may be used
- readers and amanuenses may be used
- the tests may be modified as necessary for visually impaired candidates. It is the responsibility of the centre to Braille or enlarge the tests.

It is expected that, generally, the candidate's own teacher will act as a communicator, a signer, a reader or an amanuensis.

Further clarification of any special arrangements may be obtained by consulting the JCQ booklet *Access Arrangements, Reasonable Adjustments and Special Consideration* or by contacting OCR Special Requirements Team.

## 7.1 Registration and entries

Centres must be registered with OCR in order to make any entries, including estimated entries. It is recommended that centres apply to OCR to become a registered centre well in advance of making their first entries.

Both estimated and final entries must be made in the certification year. Estimated entries, giving estimated numbers only, are needed for the appointment of the centre. Moderators and final entries provide the necessary individual candidate details.

Candidates should be entered for the qualification code R353.

It is essential that entry codes are quoted in all correspondence with OCR.

For this qualification candidates must be entered for either component 01 (electronic submission via the OCR Repository) or 02 (postal moderation). Centres must enter all of their candidates for one of these components. It is not possible for centres to offer both components within the same series.

Entry option code	Component code	Submission method
R353A	01	OCR Repository
R353B	02	Postal moderation

## 7.2 Entry Deadlines

Candidate entries must be made by the date published on the OCR website.

## 7.3 Qualification re-sits

Candidates may enter for the qualification an unlimited number of times.

## 7.4 Enquiries about results

Under certain circumstances, a centre may wish to query the grade available to one or more candidates or to submit an appeal against an outcome of such an enquiry. Enquiries about Results must be made immediately following the series in which the qualification was taken (by the Enquiries about Results deadline).

Please refer to the JCQ Post-Results Services booklet and the OCR Admin Guide for further guidance about action on the release of results. Copies of the most recent editions of these papers can be obtained from the OCR website.

## 7.5 Restrictions on candidates entries

Candidates who enter for this Entry Level specification may not also enter for any Entry Level specification with the certification title Computing in the same examination series.

They may, however, also enter for any GCSE, NVQ or equivalent qualification.

**8.1 Overlap with other qualifications**

There is some overlap of content with the OCR GCSE in Computing, although the assessment requirements will be different.

**8.2 Progression from this qualification**

This Entry Level qualification is a qualification designed to enable candidates to progress either directly to employment or to Foundation Level courses within the National Qualifications Framework.

The progress of some candidates during the course might be sufficient to allow their transfer to a Computing GCSE course.

**8.3 Avoidance of bias**

OCR has taken great care in preparation of this specification and assessment materials to avoid bias of any kind. Special focus is given to the 9 strands of the Equality Act with the aim of ensuring both direct and indirect discrimination is avoided.

**8.4 Regulatory Requirements**

This specification complies in all respects with *The General Conditions of Recognition*.

**8.5 Language**

This specification and associated assessment materials are in English only.

**8.6 Spiritual, moral, ethical, social, legislative, economic and cultural issues**

During the course there are opportunities to promote candidates' spiritual, moral, social and cultural development.

Candidates may be taught to reflect critically on their own and others' use of Computing and to identify spiritual, moral, ethical, social and cultural issues related to its use. This can be achieved by exploring the ways new technology has affected the way people work, live and play.

Candidates can explore the ways new technology directly affects the quality of people's lives by comparing the use of computing and contrasting its use with what was done before these developments existed.

**8.7 Sustainable development, health and safety considerations and European developments, consistent with international agreements**

This specification supports these issues, consistent with current EU agreements, as outlined below.

This specification encourages candidates to develop environmental responsibility based upon an understanding of the principle of sustainable development. Teachers may have opportunities to address all of the issues above through their choice of teaching materials, for example, a class discussion about the advantages of new technology over traditional methods may raise some environmental issues.

### 8.8 Key skills

This specification provides opportunities for the development of the Key Skills of *Communication (C)*, *Application of Number (AoN)*, *Information Technology (IT)*, *Working with Others (WwO)*, *Improving Own Learning and Performance (IoLP)* and *Problem Solving (PS)* at Level 1. However, the extent to which this evidence fulfils the Key Skills criteria at this level will be totally dependent on the style of teaching and learning adopted.

The following table indicates where opportunities may exist for at least some coverage of the various Key Skills criteria at Level 1.

	C	AoN	IT	WwO	IoLP	PS
Level	1	1	1	1	1	1
R353	✓	✓	✓	✓	✓	✓

## Internal Assessment Criteria: Strand 2 – Programming

Guidance on applying the 'best fit' approach to the marking criteria below is in Section 4.5.1.

Learning objectives being assessed	With constant support	With some support.	With limited support.
Planning	Identify what their program will do. <b>1-3 Marks</b>	Identify what their program will do. Outline how their program will work. <b>4-7 Marks</b>	Identify what their program will do. Plan how their program will work. <b>8-10 Marks</b>
Use of Techniques	Use some of the following techniques: <ul style="list-style-type: none"> <li>- Outputting to screen</li> <li>- Sequencing Instructions</li> <li>- Storing data in variables</li> <li>- Selection using IF</li> <li>- Iteration</li> <li>- An arithmetic operator</li> <li>- A Boolean operator</li> <li>- Comments.</li> </ul> <b>1-3 Marks</b>	Use many of the following techniques: <ul style="list-style-type: none"> <li>- Outputting to screen</li> <li>- Sequencing Instructions</li> <li>- Storing data in variables</li> <li>- Selection using IF</li> <li>- Iteration</li> <li>- An arithmetic operator</li> <li>- A Boolean operator</li> <li>- Comments.</li> </ul> <b>4-7 Marks</b>	Independently and accurately use most of the following techniques: <ul style="list-style-type: none"> <li>- Outputting to screen</li> <li>- Sequencing Instructions</li> <li>- Storing data in variables</li> <li>- Selection using IF</li> <li>- Iteration</li> <li>- An arithmetic operator</li> <li>- A Boolean operator</li> <li>- Comments.</li> </ul> <b>8-10 Marks</b>
Outcome	Attempt to make the program specified in the task. <b>1-3 Marks</b>	Make a program that has some of the functionality described in the task. <b>4-7 Marks</b>	Make a working program which includes all functionality as described in the task. <b>8-10 Marks</b>
Test and Evaluate	Run their program. Comment on whether their program works.  <b>1-3 Marks</b>	Test their program entering different values. Comment on whether their program works and describe one of: <ul style="list-style-type: none"> <li>- How they overcame a problem in making it.</li> <li>- Any bugs that exist in the program.</li> <li>- Any future improvements that could be made</li> </ul> <b>4-7 Marks</b>	Test their program entering several different values and use information from this to comment on how well their program works. Describe one of: <ul style="list-style-type: none"> <li>- How they overcame a problem in making it.</li> <li>- Any bugs that exist in the program.</li> <li>- Any future improvements that could be made.</li> </ul> <b>8-10 Marks</b>

# Appendix A: Internal Assessment Criteria

A

## Internal Assessment Criteria: Strand 3 – Trends in Computing

Learning objectives being assessed	With constant support	With some support	With limited support
Describe a development in computing. AO1 = 3 AO2 = 0 AO3 = 3	Identifies a development in computing.  <b>1-2 Marks</b>	Describes a development in computing, including some descriptive detail of the development.  <b>3-4 Marks</b>	Describes a development in computing, and how it was developed.  <b>5-6 Marks</b>
Describe different examples of the use/ application of that technology and their impact. AO1 = 1 AO2 = 2 AO3 = 0	Identifies a few different examples of the use of technology.  <b>1 Mark</b>	Describes a range of different examples of the use of technology.  <b>2 Marks</b>	Describes a range of different examples of the use of technology, and comments on their impact.  <b>3 Marks</b>
Use key technical terms when describing their development. AO1 = 0 AO2 = 0 AO3 = 3	Identifies some of the technical terms used in their development.  <b>1 Mark</b>	Identifies and describes a range of technical terms used in their development.  <b>2 Marks</b>	Describes and appropriately uses the technical terms used in their development.  <b>3 Marks</b>
Describe examples of ethical, social and legal considerations related to their chosen development. AO1 = 0 AO2 = 3 AO3 = 1	Identifies a social, ethical or legal effect of the development.  <b>1 Mark</b>	Identifies two social ethical or legal effects of the development.  <b>2 Marks</b>	Identifies and describes two social, ethical or legal effects of the development.  <b>3-4 Marks</b>

0 marks = no response or no response worthy of credit

Accurately	with care and precision
All	every relevant item as described in the unit content for a specific area
Appropriate	suited to the purpose/task
Comment	give an informed opinion
Create	originate, produce your own (e.g. a solution to a problem)
Describe	give the characteristics of
Detailed	including point-by-point considerations (e.g. analysis, argument)
Discuss	present, explain and evaluate salient points (e.g. for/against an argument)
Few	a small amount, more than one but not many
Identify	name or otherwise characterise
Independent	without relying on others
List	give a series of outcomes or events or information
Many	a large number of (less than 'most' see below)
Most	greatest in amount; the majority of; nearly all of
Outline	set out the main characteristics of
Range	sufficiently varied to give confidence that the knowledge and principles are understood in application as well as in fact
Some	about 50% of the content which would have been expected



### Structure for evidence

An internal assessment portfolio is a collection of folders and files containing the candidate's evidence. Folders should be organised in a structured way so that the evidence can be accessed easily by a teacher or moderator. This structure is commonly known as a folder tree. It would be helpful if the location of particular evidence is made clear by naming each file and folder appropriately and by use of an index called 'Home Page'.

There should be a top level folder detailing the candidate's centre number, candidate number, surname and forename, together with the unit code R353, so that the portfolio is clearly identified as the work of one candidate.

Each candidate produces an assignment for internal assessment. The evidence should be contained within a separate folder within the portfolio. This folder may contain separate files.

Each candidate's internal assessment portfolio should be stored in a secure area on the Centre's network. Prior to submitting the internal assessment portfolio to OCR, the centre should add a folder to the folder tree containing internal assessment and summary forms.

### Data formats for evidence

In order to minimise software and hardware compatibility issues it will be necessary to save candidates' work using an appropriate file format.

Candidates must use formats appropriate to the evidence that they are providing and appropriate to viewing for assessment and moderation. Open file formats or proprietary formats for which a downloadable reader or player is available are acceptable. Where this is not available, the file format is not acceptable.

Electronic internal assessment is designed to give candidates an opportunity to demonstrate what they know, understand and can do using current technology. Candidates do not gain marks for using more sophisticated formats or for using a range of formats. A candidate who chooses to use only word documents will not be disadvantaged by that choice.

Evidence submitted is likely to be in the form of word processed documents, PowerPoint presentations, digital photos and digital video.

To ensure compatibility, all files submitted must be in the formats listed below. Where new formats become available that might be acceptable, OCR will provide further guidance. OCR advises against changing the file format that the document was originally created in. It is the centre's responsibility to ensure that the electronic portfolios submitted for moderation are accessible to the moderator and fully represent the evidence available for each candidate.

## Accepted File Formats

## Movie formats for digital video evidence

MPEG (\*.mpg)

QuickTime movie (\*.mov)

Macromedia Shockwave (\*.aam)

Macromedia Shockwave (\*.dcr)

Flash (\*.swf)

Windows Media File (\*.wmf)

MPEG Video Layer 4 (\*.mp4)

## Audio or sound formats

MPEG Audio Layer 3 (\*.mp3)

## Graphics formats including photographic evidence

JPEG (\*.jpg)

Graphics file (\*.pcx)

MS bitmap (\*.bmp)

GIF images (\*.gif)

## Animation formats

Macromedia Flash (\*.fla)

## Structured markup formats

XML (\*.xml)

## Text formats

Comma Separated Values (.csv)

PDF (.pdf)

Rich text format (.rtf)

Text document (.txt)

## Microsoft Office suite

PowerPoint (.ppt)

Word (.doc)

Excel (.xls)

Visio (.vsd)

Project (.mpp)

Printing this pdf will output a printer friendly version.

## Contact us

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