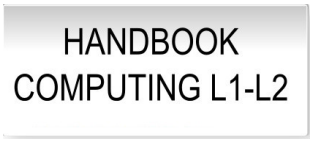
Computing Qualifications and Information



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The Computing qualification, as with all AOs, was removed from DfE Performance Tables from 2017 onwards in order to support the GCSE Computer Science qualification.

Level 1

Level 1, Unit 1 - Computer Science (5 credits)

1. Design, use and evaluate computational abstractions	2. Understand algorithms	3. Be able to use programing languages	4. Understand binary and Boolean Logic
1.1 develop abstractions to represent physical objects [5]	2.1 write algorithms for everyday tasks [6]	3.1 originate useful code in a visual language [7]	4.1 predict the outcome of statements containing AND, NOT and OR [8]
1.2 use data patterns to represent physical objects [9]	2.2 identify different algorithms that target the same task [10]	3.2 originate useful code in a text based language [11]	4.2 include AND, NOT and OR in information searches [12]
1.3 follow instructions to produce a software abstraction [13]	2.3 compare algorithms [14]	3.3 identify structure in programs [15]	4.3 identify reasons why some search results are likely to be more important than others [16]
1.4 use software abstractions that model real world systems [17]	2.4 apply logic to efficiency and effectiveness of algorithms [18]	3.4 test code [19]	4.4 relate boolean logic to program flow [20]
1.5 identify strengths and weaknesses in computational	2.5 change variables in an algorithm and predict the effect	3.5 edit source code to fix a bug [23]	4.5 use wildcards in searches [24]

models [21]

[22]

2.6 know how instructions and data are stored [25]

3.6 choose variable names that aid clarity [26]

4.6 represent numbers using binary patterns [27]

2.7 identify situations where codes control events [28]

Level 1, Unit 2 - Using digital applications to support projects (5 credits)

1. Select use and combine applications

1.1 select suitable applications to support my work [30]

1.2 collect and record data [34]

1.3 find patterns in data [38]

1.4 present data effectively [42]

1.5 meet the needs of other people [46]

1.6 use more than one application to solve a problem [48]

2. Create original works using digital applications

2.1 originate digital information from my own imagination [31]

2.2 use remix to create original digital information [35]

2.3 use specific design techniques [39]

2.4 match my work to a target audience [43]

3. Be able to manage projects

3.1 structure a plan for a project supported by digital tools [32]

3.2 carry out projects by linking a sequence of steps [36]

3.3 evaluate a project in terms of its strengths and weaknesses [40]

3.4 apply e-safety principles to my projects [44]

3.5 show courage in completing a project [47]

4. Respect intellectual property

4.1 identify licenses that are restrictive [33]

4.2 identify licenses that are liberal [37]

4.3 ensure my work contains only appropriately licensed content [41]

4.4 find open source equivalents for many proprietary software applications [45]

Level 1, Unit 3 - Computer hardware systems and networks (5 credits)

1. Understand computer hardware	2. Understand the role of network servers	3. Be able to identify factors affecting network performance	4. Contribute to good network security
1.1 identify the main hardware components in computing devices [50]	2.1 identify a server in a network diagram [51]	3.1 compare the performance of cable and wireless connections [52]	4.1 work to support an acceptable use policy [53]
1.2 match discrete components in computing devices to purpose [54]	2.2 identify a range of servers and services provided by servers to networks [55]	3.2 relate bandwidth to data transfer capacity [56]	4.2 choose a strong network password and keep it secure [57]
1.3 classify hardware on the basis of purpose [58]	2.3 identify key services provided by internet servers [59]	3.3 explain the term "contention" [60]	4.3 identify encryption as a way of making information secure [61]
1.4 compare hardware components on the basis of their properties [62]	2.4 identify key factors that can affect server and network performance [63]	3.4 identify potential bottlenecks in network designs [64]	4.4 identify ways of minimising spam and eliminating malware [65]
1.5 identify power consumption and performance as key limits on hardware [66]	2.5 know about permissions and basic server security [67]	3.5 distinguish between local and wide area networks [68]	4.5 identify a firewall and explain its purpose [69]
1.6 identify cost as an issue in performance [70]		3.6 identify protocols used in networks [71]	

Level 2

Level 2, Unit 1 - Computer Science (5 credits)

1. Design, use and evaluate computational abstractions	2. Understand algorithms	3. Be able to use programing languages	4. Understand boolean logic, binary and hexadecimal numbers
1.1 develop abstractions to make efficient code [73]	2.1 write complex algorithms that include conditional loops [74]	3.1 modify an existing program to extend the scope of its use [75]	4.1 show how NOT AND and OR gates can be made from NAND gates only [76]
1.2 use computational techniques to store patterns more efficiently [77]	2.2 describe different algorithms that target the same task [78]	3.2 distinguish between a markup language and a programming language [79]	4.2 add and subtract binary numbers [80]
1.3 modify a software abstraction to serve a new purpose [81]	2.3 compare algorithms on the basis of efficiency [82]	3.3 originate code to solve a problem [83]	4.3 relate 4 bit binary to hexadecimal numbers [84]
1.4 describe software abstractions that model real world systems [85]	2.4 explain the relationship between instructions and data in an algorithm [86]	3.4 test code using systematic methods [87]	4.4 relate binary numbers to the voltage state of a connector [88]
1.5 describe strengths and weaknesses in computational models [89]	2.5 explain the words iteration and recursion [90]	3.5 explain the difference between source code and executable code [91]	4.5 explain analogue to digital conversion [92]

Level 2, Unit 2 - Using digital applications to support projects (5 credits)

1. Select, combine and evaluate applications	2. Create original works using digital applications	3. Be able to manage projects	4. Respect intellectual property

1.1 compare suitable applications to support my work [94]	2.1 originate original digital information from my own imagination [95]	3.1 devise a project plan to explain my intentions [96]	4.1 describe my prefered license for my project [97]
1.2 organise and classify data and information [98]	2.2 use remix to create original digital information [99]	3.2 set deadlines on the way to reaching my project goal [100]	4.2 compare liberal and restrictive licenses [101]
1.3 format data for different applications [102]	2.3 consider digital technology issues to inform my design techniques [103]	3.3 meet deadlines on the way to reaching my project goal [104]	4.3 describe the 4 freedoms of Free and Open Source Software [105]
1.4 explain interoperability [106]	2.4 match my work to a target audience [107]	3.4 apply e-safety principles to my projects [108]	4.4 explain the difference between copyright and license [109]
1.5 use collaborative technologies safely [110]	2.5 compare my work to acknowledged good practice [111]	3.5 show courage in completing a project [112]	4.5 explain the terms Creative Commons and DRM [113]
		3.6 evaluate a project in terms of its strengths and weaknesses [114]	

Level 2, Unit 3 - Computer hardware systems and networks (5 credits)

1. Understand computer hardware	2. Understand the role of network servers	3. Understand network design related to performance	4. Contribute to good network safety and security
1.1 describe the function of the main hardware components in computing devices [116]	2.1 describe a server in terms of its functions [117]	3.1 describe network design features [118]	4.1 describe features of a good acceptable use policy [119]
1.2 explain performance criteria for key components	2.2 explain the performance criteria for servers [121]	3.2 explain component choice based on cost and	4.2 describe the features of a strong password [123]

[120]

[1.3 relate computer hardware to computational thinking] [124]

[2.3 explain backup strategies for servers] [125]

[performance] [122]

[3.3 explain how networks communicate to transfer data] [126]

[4.3 describe a method of data encryption] [127]

[4.4 identify examples of unsafe practice on networks] [128]

Links
[1] https://theingots.org/community/sites/default/files/uploads/common/Handbooks/Computing/Specification for L1 L2 Opensystems Computingr5.pdf
[2] http://register.ofqual.gov.uk/Detail/Index/30217?category=qualifications&query=tlm%20computing
[3] http://register.ofqual.gov.uk/Detail/Index/30218?category=qualifications&query=tlm%20computing
[4] http://www.computingresources.info/?page_id=305
[5] https://theingots.org/community/cpl1u1x#1.1
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