

# PEARSON EDEXCEL INTERNATIONAL GCSE (9-1) **Computer Science**



**4CP0-20102**

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First teaching in 2017, first assessment in 2019.

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ourselves – and  
invite others to  
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the products  
that we make  
but by the  
impact on  
learners.'*

John Fallon,  
Chief Executive Officer,  
Pearson



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# Aims and objectives

To understand the Assessment Objectives (AO) for the qualification

To understand the question types for the qualification

To understand the mark schemes (MS) for the qualification

To practise using the mark schemes using exemplar student work

To learn about the support provided by Pearson around assessment and exemplars



# Agenda

Time	Item
5	Welcome and introductions
5	Overview of the qualification
10	Assessment objectives and command word taxonomy
10	Mark schemes
40	Activity 2 – Marking paper 1
45	Activity 3 – Marking paper 2
5	Finding resources



# Overview of the qualification

The Pearson Edexcel International GCSE in Computer Science is comprised of two externally-assessed papers, one of which is a practical assessment.

Paper 1: Principles of Computer Science	Paper 2: Application of Computational Thinking
2-hour traditional paper examination	3-hour mixed-mode examination, incorporating both paper-based and task-based questions
80 marks 50% of the total International GCSE Externally assessed	80 marks 50% of the total International GCSE Externally assessed



# **Assessment Objectives**

## **command word taxonomy**



# What are the assessment objectives?

		% in International GCSE
AO1	Demonstrate knowledge and understanding of the key principles of computer science	27.5
AO2	Apply knowledge and understanding of key concepts and principles of computer science	42.5
AO3	Analyse problems in computational terms: <ul style="list-style-type: none"><li>• to make reasoned judgements</li><li>• to design, program, test, evaluate and refine solutions</li></ul>	30.0





# Where are each of the AOs assessed?

Unit number	Assessment objective		
	AO1	AO2	AO3
Paper 1: Principles of Computer Science	21.5%	21%	7.5%
Paper 2: Application of Computational Thinking	6%	21.5%	22.5%
<b>Total for International GCSE</b>	27.5%	42.5%	30%



# How do students know what is being assessed?

- Appendix 7: Taxonomy – lists all the command words used in the external assessments.

Command word	Command word	Command word	Command word	Command word
Amend	Complete	Discuss	Explain	Perform
Analyse	Construct	Draw	Give	Predict
Assess	Convert	Evaluate	Give a reason/reasons	State
Calculate	Create		Identify	State and justify / Identify and justify
Compare and/or contrast	Deduce		Name	State what is meant by
	Describe			Write
	Devise			



# Example use of command taxonomy

(b) Explain why a person attempting to gain unauthorised access to a networked computer can sometimes benefit the owner of the network.

(2)

- security vulnerabilities in the network are exposed (1) by someone who is paid/rewarded to do it/ethical hacker (1)
- identify problems/flaws with the network (1) so that vulnerability can be addressed (1)
- security vulnerabilities are exposed and addressed (1) before being made public (1).



# Example use of command taxonomy

(ii) Open the file **Q01c** in the code editor.

Amend the code to correct three program errors.

Save your amended code as **Q01cFINISHED** with the correct file extension for the programming language.

```
1 myNumbers = [10, 20, 30, 40 ,50, 60, 70, 80, 90, 100]
2 total = 0
3 for theNumber in myNumbers:
4     total = total + theNumber
5     if(theNumber % 2 == 0):
6         print("Even")
7     else:
8         print("Odd")
9 print(total)
```

(3)

## Python

- Total is undefined/need to add initialisation for variable total (1).
- Equals symbol in If statement needs to be replaced with '==' (1).
- Print ("Odd") needs to be indented (1).

AO2 – Apply knowledge and understanding of key concepts and principles of computer science



# Mark schemes



# What are mark schemes (MS)?

- These are the 'answers' to the questions.
- They often provide a number of options students might give.
- They can show indicative content to guide the markers.
- They also advise markers of common errors and what to reward and not reward.
- Examiners are encouraged to use the MS positively and to look to reward marks for what is there rather than penalise students for what isn't.



# Points-based mark schemes

- They set out precisely how each mark is rewarded.
- Items in the response to be rewarded are marked with a specific number of points.
- Additional guidance is provided when necessary to clarify marks.



# Points-based example (Q and MS)

(iii) The questionnaire asks for the number of smartphones a student can access.

One student enters -38 (negative) in error.

Convert -38 to two's complement. Use 8-bit binary. Show your working.

(3)

Answer	Additional guidance	Mark
38 To bin: 0010 0110 (1) Flip bits: 1101 1001 (1) Add 1: 0000 0001 -38: 1101 1010 (1)  Alternative solution (Subtraction from $2^n$ where $n=8$ bits)  Formula: $2^n - 38$ Substitution: $2^8 - 38$ (1) Calculation: $256 - 38 = 218$ (1) To binary: 1101 1010 (1)	Correct answer only gains 3 marks.	(3)





# Points-based example (Q)

2 A football club uses computer applications.

(a) The club collects this data about visitors:

- country of origin
- number of adults and children in each party.

This pseudocode contains the logic required to do this.

Write a program to implement the logic in the pseudocode.

Do not add any further functionality.

You **must** use the structure given in file **Q02a** to write the program.

Save your amended code as **Q02aFINISHED** with the correct file extension for the programming language.

```
6 # Print prompt and take country from user
7 SEND "Enter the country you're visiting from: " TO DISPLAY
8 RECEIVE country FROM (STRING) KEYBOARD
9
10 # Tell the user their country
11 SEND ("You are from: " & country) TO DISPLAY
12
13 # Take number of adults in party
14 SEND "Enter the number of adults in your party: " TO DISPLAY
15 RECEIVE adults FROM (INTEGER) KEYBOARD
16
17 # Take number of children in party
18 SEND "Enter the number of children in your party: " TO DISPLAY
19 RECEIVE children FROM (INTEGER) KEYBOARD
20
21 # Calculate total number in party
22 SET total TO adults + children
23
24 # Tell user the total
25 SEND ("The total in your party is: " & total)
26
```

(10)



# Points-based example (MS)

Answer	Additional guidance
<p>Award 1 mark for each of:</p> <ul style="list-style-type: none"> <li>attempting to input country and print country (1)</li> <li>printing string plus country (1)</li> <li>attempting to input number of children and number of adults (1)</li> <li>coercion of at least one data type (1)</li> <li>attempting to calculate and print a total (1)</li> <li>calculating a total using the addition operator (1)</li> <li>using two variables (1)</li> <li>printing a string plus an integer (1)</li> <li>compiling without syntax errors (1)</li> <li>executing and producing the correct output (1).</li> </ul>	<p>Candidates are required to open the file Q02a in the code editor. Amended code should be saved as Q02aFINISHED.</p> <p>Logic of algorithm must be followed as set out. Alternatives must address each point.</p> <p>Do not penalise candidates who attempt more than the stated requirements.</p>

## Python

```

5 # Print prompt and take country from user
6 country = input ("Enter the country you're visiting from: ")
7
8 # Tell the user their country
9 print ("You are from: ", country)
10
11 # Take number of adults in party from user
12 adult = int (input ("Enter the number of adults in your party: "))
13
14 # Take number of children in party from user
15 children = int (input ("Enter the number of children in your party: "))
16
17 # Calculate total number in party
18 total = adult + children
19
20 # Tell the user the total number of people in their party
21 print ("The total in your party is: ", total)

```

## C#

```

8 // Print prompt and take country from user
9 Console.WriteLine("Enter the country you are visiting from: ");
10 String country = Console.ReadLine();
11 Console.WriteLine("You are from: " + country);
12
13 // Tell the user their country
14 Console.WriteLine("Enter the number of adults in your party: ");
15
16 // Take number of adults in party from user
17 int adults = Convert.ToInt32(Console.ReadLine());
18 Console.WriteLine("Enter the number of children in your party: ");
19
20 // Take number of children in party from user
21 int children = Convert.ToInt32(Console.ReadLine());
22
23 // Calculate total number in party
24 int total = adults + children;
25
26 // Tell the user the total number of people in their party
27 Console.WriteLine("The total in your party is: " + total);
28

```

## Java

```

6 Scanner input = new Scanner(System.in);
7
8 // Print prompt and take country from user
9 System.out.print("Enter the country you are visiting from: ");
10 String country = input.next();
11
12 // Tell the user their country
13 System.out.println("You are from: " + country);
14
15 // Take number of adults in party from user
16 System.out.print("Enter the number of adults in your party: ");
17 int adults = input.nextInt();
18
19 // Take number of children in party from user
20 System.out.print("Enter the number of children in your party: ");
21 int children = input.nextInt();
22
23 // Calculate total number in party
24 int total = adults + children;
25
26 // Tell the user the total number of people in their party
27 System.out.println("The total in your party is: " + total);
28

```



# Levels-based mark schemes

Designed to be used in a best-fit approach

Command words

- Discuss, Evaluate, and Write, etc.

Indicative content contains items that markers expect to see

Paper 1

Depth of knowledge, logical lines of reasoning, and structure of response

Paper 2

Decomposition; logic; use of data types, data structures, and programming constructs; clear and readable code; robustness; and meeting requirements



# Levels-based example (Q)

- 3 A team of researchers are studying urban wildlife, such as foxes, mice, and birds. The team collect data during the day and night. Sometimes, they work in an office.

(a) The team:

- use a range of hardware, including laptops, tablets, and smartphones
- use different operating systems and applications
- communicate with each other using smartphones or tablets
- store and share data, including images, audio recordings and videos
- work collaboratively on research documents.

Identify the secondary storage medium most suitable for the team and justify why it best meets their needs.

Write your answer on the next page. You do not need to use all of the space.

(6)



# Levels-based example (MS)

Answer
<p>Indicative content</p> <p>Cloud storage is most suitable.</p> <p>Accessibility:</p> <ul style="list-style-type: none"> <li>it is accessible whenever and wherever an internet connection is available</li> <li>the team's devices probably support mobile data, then they will always have access to their documents</li> <li>can work with data locally (offline) and upload/re-synchronise documents.</li> </ul> <p>Collaboration:</p> <ul style="list-style-type: none"> <li>the team can work on documents at the same time, which is good for multiple field workers entering/reading data at the same time.</li> </ul> <p>File compatibility:</p> <ul style="list-style-type: none"> <li>applications can be used online instead of having native ones on each device</li> <li>that way, there is no conversion of file types necessary.</li> </ul> <p>Online apps:</p> <ul style="list-style-type: none"> <li>the online applications can be used to edit online stored data files</li> <li>there may be cost savings by using online applications instead of buying individual ones for each of the devices.</li> </ul> <p>Backups:</p> <ul style="list-style-type: none"> <li>documents on the cloud will be backed up without the user having to think about it.</li> </ul>

Level	Mark	Descriptor
	0	No rewardable content.
Level 1	1–2	<p>Basic, independent points are made, showing elements of knowledge and understanding of key concepts/principles of computer science.</p> <p>The discussion will contain information with little linkage between points made.</p>
Level 2	3–4	<p>Demonstrates adequate knowledge and understanding of key concepts/principles of computer science.</p> <p>The discussion shows some linkages and lines of reasoning, with some structure.</p>
Level 3	5–6	<p>Demonstrates comprehensive knowledge and understanding by selecting relevant knowledge and understanding of key concepts/principles of computer science to support the discussion being presented.</p> <p>The discussion shows a well-developed, sustained line of reasoning that is clear, coherent and logically structured.</p>

SAM P1, Q03a, 6 marks



# Mark scheme development and training

- Developed at the same time as the original question papers
- Subjected to the same rigorous standards of scrutiny as the papers
- May be revised after students sit papers
- Standardised mark schemes are agreed by the senior team
- Examiners learn to apply the mark scheme by marking sample questions
- Final standardisation exercises ensure all examiners mark consistently

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# Activity 1 - Marking Paper 1



**May 2019**  
**Paper 1**  
**Q01d**  
**2 marks**  
**2 scripts**





# May 2019 P1, Q01d

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

(d) Some computers use virtual memory.

Explain how virtual memory works.

(2)

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# Script 1

Virtual memory works like RAM but instead of using actual components it uses pre-existing memory like a hard drive or SSD



# Script 2

When the RAM is full, then the currently used applications are stored in Virtual memory, ~~tot~~ which is slower to fetch.



**May 2019**  
**Paper 1**  
**Q04d**  
**4 marks**  
**2 scripts**



# May 2019 P1, Q04d

Read the question.

Identify the command word.

Identify the Assessment Objective.

May 2019 P1, Q04d, 4 marks

Read the Mark Scheme.

(d) A text file is stored on a hard disc.

The file holds information from one side of a sheet of paper.

The sheet of paper is represented as a grid, 80 columns wide and 66 rows long.

Each cell in the grid contains a single 2-byte Unicode character.

The file also contains 40 characters of metadata.

The hard disc allocates space in blocks of 1024 bytes.

Construct an expression to show the number of blocks required to store the file.

You do **not** need to do the calculation.



# Script 1

(4)

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$$2 \times 80 \times 66 \times 40$$

$$\cancel{(2 \times 80 \times 66)} \times 40 = \text{amount of bytes}$$

$$\frac{\text{amount of bytes}}{1024} = \text{number of blocks (rounded up)}$$

e.g.  $1.2 = 2$  as it's in blocks of 1024



# Script 2

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$$\begin{array}{l} \text{80 X 66} \\ \hline \text{X 2 bytes} \\ \hline \text{X 40 characters} \\ \hline \text{0024} \end{array} = \text{Blocks}$$



**May 2019**  
**Paper 1**  
**Q03c**  
**3 marks**  
**2 scripts**





# May 2019, P1, Q03c

Read the question.

Identify the command word.

Identify the Assessment  
Objective.

Read the Mark Scheme.

(c) Isra uses her tablet computer and smartphone to access email.

She wants to set up a new email account.

State the email protocol she should use.

Justify your choice.

(3)

Email protocol

Justification



# Script 1

Email protocol

IMAP

Justification

IMAP only downloads the header of the email to  
local storage and only downloads the rest if they are being  
viewed, since you access your email from multiple devices  
you don't want one email to take up lots of storage of all of them



# Script 2

Email protocol

IMAP

Justification

It gets sent to both smartphone and tablet computer  
and as she wants them to be linked IMAP is the better  
choices as it does this better than the other protocols.



**May 2019**  
**Paper 1**  
**Q06c**  
**6 marks**  
**2 scripts**



# May 2019, P1, Q06c

Read the question

Identify the command word

Identify the Assessment Objective

Read the Mark Scheme

- Indicative content
- Levels-based

(c) Artificial intelligence (AI), in many forms, has an increasing impact on our lives.

Discuss this statement considering characteristics, uses and ethical issues.

(6)

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# Script 1

Artificial intelligence has become more and more important for various technologies in recent years, and it seems AI will be a key part of our lives in the future. It is currently being used to develop financial monitors, ~~the~~ driverless cars, facial recognition software, and ~~and~~ much more. Artificial intelligence is when a program is capable of making human-like decisions. It is often used with machine learning so the system is able to improve itself. Its use in the development of driverless cars raises some ethical issues, such as when a crash is certain, how should a computer program get to decide who lives and dies. Artificial intelligence programs need to be given certain rules to follow to ensure the safety of the people working with them, and they cannot be connected to the internet as this would be dangerous.

In the future, it is very possible AI will replace humans for various jobs which could also be a problem as it would lead to mass unemployment. Most people now interact with artificial intelligence on a daily basis as it is present in many forms of software such as search engines, and social media networks as well as other things. There are also different levels of artificial intelligence, and we are currently only beginning to discover what it is capable of. There is a type of AI called ASI or artificial super intelligence which is able to improve itself. It would be dangerous to create ASI without a carefully planned and selected set of rules for it to follow.

(Total for Question 6 = 15 marks)



# Script 2

to your voice, they must always be listening which allows some people to believe that AIs are a <sup>way</sup> ~~form~~ ~~the~~ for the government to monitor a person's every day life. This has caused some ~~disagreements~~ problems about whether AIs are ethically okay as they can be ~~so~~ considered an invasion of privacy if someone does not want to be heard. Of course, this is up to those who buy them. Due to AIs also being extremely intelligent and self-sufficient, some ~~people~~ <sup>people</sup> ~~believe~~ fear them.

(Total for Question 6 = 15 marks)

AIs are very common in the modern day as most people have one like Siri, on their phone or an Alexa at home. They tend to be very helpful and usually relatively fast and aid us in simple chores like setting times or calling someone. ~~Beac~~ They are especially useful as they can respond to voice, allowing others to do multiple things at the same time. Many people find them to be useful due to this, however some also have doubts. ~~Due~~ Due to them being able to respond



# Activity 2 – Marking Paper 2





**June 2019**  
**Paper 2**  
**Q01c**  
**3 marks**  
**1 script**



# June 2019 P2, Q01c

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

(c) Open **Q01c** in the code editor.

The program should print out a counter and the counter with 7 added to it.

There are **three** errors in the code.

Amend the code to correct the errors.

Save your amended code as **Q01cFINISHED** with the correct file extension for the programming language.

(3)



# Response

```
3 count = 0
4
5 maxValue = 7
6
7 while (count < maxValue):
8     print("count", Count + constantValue)
9     count = count + 1
```



**June 2019  
Paper 2  
Q01f  
4 marks  
1 script**



# June 2019, Paper 2, Question 01f, 4 marks 1 script

Read the question.

Identify the command word.

Identify the Assessment  
Objective.

Read the Mark Scheme.

(f) Trevor is the manager of a shoe shop.

Sales assistants can earn a bonus based on the numbers of pairs of shoes they sell and the total income for the shop each day.

Open **Q01f** in the code editor.

Amend the code to complete the 'if statement' used to produce the outputs described in the table.

Condition	Output
Shop income is more than £5000 or sales assistant has sold at least 10 pairs of shoes	Bonus is 10% of salary
Shop income is £2000 or more and sales assistant has sold at least 5 pairs of shoes	Bonus is 5% of salary

Do not add any further functionality.

Save your amended code as **Q01fFINISHED** with the correct file extension for the programming language.



# Response

```
3 list_1f =[(2010,8), (4800, 11), (2011,4), (5000,9)]
4 assistantSalary = 1000.00
5
6 for pair in list_1f:
7     shopIncome = pair[0]
8     assistantSales = pair[1]
9     print ("Shop income :", shopIncome, "Assistant sales ", assistantSales)
10
11     if (shopIncome > 5000 or assistantSales ==10):
12         print ("Assistant bonus = ", assistantSalary * 0.1)
13
14     elif (shopIncome >= 2000 and assistantSales ==5):
15         print("Assistant bonus = ", assistantSalary * 0.05)
16
17     else:
18         print("Assistant bonus = ", 0)
```



**June 2019  
Paper 2  
Q02a  
10 marks  
1 script**



# June 2019 P2, Q02a

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

2 Anna has a 5-year-old daughter, Beatrice, and a 14-year-old son, Graham.

(a) Anna wants to program a guessing game for Beatrice to play on the computer.

The program will generate a random number between 1 and 10.

Beatrice has to guess the number.

This pseudocode contains the logic required to create the game.

Write a program to implement the logic in the pseudocode.

Open **Q02a** in the code editor.

You **must** use the structure give in **Q02a** to write the program.

Do not add any further functionality.

Save your code as **Q02aFINISHED** with the correct file extension for the programming language.

(10)





# Response

```
3 from random import *
4
5 # Initialise variables
6 counter=1
7 answer=random.int(1,10)
8 guess=0
9
10
11 # Print prompt and take guess from user
12 number=int(input("Enter a number from 1 to 10: "))
13
14
15 # Create WHILE loop to check if guess is correct
16 while guess<>answer:
17     counter=counter+1
18     if guess>answer:
19         print(guess," was too high. Try again")
20     else:
21         print(guess," was too low. Try again")
22 guess2=int(input("Guess again: "))
23
24
25 # Report the correct answer to the user and indicate the number of guesses
26 print("You guessed",guess,"in",counter,"guesses.")
27
```



**June 2019  
Paper 2  
Q03a  
6 marks  
1 script**



# June 2019 P2, Q03a

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

3 Different algorithms can be used to manipulate data.

(a) **Email.txt** contains a list of email addresses.

Open **Q03a** in the code editor.

Write a program to implement these requirements.

The code must:

- check each email address to ensure it contains the '@' symbol.
- write email addresses that do not contain the '@' symbol to an **Error.txt** file.

You must use the structure given in the file **Q03a** to complete the program.

Do not add further functionality.

Save your code as **Q03aFINISHED** with the correct file extension for the programming language.

(6)



# Response

```
1 # Q03a
2 #   Open the file and input data
3 in_file = open("Email.txt", "r")
4
5 line = in_file.readline()
6
7 errors = []
8
9 #   Open output file
10 out_file = open("Error.txt", "w")
11
12 #   Find errors and write to output file
13
14 while(line):
15     line = in_file.readline()
16     if ("@" not in line):
17         errors.append(line)
18
19 for element in errors:
20     out_file.write(element)
21
22 #   Close files
23 in_file.close()
24 out_file.close()
```



**June 2019  
Paper 2  
Q03c  
6 marks  
1 script**



# June 2019 P2, Q03c

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

(c) Open **Q03c** in the code editor.

Write a program to display the square and cube of a number between 1 and 50 entered by a user.

The code must:

- ask the user to enter a number between 1 and 50 inclusive
- display the number, the square of the number and the cube of the number, with appropriate labels
- stop when a number outside the range 1 to 50 is entered.

Save your code as **Q03cFINISHED** with the correct file extension for the programming language.

(6)



# Response

```
1 # Q03c
2
3 # Write your code below this line
4 number=int(input("Please enter a number from 1 to 50: "))
5 if number>=1 and <=50:
6     print("You entered the number: ",number)
7     print("Square of ",number," = ",number**2)
8     print("Cube of",number," = ",number**3)
9 elif number<1:
10     print("Invalid input, your number is not on our range as it falls too low")
11 elif number>50:
12     print("Invalid input, your number is not on our range as it is too high")
13 else:
14     print("Error")
15
```



**June 2019  
Paper 2  
Q05  
20 marks  
2 scripts**





# June 2019 P2, Q05

Read the question.

Identify the command word.

Identify the Assessment Objective.

Read the Mark Scheme.

5 Ria is a school librarian.

She wants a program to analyse pupil use of the library.

She wants to encourage reading by awarding gold, silver and bronze medals to the three pupils who have read the most books.

Test data has been included in the code.

Open **Q05** in the code editor.

Write a program to calculate and display:

- the total number and average number of books pupils have read
- the IDs of pupils who have read fewer than ten books
- the details of the gold, silver and bronze medal winners.

**Your program should function correctly even if the number of pupils in the file is changed.**

Save your code as **Q05FINISHED** with the correct file extension for the programming language.

```

3 libraryRecord = [
4 ["105MS", "Marcus", "Smith", 25 ],
5 ["103AZ", "Anthony", "Zarrent", 5 ],
6 ["108MW", "Matt", "White", 12 ],
7 ["112DB", "Denise", "Bilton", 58 ],
8 ["124MK", "Malcolm", "Kelly", 26 ],
9 ["116UK", "Uzere", "Kevill", 29 ],
10 ["127AL", "Abduraheim", "Leahy", 94 ],
11 ["124LS", "Laura", "Sampras", 50 ],
12 ["121AD", "Azra", "Potter", 61 ],
13 ["115AC", "Anthony", "Calik", 10 ],
14 ["117PI", "Pablo", "Tillyus", 49 ],
15 ["113MM", "Mark", "Montgomerie", 68 ],
16 ["130FH", "Felicity", "Heath", 11 ],
17 ["132JA", "Jill", "Alexander", 61 ],
18 ["123SC", "Sara", "Crimstow", 9 ],
19 ["134KD", "Kevin", "Dawson", 74 ],
20 ["122AB", "Andrew", "Bertwistle", 42 ],
21 ["125JF", "Jaide", "Feehily", 55 ],
22 ["128JS", "Justin", "Slater", 68 ],
23 ["126CG", "Colleen", "Grohl", 39 ]
24 ]
25 # -----
26 # Write your code below this line

```



# Script 1

```

27 totalBooks = 0
28 lowReaders = []
29 bookCount = 0
30 count = -1
31 goldMedal = []
32
33 for student in libraryRecord:
34     if student[3] < 10:
35         lowReaders.append(student[0])
36     totalBooks = totalBooks + student[3]
37     if student[3] > bookCount:
38         bookCount = student[3]
39     count = count + 1
40

```

```

41 if bookCount in student:
42     goldMedal.append(student)
43 avgRead = totalBooks / len(libraryRecord)
44
45 print("The students have all collectively
46       read {} total books".format(totalBooks))
47 print("On average a student has
48       read {} books".format(int(avgRead)))
49 print("These are the IDs of the students whom
50       read less than 10 books {}".format(lowReaders))

```

The students have all collectively read 846 total books

On average a student has read 42 books

These are the IDs of the students whom read less than 10 books ['103AZ', '123SG']



Bullet		Levels-Based = 4								
Initialise variables for at least two of total number of books, count of pupils and average	✓	<table><tr><th>Mark Band 2</th></tr><tr><th>4 - 6</th></tr><tr><td>Some attempt to decompose the problem into component parts</td></tr><tr><td>Most parts of the logic are clear and mostly appropriate to the problem</td></tr><tr><td>The use and manipulation of data types, variables and data structures and program constructs is mostly appropriate</td></tr><tr><td>Code is mostly clear and readable</td></tr><tr><td>Finished program will function with some but not all other data sets or input</td></tr><tr><td>The program meets most of the given requirements</td></tr></table>	Mark Band 2	4 - 6	Some attempt to decompose the problem into component parts	Most parts of the logic are clear and mostly appropriate to the problem	The use and manipulation of data types, variables and data structures and program constructs is mostly appropriate	Code is mostly clear and readable	Finished program will function with some but not all other data sets or input	The program meets most of the given requirements
Mark Band 2										
4 - 6										
Some attempt to decompose the problem into component parts										
Most parts of the logic are clear and mostly appropriate to the problem										
The use and manipulation of data types, variables and data structures and program constructs is mostly appropriate										
Code is mostly clear and readable										
Finished program will function with some but not all other data sets or input										
The program meets most of the given requirements										
Initialise variables for gold, silver and bronze/sort array in order of books read										
Create loop for identifying (and printing) those borrowing fewer than 10 books	✓									
Print out appropriate details (must include pupil ID)	✓									
Print out total of books borrowed	✓									
Print out average number of books borrowed	✓									
Identification of gold medal winner										
Identification of silver medal winner										
Identification of bronze medal winner										
Details of at least one of gold, silver and bronze medal winner printed (minimum last name or first name)										
Details of all three medal winners (first name and last name)										



# Script 2

```

28 winners = [("", "", "", 0), ("", "", "", 0), ("", "", "", 0)]
29 read_fewer = []
30 books_read = 0
31 places = ["Gold: ", "Silver: ", "Bronze: "]
32
33 for pupil in libraryRecord:
34     if (len(pupil) != 4):
35         continue
36     books_read += pupil[3]
37     if(pupil[3] < 10):
38         read_fewer.append(pupil[0])
39     for i in range(3):
40         if(pupil[3] > winners[i][3]):
41             winners[i] = pupil
42             break
43
44 print("Books read: " + str(books_read) + " Average: " +
45       str(books_read/len(libraryRecord)))
46 print("Read fewer than ten: ")
47 for id in read_fewer:
48     print(id)
49
50 print("Winners: ")
51 for i in range(3):
52     print(places[i] + str(winners[i][1]) + " " +
53           str(winners[i][2]) + " has read " + str(winners[i][3]) +
54           " books. Library id: " + str(winners[i][0]))

```

Books read: 846 Average: 42.3

Read fewer than ten:

103AZ

123SG

Winners:

Gold: Abduraheim Leahy has read 94 books. Library id: 127AL

Silver: Kevin Dawson has read 74 books. Library id: 134KD

Bronze: Justin Slater has read 68 books. Library id: 128JS



June 2019  
P2, Q05, 20  
marks

Bullet		Levels-Based = 8								
Initialise variables for at least two of total number of books, count of pupils and average	✓	<table><tr><th>Mark Band 3</th></tr><tr><td>7 - 9</td></tr><tr><td>The problem has been decomposed into component parts</td></tr><tr><td>The logic is clear and appropriate to the problem</td></tr><tr><td>The use and manipulation of data types, variables and data structures and program constructs is appropriate</td></tr><tr><td>Code is clear and readable</td></tr><tr><td>Finished program could be used with other data sets or input</td></tr><tr><td>The program fully meets the given requirements</td></tr></table>	Mark Band 3	7 - 9	The problem has been decomposed into component parts	The logic is clear and appropriate to the problem	The use and manipulation of data types, variables and data structures and program constructs is appropriate	Code is clear and readable	Finished program could be used with other data sets or input	The program fully meets the given requirements
Mark Band 3										
7 - 9										
The problem has been decomposed into component parts										
The logic is clear and appropriate to the problem										
The use and manipulation of data types, variables and data structures and program constructs is appropriate										
Code is clear and readable										
Finished program could be used with other data sets or input										
The program fully meets the given requirements										
Initialise variables for gold, silver and bronze / sort array in order of books read	✓									
Create loop for identifying (and printing) those borrowing fewer than 10 books	✓									
Print out appropriate details (must include pupil ID)	✓									
Print out total of books borrowed	✓									
Print out average number of books borrowed	✓									
Identification of gold medal winner	✓									
Identification of silver medal winner	✓									
Identification of bronze medal winner	✓									
Details of at least one of gold, silver and bronze medal winner printed (minimum last name or first name)	✓									
Details of all three medal winners (first name and last name)	✓									

# Finding resources



# Specification and Sample Assessment Materials

Pearson Edexcel International  
GCSE Computer Science

The qualification specification  
is accessible on this page

Sample assessment materials

Question papers, data files,  
and mark schemes



**Specification and sample  
assessments (3)**

Exam materials (8)

Forms and administration  
(3)

Teaching and learning  
materials (16)



# Exemplars and commentaries

Past papers and mark schemes

Question papers, data files, mark schemes, principle examiner report

After each series there will be new files released for both papers

Paper 1	Paper 2
Question paper Mark scheme Principle examiner's report	Question paper Data files Mark scheme Principle examiner's report

June 2019		
	Question paper - Paper 01 - June 2019 Paper 01   PDF 672.8 KB   02 Jul 2019	
	Modified papers - 4CPO - June 2019 Modified papers to help candidates with varying needs to access past examination materials   ZIP 335.8 KB   26 Sep 2019	
	Mark scheme - Paper 01 - June 2019 Paper 01   PDF 352.9 KB   22 Jul 2019	
	Examiner report - Paper 01 - June 2019 Paper 01   PDF 173.1 KB   22 Aug 2019	
	Question paper - Paper 02 - June 2019 Paper 02   PDF 728.0 KB   02 Jul 2019	
	Mark scheme - Paper 02 - June 2019 Paper 02   PDF 1007.9 KB   22 Aug 2019	
	Examiner report - Paper 02 - June 2019 Paper 02   PDF 175.2 KB   22 Aug 2019	
No Exam Series		
	Data Files - 4CPO 02 - June 2019   ZIP 12.8 KB   28 May 2019	

Specification and sample assessments (3)

Exam materials (8)

Forms and administration (3)

Teaching and learning materials (16)





# Examiner's report

Examiner reports give details about students' performance on the papers.



Examiner report - Paper 01 - June 2019

Paper 01

| PDF 173.1 KB | 22 Aug 2019



Examiner report - Paper 02 - June 2019

Paper 02

| PDF 175.2 KB | 22 Aug 2019

For each paper, the report includes:

- general comments about cohort and performance
- specific comments about individual questions of interest, chosen by the principle examiner
- advice for students and teachers about how to improve responses.



# Marked exemplars

## Additional marked responses

- May also be available at the discretion of Edexcel
- For the summer 2019 series, additional responses for Paper 1 can be found in the *Teaching and learning materials* tab

### Exemplar material



International GCSE in Computer Science Paper 1 exemplars

Post June 2019 series

| PDF 3.5 MB | 18 Nov 2019

Specification and sample  
assessments (3)

Exam materials (8)

Forms and administration  
(3)

Teaching and learning  
materials (16)



# Teaching and learning materials

Additional teaching materials can be found here

- Getting ready to teach guides
- Schemes of work
- Lesson plans

## Lesson plan



Computer Science Lesson Plans

| DOCX 189.9 KB | 31 Aug 2017

## Past training content



Getting Computer Science for first assessment in May/June 2019

| ZIP 19.0 MB | 21 Mar 2018



Getting Ready to Teach - International GCSE Computer Science (9-1) (4CP0)

| ZIP 23.1 MB | 31 Dec 2017



Getting Ready to Teach the Pearson Edexcel International GCSE in Computer Science for first assessment in June 2019 - Face to Face Event

| ZIP 17.5 MB | 11 Apr 2019



# Training

## Training events

- Live or online
- Search by subject or location

Keyword  
Q mathematics

Date  
[Calendar icon] - [Calendar icon]

**Filter Events**

Point of Interest  
[Location pin icon] Places, Cities... X

**International or UK**  
☒ All  
☒ International

**Getting Ready to Teach Pearson Edexcel's Updated International Advanced Level Mathematics specifications for first teaching in September 2018 (XMA01/YMA01)**  
🕒 21 November 2019 at 10:00 – 16:00 WET  
📍 Warsaw, Poland  
[More Details](#)

**Essex (Loughton) Collaborative Maths Network**  
🕒 21 November 2019 at 14:15 – 16:15 GMT

## Pre-recorded events can be found here

- Search by subject
- Access by simply clicking

**Find your pre-recorded Training**

Step 1. International GCSEs and Edexcel Certificates [Change](#)

Step 2. Chemistry [Change](#)

**Step 3. Available Resource**

This pre-recorded training is designed for teachers wishing to receive feedback on the International GCSE and The Edexcel Certificate in Chemistry and Double Award Science (Chemistry) specification.

➤ **Edexcel International GCSE and The Edexcel Certificate in Chemistry: Feedback on June 2016 (Pre-recorded Training)**

Delegates will:

- Receive feedback on national performance of candidates in the June 2016



**Any questions?**

Thank you for attending.



ALWAYS LEARNING