

ICT FACULTY AT THE LANGLEY ACADEMY

YEAR 12 COMPUTER SCIENCE SUMMER TRANSITION WORK

2017



Name: _____

I chose Computer Science because....

Spend some time over the summer break to complete the questions below:

We look forward to seeing you in September!

Question 1

Programming constructs determine the way in which statements in a program are executed.

Three types of programming constructs are sequence, selection and iteration. Describe what each of these means.

Sequence

Selection

Iteration

Question 2

Explain the term algorithm.

What makes an algorithm efficient?

Research what a “Bubble Sort” is and describe how a bubble sort works?

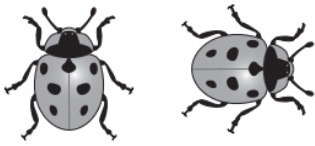
Now write a bubble sort program in Python to sort the list:

SortData = [34, 52, 11, 45, 22, 13, 10, 11, 76, 100, 23]

Tick this box when completed.

Question 3

Wayne is writing an application for a touch screen mobile phone to identify types of ladybird.



The application will use a single interface, which has

- A facility to input the size of the ladybird in mm
- A facility to input the number of spots (0 to 30)
- A facility to input the colour of the spots (BLACK, WHITE, RED or OTHER)
- An output to show photographs and short descriptions of the types of ladybird fitting the criteria, which have been input.

In the outline below, draw a design for the interface of this application. You may annotate your design to explain how it works.

Question 4

Describe what is meant by the term IDE (Integrated Development Environment).

Identify and describe **three** features commonly found in an IDE that will help programmers to find any bugs in their code.

1.

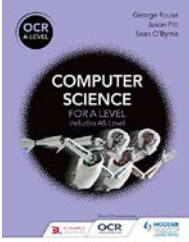


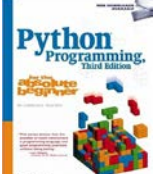


2.

3.

Please ensure you bring your completed summer Transition work with you on your first day at The Langley Academy.

Mr Blackford, Mr Ahmed, Mr Panesar.

Suggested Reading List:

	OCR A Level Computer Science by George Rouse, Jason Pitt, Sean O'Byrne ISBN-10: 1471839761
	OCR AS and A Level Computer Science by P M Heathcote , R S U Heathcote ISBN-10: 1910523054
	My Revision Notes OCR A level Computer Science (My Revision Notes: OCR A-Level) by George Rouse, Sean O'Byrne, Jason Pitt ISBN-10: 1471865835
	Python Programming for the Absolute Beginner, Third Edition by Mike Dawson ISBN-10: 1435455002
	More Python Programming for the Absolute Beginner by Jonathan S. Harbour ISBN-10: 1435459806
	Python Cookbook by David Beazley, Brian K. Jones ISBN-10: 1449340377

Programming Project

Candidates select their own user-driven problem of an appropriate size and complexity to solve. This will enable them to demonstrate the skills and knowledge necessary to meet the Assessment Objectives.

You must include:

- Analysis of the problem
- Design of the solution
- Implementation of the solution
- Evaluation