

# Computing Bridging Work

The bridging work **MUST** be completed for each of your courses by the time you start your course.

Your work will be assessed in September.

Anyone not completing the work or producing such poor quality will be re-interviewed about their place on the course.

The aims are for you to understand if you like the course and for you to be ready to start learning at post 16 level.

**Exam Board: OCR**

## 2a. Overview of AS Level in Computer Science (H046)

Learners must take both components (01 and 02).

Content Overview	Assessment Overview	
<ul style="list-style-type: none"><li>• The characteristics of contemporary processors, input, output and storage devices</li><li>• Software and software development</li><li>• Programming</li><li>• Exchanging data</li><li>• Data types, data structures and algorithms</li><li>• Legal, moral, ethical and cultural issues</li></ul> <ul style="list-style-type: none"><li>• Elements of computational thinking</li><li>• Problem solving and programming</li><li>• Algorithms</li></ul>	Computing principles (01)  70 marks  1 hour and 15 minutes  written paper	<b>50%</b> <b>of total</b> <b>AS level</b>
	Algorithms and problem solving (02*)  70 marks  1 hour and 15 minutes  written paper	<b>50%</b> <b>of total</b> <b>AS level</b>

The textbook you need to buy for the course is:

OCR A Level Computer Science

Authors: Sean O'Byrne, George Rouse, Jason Pitt

ISBN: 9781471839764

**Price: £29.99**



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## TASK 1

1. Go to <http://www.learnjavaonline.org/en/Welcome> and work through “Hello, World!”, “Variables and Types” and “Conditionals”.

### Welcome

Welcome to the LearnJavaOnline.org Interactive Java Tutorial.

Whether you are an experienced programmer or not, this website is intended for everyone who wishes to learn the Java programming language.

Just click on the chapter you wish to begin from, and follow the instructions. Good luck!

### Table of Contents

#### Learn the Basics

- [Hello, World!](#)
- [Variables and Types](#)
- [Conditionals](#)

Use these links to access the tutorial

2. Attempt the exercises below. Copy and paste any relevant code into the Code Window and run the program to see the output. EVEN IF THE CODE DOES NOT WORK OR YOU GET UNDESIRED OUTPUT. A Buggy program is better than no program. Provide print screen evidence of your code window and output window for each question.

## Exercises

### Example

Print “Hello Welcome to Java coding” to the console

The screenshot shows the 'Code Window' with the following code:

```
1 public class Main {
2
3     public static void main(String[] args) {
4         System.out.println("Hello Welcome to Java coding");
5     }
6 }
7
8
9 }
```

Buttons for 'Run', 'Reset', and 'Solution' are visible. A callout box points to the 'Run' button, stating: "You type the coding in the code window and click the run button to test your coding gives you the expected result".

Below the code window, the 'Output Window' shows the result: "Hello Welcome to Java coding". A callout box points to the output, stating: "You will see my coding prints the correct message in the output window."

Complete the following exercises after you have gone through the “Hello World” link.

Question	Print screen of code window
Print your first name and surname to the console	
Print the following message in two different line to the console	
I love Java programming I know how to print messages	

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## Example

Solve “(67 + 3.50)\* 5” and print the answer to the console.

Code Window

▶ Run
Reset
Solution

```

1 public class Main {
2     public static void main(String[] args) {
3         int firstnum, numtomultiply;
4         double numtoadd, answer;
5         String question= "(67 + 3.50)*5";
6
7         firstnum=67;
8         numtomultiply=5;
9         numtoadd=3.5;
10        answer=(firstnum + numtoadd) * numtomultiply;
11        System.out.println(question + " = " + answer);
12    }
13 }
14 
```

Declaring variables

Storing the values in the correct variable

Carrying out calculation

Printing the result.

Code Window

▶ Run
Reset
Solution

Output Window
Expected Output

```

1 public class Main {
2     public static void main(String[] args) {
3         int firstnum, numtomultiply;
4         double numtoadd, answer;
5         String question= "(67 + 3.50)*5";
6
7         firstnum=67;
8         numtomultiply=5;
9         numtoadd=3.5;
10        answer=(firstnum + numtoadd) * numtomultiply;
11        System.out.println(question + " = " + answer);
12    }
13 }
14 
```

```
(67 + 3.50)*5 = 352.5
```

Complete the following exercises after you have gone through the “Variables and Types” link.	
Question	Print screen of code window
Solve “(125 + 4.55)* 15” and print the answer to the console.	
Take the sentence: <i>All work and no play makes Jack a dull boy.</i> Store each word in a separate variable, then print out the sentence on one line.	
The formula for computing the final amount if one is earning compound interest is given on Wikipedia as $A = P \left(1 + \frac{r}{n}\right)^{nt}$ Where, <ul style="list-style-type: none"> <li>• P = principal amount (initial investment)</li> <li>• r = annual nominal interest rate (as a decimal)</li> <li>• n = number of times the interest is compounded per year</li> <li>• t = number of years</li> </ul> Write a Python program that assigns the principal amount of £10000 to variable <i>P</i> , assign to <i>n</i> the value 12, assign to <i>t</i> 3 years and assign to <i>r</i> the interest rate of 8%. Then, calculate and print the final amount after 3 years.	
You look at the clock and it is exactly 2pm. You set an alarm to go off in 51 hours. At what time does the alarm go off?	

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## TASK 2

You should carry out research on **one** person that has been successful in the field of Computer Science. You should fill out the worksheet below

**Bill Gates, Corrinne Yu, Steve Jobs, Alan Turing, Jean Bartik, Ada Lovelace**

You need to complete the form below once you have researched.

RESEARCH SOMEONE OF INTEREST CONNECTED TO COMPUTER SCIENCE

STUDENT NAME

A LEVEL OR BTEC NATIONAL COURSE

NAME OF THE PERSON BEING RESEARCHED

I CHOSE THIS PERSON BECAUSE...

WRITE ABOUT WHAT YOU FIND INTERESTING ABOUT THIS PERSON

**Areas you might comment on are:**

What are their notable contributions to the subject?

Try to work out why they are successful – what seemed to drive them?

What skills do they have that stand out?

Has their life been one of constant development or has it been uneven or barriers they needed to overcome?

What questions do you have about them?

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## TASK 3

Below are a few activities you can do. Please choose one from the list and write about it below.  
Please ensure the task you chose is related to Computer Science.

Visit a place / read a book or article / watch a film / watch a YouTube video / engage with a specific web site / join an association / go to free lecture.

Possible books you could read:

### **The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World**

by Pedro Domingos

### **The Code Book**

by Simon Singh

### **Pandora's Brain**

by Calum Chace

<b>Which of the above tasks did you do?</b>	
What are your thoughts? How did it inspire you? Provide a word processed summary about your activity/ your favourite chapter or the film. Please complete by the first lesson	

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