

Autumn Term (Term 1) Computer Science

Year 11

Name: _____

Tutor: _____



Monday	English Task I	Ebacc Option A Task I	Option C Task I	
Tuesday	Sparx Science	Option B Task I	Modern Britain Task I	
Wednesday	Sparx Maths	Science Task I	Option C Task 2	
Thursday	Ebacc Option A Task 2	Ebacc Option A Task 2 Science		Sparx Maths
Friday	Modern Britain Task 2	Science Task 2	English Task 2	

Year II Homework Timetable

Sparx ScienceComplete 100% of their assigned homework each weekSparx MathsComplete 100% of their assigned homework each week

Option A (EBACC)
French
Geography
History

Option B
Art
Business Studies
Catering
Computer Science
History
Health & Social Care
Music
Sport
IT

Option C
Business Studies
Childcare
Catering
Drama
Geography
Health & Social Care
Triple Science
Sport

Week Beginning Date	Homework Task 1 Cornell Notes	Homework Task 2 Homework Question	
Week 2 Monday 11 September	2.1.1 Abstraction	Define the term abstraction. Give examples.	
Week 3 Monday 18 September	2.1.1 Decomposition	Identify correct definitions in relation to computational thinking.	
Week 4 Monday 25 September	2.1.1 Algorithmic Thinking	Explain two computational techniques	
Week 5 Monday 2 October	2.1.2 Inputs, processes and outputs	Identify inputs, processes and outputs for a program.	
Week 6 Monday 9 October	2.1.2 Structure diagrams	Complete a structure diagram for mobile phone app.	
Week 7 Monday 16 October	2.1.2 Pseudocode and diagrams	Write an algorithm using a flowchart or pseudocode.	
Monday 23rd October	HALF-TERM		
Week 8 Monday 30 October	2.1.2 Identifying errors and suggesting fixes	Rewrite an algorithm and correct errors	
Week 9 Monday 6 November	2.1.2 Trace Tables	Complete a trace table for a program	
Week 10 Monday 13 November	2.1.3 Binary Search 2.1.3 Linear Search	Explain how a binary search is used to find an item in a list.	
Week 11 Monday 20 November	MOCK Exam Revision		
Week 12 Monday 27 November	MOCK Exam Revision		
Week 13 Monday 4 December	2.1.3 Bubble Sort	Show the stages of a bubble sort	
Week 14 Monday 11 December	2.1.3 Merge Sort	Show the steps of a merge sort	
Week 152.1.3 Insertion Sort		True / False statements about insertion sort.	

WEEK 2: Cornell Notes (Homework task 1)

Date /	1	2.1 Abstraction ClearRevise Revision Guide: Page 47
Links	Notes	
Abstraction		
Questions		

WEEK 2: Exam Question (Homework task 2)

Date.....

A car dealership uses a computer system to record details of the cars that it has for sale. Each car has a make, model, age and number of miles driven. Each car is given a star rating of 1 to 5, based on the age of the car and the number of miles it has been driven. This rating is recorded in the computer system.

Question: Define the term abstraction.

Answer:

[1 marks]

Question: Give one example of how abstraction has been used in the design of this star rating system.

Answer:

[1 marks]

WEEK 2: Exam Question review and improvement (Classwork)

A car dealership uses a computer system to record details of the cars that it has for sale. Each car has a make, model, age and number of miles driven. Each car is given a star rating of 1 to 5, based on the age of the car and the number of miles it has been driven. This rating is recorded in the computer system.

Question: Define the term abstraction

Answer:

[1 marks]

Question: Give one example of how abstraction has been used in the design of this star rating system.

Answer:

WEEK 3: Cornell Notes (Homework task 1)

Date	1	1	2.1 Decomposition
			ClearRevise Revision Guide: Page 47

Links	Notes
Decomposition	
Questions	

WEEK 3: Exam Question (Homework task 2)

Date.....

Question:

The following table contains several definitions of terms that are used in Computer Science. Label the correct term for each definition. Choose from:

Iteration	Decomposition	Abstraction	Input S	Sanitisation	Casting
Definition	Term				
Cleaning up data er	ers				
Hiding or removing irrelevant details from a problem to reduce complexity					
Breaking a problem					
Converting one data type to another, for example converting an integer to a floating point number.					
Repeating elements of a program					

[5 marks]

WEEK 3: Exam Question review and improvement (Classwork)

Question:

The following table contains several definitions of terms that are used in Computer Science. Label the correct term for each definition. Choose from:

Iteration Decomposition Abstraction Input Sanitisation Casting
--

Definition	Term
Cleaning up data entered by removing non-standard characters	
Hiding or removing irrelevant details from a problem to reduce complexity	
Breaking a problem down into smaller problems	
Converting one data type to another, for example converting an integer to a floating point number.	
Repeating elements of a program	

[5 marks]

WEEK 4: Cornell Notes (Homework task 1)

WEEK 4: Exam Question (Homework task 2)

Date.....

Question:

Give two computational thinking techniques that Taylor has used, describing how they have been used.

Technique 1:

Technique 2:

[2 marks]

[2 marks]

WEEK 4: Exam Question review and improvement (Classwork)

Question:

Give two computational thinking techniques that Taylor has used, describing how they have been used.

Technique 1:

Technique 2:

[2 marks]

[2 marks]

WEEK 5: Cornell Notes (Homework task 1)

Date /	1	2.1.2 Inputs, Processes and Outputs ClearRevise Revision Guide: Page 48
Links	Notes	
深地了话		
Inputs,		
Processes and Outputs		
Quantierra		
Questions		

WEEK 5: Exam Question (Homework task 2)

Date.....

Question:

A program has been written to ask the user to enter the test scores for students in a class. The program will ask the user for the numbers of students in the class, then prompt them to enter each of their test scores in a range 0-100. It will then output the highest, lowest and average score to the user. Complete the inputs, processes and outputs for this program. Include data types for all inputs and outputs identified.

Answer:

Inputs	Variable Names:	Data Types:
Processes		
Outputs	Variable Names:	Data Types:

[7 marks]

WEEK 5: Exam Question review and improvement (Classwork)

Answer:

Inputs	Variable Names:	Data Types:
Processes		
Outputs	Variable Names:	Data Types:

WEEK 6: Cornell Notes (Homework task 1)

Date	1	1	2.1.2 Structure Diagrams ClearRevise Revision Guide: Page 49

Notes

WEEK 6: Exam Question (Homework task 2)

Date.....

A school uses a mobile phone app to allow parents to book appointments for parents' evenings.

Parents must log in before they can use the system. They then choose to book a new appointment, view all appointments already made or update their personal details. If parents choose to view their appointments, they can either view them on-screen or print them off. A structure diagram has been used to design the mobile phone app.

Question: Write one letter from the following table in each space to complete the structure diagram.

Letter	Task	Letter	Task
А	Book new appointment	D	View appointments on-screen
В	Check attendance for child	E	Log out of the system
С	Update personal details	F	Print a paper copy of appointments

Answer:



WEEK 6: Exam Question review and improvement (Classwork)

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Question: Write one letter from the following table in each space to complete the structure diagram.

Letter	Task	Letter	Task
А	Book new appointment	D	View appointments on-screen
В	Check attendance for child	E	Log out of the system
С	Update personal details	F	Print a paper copy of appointments

Answer:



WEEK 7: Cornell Notes (Homework task 1)

Date /	Ι	2.1.2 Pseudocode and Diagrams ClearRevise Revision Guide: Page 50 and 51
Links	Notes	
Pseudocode		
and Diagrams		
Questions		

WEEK 7: Exam Question (Homework task 2)

Date.....

Johnny is writing a program to create usernames. The first process he has developed is shown in the flowchart. For example, using the process, Tom Ward's user name would be TomWa.



Question:

Johnny has updated the process used to create usernames as follows:

- If the person is male, then their username is the last 3 letters of their surname and the first 2 letters of their first name.
- If the person is female, then their username is the first 3 letters of their first name and the first 2 letters of their surname.

What would be the username for a male called Fred Biscuit using the updated process?

Answer:

[1 mark]

Question:

Write an algorithm for Johnny to output a username using the updated process.

* You may use either pseudocode or a flowchart to answer

[6 marks]

WEEK 7: Exam Question review and improvement (Classwork)

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- If the person is female, then their username is the first 3 letters of their first name and the first 2 letters of their surname.

What would be the username for a male called Fred Biscuit using the updated process?

Answer:

[1 mark]

Question:

Write an algorithm for Johnny to output a username using the updated process.

* You may use either pseudocode or a flowchart to answer

[6 marks]

WEEK 8: Cornell Notes (Homework task 1)

Date /	1	2.1.2 Identifying Errors and Suggesting Fixes ClearRevise Revision Guide: Page 52 and 53
Links	Notes	
Identifying errors and		
suggesting		
IIXes		
Questions		

WEEK 8: Exam Question (Homework task 2)

Date.....

OCR Tech is an online shop that sells electronics such as TVs and game consoles. An item is classified as "In demand" if OCR Tech have between 5 and 25 inclusive in stock.

A program is written that allows the user to input the current stock level and output whether the item is in demand or not.

```
stocklevel = input("Enter stock level")
if stocklevel >= 5 or =< 25 then
    print(Not in demand)
else
    print(In demand)
endif</pre>
```

The program contains syntax and logic errors.

Question:

Refine the program to correct the errors and write the refined version of the program.

You must use either:

- OCR Exam Reference Language, or
- A high-level programming language that you have studied (e.g. Python)

Answer:

WEEK 8: Exam Question review and improvement (Classwork)

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endif</pre>
```

The program contains syntax and logic errors.

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You must use either:

- OCR Exam Reference Language, or
- A high-level programming language that you have studied (e.g. Python)

Answer:

WEEK 9: Cornell Notes (Homework task 1)

Date	1	1	2.1.2 Trace Tables
			ClearRevise Revision Guide: Page 52 and 53
			•

Links	Notes
Trace Tables	
Questions	

WEEK 9: Exam Question (Homework task 2)

Date.....

A teacher researches the length of time students spend playing computer games each day. The following program uses a condition-controlled loop.

Question: Complete the trace table to test this program.

Answer:

x	У	output

WEEK 9: Exam Question review and improvement (Classwork)

A teacher researches the length of time students spend playing computer games each day. The following program uses a condition-controlled loop.

Question: Complete the trace table to test this program.

Answer:

x	у	output

WEEK 10: Cornell Notes (Homework task 1)

Date /	1	2.1.3 Binary and Linear Search ClearRevise Revision Guide: Page 54
Links	Notes	
<u>2.1.3 Binary</u> <u>Search</u>		
2.1.3 Linear		
<u>Search</u>		
Questions		
Questions		

WEEK 10: Exam Question (Homework task 2)

Date.....

Question:

A sorted list of words is shown below.

flour	house	pumpkin	wall	yacht
Explain how a binary	search would be us	sed to try to find whethe	er the word "house"	appears in this list.

[4 marks]

WEEK 10: Exam Question review and improvement (Classwork)

Question:

A sorted list of words is shown below.

flour	house	pumpkin	wall	yacht
Explain how a binary	search would be us	ed to try to find whethe	er the word "house"	appears in this list.
· · ·		-		

WEEK 11: Cornell Notes (Homework task 1)

Date	1	1	MOCK Exam Revision
			All Paper 1 Content: 1.1 through to 1.6
			Also 2.1 Algorithms (not including Sorting Algorithms).

Links	Notes
<u>Revision</u>	
<u>Playlist</u>	
Questions	

WEEK 11: Cornell Notes (Homework task 2)

Date	Ι	1	MOCK Exam Revision
			All Paper 1 Content: 1.1 through to 1.6
			Also 2.1 Algorithms (not including Sorting Algorithms).

Links	Notes
Revision	
<u>Playlist</u>	
Questions	

WEEK 12: Cornell Notes (Homework task 1)

Date	1	1	MOCK Exam Revision
			All Paper 1 Content: 1.1 through to 1.6
			Also 2.1 Algorithms (not including Sorting Algorithms).

Links	Notes
Complete	
Revision Playlist	
Questions	

WEEK 12: Cornell Notes (Homework task 2)

Date	1	1	MOCK Exam Revision
			All Paper 1 Content: 1.1 through to 1.6
			Also 2.1 Algorithms (not including Sorting Algorithms).

Links	Notes
Complete	
Revision Playlist	
Questions	

WEEK 13: Cornell Notes	(Homework task 1)
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Date /	Ι	1.2.1 Bubble Sort ClearRevise Revision Guide: Page 55
Links	Notes	
2.2.1 Bubble		
<u>Sort</u>		
Questions		

WEEK 13: Exam Question (Homework task 2)

Date.....

Question:

Willow has created a hangman program that uses a file to store the words the program can select from. A sample of this data is shown below

crime	bait	fright	victory	nymph	loose

Show the stages of a bubble sort when applied to this data

Answer:



WEEK 13: Exam Question review and improvement (Classwork)

Question:

Willow has created a hangman program that uses a file to store the words the program can select from. A sample of this data is shown below

crime	bait	fright	victory	nymph	loose
Show the stages o	of a bubble sort v	when applied to th	nis data		
Answer:					
					[4 marks]

WEEK 14: Cornell Notes (Homework task 1)

Date /	1	2.1.3 Merge Sort ClearRevise Revision Guide: Page 56
	Neter	
Links	Notes	
2.1.3 Merge		
<u>Sort</u>		
Questions		

WEEK 14: Exam Question (Homework task 2)

Date.....

Question:

A library gives each book a code made from the first three letters of the book title in upper case, followed by the last two digits of the year the book was published.

For example, "Poetry from the War", published in 2012 would be given the code POE12. The library sorts their books based on the book code.

Show the steps that a merge sort would take to put the following list of book codes into ascending alphabetical order (from A to Z).

POE12	BAC97	FLY77	JAV16	TAL86	AND18	ZAR09	HOP86

Answer:

WEEK 14: Exam Question review and improvement (Classwork)

Question:

A library gives each book a code made from the first three letters of the book title in upper case, followed by the last two digits of the year the book was published.

For example, "Poetry from the War", published in 2012 would be given the code POE12. The library sorts their books based on the book code.

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	POE12	BAC97	FLY77	JAV16	TAL86	AND18	ZAR09	HOP86
--	-------	-------	-------	-------	-------	-------	-------	-------

Answer:



WEEK 15: Cornell Notes (Homework task 1)

Date	Ι	Ι		2.1.3 Insertion Sort ClearRevise Revision Guide: Page 57
			I	

Links	Notes
<u>Sort</u>	
Questions	
Questions	

WEEK 15: Exam Question (Homework task 2)

Date.....

Question:

An insertion sort is used to put the following words into ascending alphabetical order.

pumpkin	flour	wall	house	wall
pumpkin	noui	wan	nouse	wan

Tick (\checkmark) one box in each row to identify whether each statement about the insertion sort is true or false.

Statement	True (√)	False (√)
The list of words is initially split into a sorted set and an unsorted set.		
The insertion sort uses a divide stage and then a conquer stage.		
The list of words must be in order before the insertion sort can start.		
Each word is inserted into the correct place in the array, one by one.		
The insertion sort will not work because the word "wall" appears twice.		

[5 marks]

WEEK 15: Exam Question review and improvement (Classwork)

Question:

An insertion sort is used to put the following words into ascending alphabetical order.

pumpkin	flour	wall	house	wall
---------	-------	------	-------	------

Tick (\checkmark) one box in each row to identify whether each statement about the insertion sort is true or false.

Statement	True (√)	False (√)
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The list of words must be in order before the insertion sort can start.		
Each word is inserted into the correct place in the array, one by one.		
The insertion sort will not work because the word "wall" appears twice.		
	•	[5 marks]



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