Bishop Challoner
Computer Science Department

Year 11 Computing – Offsite Work – Week 3

Instructions
1. Complete the topic questions on the PDF or in a Word document (provide question numbers) and email your answers to Mr Ebrahim and Mr Khitab. Please include your name and date in the filename. For example, a student called Liam Smith should call the Word document 'topic questions – Liam Smith – 24-04-20'.
2. Engage with the practical lessons on code.org
3. Complete the further revision exercise.
4. Optional – please submit any creations you have made on the Python Turtle activities.

Further Revision (this does not need to be submitted)
Week three (20thth April to 24th April) : Read the pages 6 and 7 on the blue OCR "The Revision Guide" booklet about a computer CUP and complete the exercise on the accompanied OCR "Practice Workbook" page 9 and 10.
You can learn more by watching:

https://www.youtube.com/watch?v=w_0A3EWolU4
https://www.youtube.com/watch?v=0vEv8B8HUq0

Practical Lesson(s)
Lesson 3 - Please go to studio.code.org/s/course4. When you get there complete lessons 10 and 12, although this is block based programming, the concepts remain the same and therefore the lessons learnt from this are applicable to pseudocode and programming languages.

Please feel free to create yourself an account.

Bonus!
Go to:

https://repl.it/languages/python_turtle

Follow the instructions (and examples if needed) on how to use Python Turtle. For those who want the challenge, what is the most complex thing you can create? If you believe you have created something good email it to the teachers emails above!

This weeks theme: Nature!

https://repl.it/languages/python_turtle

Computer Science (9-1)

Compression and security
Mr Ebrahim

Please note that you may see slight differences between this paper and the original.

Candidates answer on the Question paper.

OCR supplied materials:
Additional resources may be supplied with this paper.

Other materials required:
• Pencil
• Ruler (cm/mm)

Duration: Not set

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

• Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
• Use black ink. HB pencil may be used for graphs and diagrams only.
• Answer **all** the questions, unless your teacher tells you otherwise.
• Read each question carefully. Make sure you know what you have to do before starting your answer.
• Where space is provided below the question, please write your answer there.
• You may use additional paper, or a specific Answer sheet if one is provided, but you must clearly show your candidate number, centre number and question number(s).

INFORMATION FOR CANDIDATES

• The quality of written communication is assessed in questions marked with either a pencil or an asterisk. In History and Geography a *Quality of extended response* question is marked with an asterisk, while a pencil is used for questions in which *Spelling, punctuation and grammar and the use of specialist terminology* is assessed.
• The number of marks is given in brackets **[ ]** at the end of each question or part question.
• The total number of marks for this paper is **50**.
• The total number of marks may take into account some 'either/or' question choices.

1. Two types of compression are lossy and lossless.

   State which type of compression is most appropriate for each of the following and explain why it is appropriate.

   (i) Downloading the source code of a large program

   Type of
   compression   _____

   Explanation   _____

   _____

   _____

   _____ **[3]**

   (ii) Streaming a large video file

   Type of
   compression   _____

   Explanation   _____

   _____

   _____

   _____ **[3]**

2. Kofi uses his computer to record an audio file of himself playing his guitar.

He emails his recording to a record label. He uses lossy compression to produce the music file.

Explain **two** reasons why using lossy compression is beneficial.

1

2

----

[4]

3.   The website of a school allows visitors to download JPG, MP3, MPEG and PDF files.

The video clip is compressed using lossy compression.

Explain why lossy compression is suitable for a video clip, but not suitable for a text document.

--[3]

4.   Files are often compressed before they are sent over the internet.

      State what is meant by compression.

      _____
      _____[1]

       State **one** advantage of compressing files before sending them over the internet.

      _____
      _____[1]

5(a). A doctor's surgery stores hundreds of patients' details on its computer network. The surgery is concerned about the security of its patients' sensitive medical data.

Staff are already required to use strong passwords to protect systems. Explain, with reference to system security, **three** other ways that the surgery could protect the system.

----

[6]

(b). Identify **three** errors that the surgery's staff could make, that may endanger the security of the network and outline a procedure that could be put in place to prevent each error.

----

[6]

6(a). Security on a computer can be provided directly by the operating system or by using utility programs.

Utility programs include antivirus, file transfer, firewall and system cleanup.

State which **two** of these utilities can be used for security.

1

2

----

[2]

(b). Identify and describe **two** methods by which the operating system can provide additional security directly.

1

2

----

[4]

7.   A school has all of its computers in a local area network (LAN).

Explain **two** measures which the school will need to take to ensure the security of the network.

1

2

----

[4]

8.	Amin buys a new computer with an operating system and some utilities.

The table below shows some of the utilities in Amin's computer.

Tick **one** box in each row to show whether the utility is used for security or disk organisation.

Utility	Used for security	Used for disk organisation
Antivirus		
Defragmenter		
File transfer		
Firewall		

[4]

9. A house has computers in each room and a central router. Every room allows both Ethernet and WiFi connections to the router.

The house owner is concerned about potential threats to the network from being connected to the Internet.

(i) Describe **three** possible threats to the computers connected to the network and give **one** way each threat can be reduced or prevented.

Threat 1 ---

Prevention ---

Threat 2 ---

Prevention ---

Threat 3 ---

Prevention ---

[9]

END OF QUESTION PAPER