COMPUTING work for students NOT attending school

Monday 12 October – Thursday 22 October

SUBJECT	Computing
Year Group	7
Fortnight beginning	12th October – 23rd October
Remote Classroom work	Continuing with the Dragons unit, all about how data is represented by a computer using Binary ASCII and Logic Gates, we have 2 tasks to complete. **Task 1** Start by reading the following presentation: S:\ICT\Key Stage 3\Year 7\7.2 - Dragons\Lesson 3 - Flag, Catch up and Challenges \Dragons - Lesson 3.pptx • Open the following Spreadsheet: S:\ICT\Key Stage 3\Year 7\7.2 - Dragons\Lesson 3 - Flag, Catch up and Challenges \ Worksheet 3 - Dragon Hunter Flags.xlsx • There are two tasks to complete and a video that shows you how to do each of these tasks, is located here: https://youtu.be/yY21wV10deU **Task 2** This task will allow you to learn about logic gates. Open the following Presentation and read through it • S:\ICT\Key Stage 3\Year 7\7.2 - Dragons\Lesson 5 - Logic Gates\ Dragons - Lesson 5.pptx • The following video will explain a little more about logic gates: https://youtu.be/QNOQKTjWP1o • Once you have watched the video, have a go at the following tasks as well as the extension task: S:\ICT\Key Stage 3\Year 7\7.2 - Dragons\Lesson 5 - Logic Gates\ Worksheet 5 - Logic Gates.xlsx S:\ICT\Key Stage 3\Year 7\7.2 - Dragons\Lesson 5 - Logic Gates\ Extension Task - Logic Gates.docx

SUBJECT	Computing
Year Group	8
Fortnight beginning	12th October – 23rd October
Remote Classroom work	We are continuing with the Interactive ICT Quiz. **Task 1** This lesson, open the presentation on the subject of Computer Software, Located here: - S:\ICT\Key Stage 3\Year 8\8.1 Interactive Quiz\Lesson 4\Software.ppt Read through the presentation and consider what questions you could make up regarding computer hardware with a number of multiple choice answers. For example: - What does DTP Stand for? - Why would we use a Spreadsheet? - Which of the following is Image Manipulation Software Try and create 5 questions on the subject of Computer Hardware and put them into your quiz **Task 2** This lesson we will look into creating 5 questions on the subject of The Internet A presentation is located here that should recap many of the skills you learned in year 7 - S:\ICT\Key Stage 3\Year 8\8.1 Interactive Quiz\Lesson 6\ The Internet.pptx.pptx Consider creating 5 questions such as: - Which Scientist first proposed the idea of a network of computers in 1962? - What does ARPANET stand for? - What was the first message sent over the Internet?

SUBJECT	Computing
Year Group	9
Fortnight beginning	12th October – 23rd October
Remote Classroom work	These lessons will look into the way computers add and subtract Binary numbers **Task 1** This task will look at Binary Addition The task can be found here: - S:\ICT\Key Stage 3\Year 9\Computer Science\Unit 1 - Numbering Systems\ 4 - Binary Addition.pptx When you have been through the presentation, add a section to the guide you created last week on the subject of adding Binary Numbers together and demonstrate how it works. Use an example in your work. **Task 2** This task will look at Binary Subtraction

	The task can be found here:
	• S:\ICT\Key Stage 3\Year 9\Computer Science\Unit 1 - Numbering Systems\ 5 - Binary Subtraction.pptx When you have been through the presentation, add a section to the guide you created last week on the subject of Subtracting Binary Numbers from each other and demonstrate how it works. Use an example in your work.

SUBJECT	GCSE Computer Science
Year Group	10
Fortnight beginning	12th October – 23rd October
Remote Classroom work	Students should now have a good understanding of the basic Python commands and syntax as well as knowledge of the use of variables and loops (while and for), selection (if, elif, else). In the following lessons students will learn about the use of lists in programs and construct a program using all of the knowledge they have gained so far. Students will then look at how to use external files and libraries in their programs. • Lesson 8 – Lists • Lesson 9 – Lists 2 • Lesson 10 – Reading and Writing to files • Lesson 11 – Libraries Students to read through the presentations for lessons 8-11 and complete worksheets 8-11 (Worksheet 8 is an extended task which will extend to lesson 9) • Python IDLE can be downloaded here: https://www.python.org/downloads/ • Alternatively an online IDE can be used here: https://repl.it/languages/python3 • All resources can be found at the following location: S:\ICT\Mr Murphy\Key Stage 4\Computer Science\6 - Python

SUBJECT	GCSE Computer Science
Year Group	11
Fortnight beginning	12th October – 23rd October
Remote Classroom work	We are starting a new unit on the subject of Algorithms. An algorithm is a series of steps used to carry out a particular task. We are going to be looking at Searching and Sorting Algorithms **Task 1** Access the following presentation about The search Algorithm. • S:\ICT\Computer Science\GCSE Computer Science 9-1\6. Algorithms\1 - Algorithms (Linear Search).pptx When you have been through the presentation, answer the exam questions at the end and try to create a search algorithm in Python that works in the same way **Task 2** Open the following presentation about the Binary Search. • S:\ICT\Computer Science\GCSE Computer Science 9-1\6. Algorithms \

2 - Algorithms (Binary Search).pptx
When you have been through the presentation:
- Try to make the binary search algorithm in python
- answer the questions at the end and explain the advantages and the disadvantages of using this algorithm

Task 3
Open the following presentation on the subject of the Bubble Sort. Learn about how a bubble sort works by comparing 2 numbers and putting them in the correct order before moving onto the next 2 numbers.
- S:\ICT\Computer Science\GCSE Computer Science 9-1\6. Algorithms\ 3 - Algorithms (Bubble Sort).pptx

Answer the questions at the end and complete the bubble sort task, demonstrating how the sort is carried out on actual data.

SUBJECT	BTEC Computing
Year Group	12
Fortnight beginning	12th October – 23rd October
Remote Classroom work	**Mr Allan**: We will continue with the "Fundamentals of Computer Systems" unit, looking at the ways data is stored, the logic associated with manipulating the data as well as the hardware involved. There are Two tasks for this unit: ### Task 1 Programming Challenges: The task can be found here: S:\ICT\Computer Science\BTEC Computing\Unit 2 - Fundamentals of Computer Systems\C - Data Representation\12 - Data Representation\Programming Challenge.pptx 1. Write a compression program that compresses text and stores the location of the words in a sentence before expanding the program to allow you to compress entire text files containing song lyrics. 2. Write a program that lets you input a Binary number and then it will convert it to Decimal and output it. 3. Develop the program so that you can enter a word and it will output the binary code for each ASCII character. ### Task 2 Revise thoroughly for an end of unit assessment. Go through all f the tasks that you have completed in this folder and ensure that you are confident when discussing each area. Identify any areas of weakness and let me know if I can help with them. - S:\ICT\Computer Science\BTEC Computing\Unit 2 - Fundamentals of Computer Systems\C - Data Representation\ ### Task 3 Carry out the end of unit assessment and try to answer all of the questions in as much detail as possible. Email this completed task to Mr Allan when you are done. - S:\ICT\Computer Science\BTEC Computing\Unit 2 - Fundamentals of Computer Systems\C - Data Representation \Data Types - End of Unit Assessment.docx **Mr Murphy** Students to ensure they have completed: - Worksheet 1 – Social Trends in Computer Gaming.

- Students should then use their notes from this worksheet as well as the information in the final four slides of the presentation to complete the write-up for section 1.
- The presentation can be found at the following location S:\ICT\Mr Murphy\Key Stage 5\BTEC Computing\Unit 14 - Computer Games Development\Presentations.

Mr Rigby Preparation for assessment that will be taking place next week. Revision booklet will need to be completed and printed. PPE will cover topics we have looked at so far including pseudocode and programming. GCSE topics will also be included.

SUBJECT	BTEC Computing
Year Group	13
Fortnight beginning	12th October – 23rd October
Remote Classroom work	**Mr Allan:** We're working through the Encryption part of the new Network Security and Encryption unit, so it encompasses P4 and M2. They are two separate tasks. All of my presentations are located in here, and I'll be adding to them as we work through each part of the task: S:\ICT\Computer Science\BTEC Computing\Unit 7 - Network Security and Encryption **For P4**, there are three presentations: 1.Encryption - 1 Symmetric Encryption (P4).pptx 1. Encryption - 2 Asymmetric Encryption (P4) .pptx 1. Encryption - 3 - How Encryption Works (P4) .pptx The first presentation looks at Symmetric encryption, such as a Caesar cipher, and explains how it uses one single key to encrypt and decrypt The Second presentation goes through the Asymmetric RSA algorithm, and discusses how you need two separate keys, one to encrypt and another to decrypt. The third presentation gives a recap to these and then discusses how you could set out a task explaining how they each work. I ask you to write programs in Python that demonstrate each, but don't worry if you have difficulty with this, as long as you can explain the details properly without using code. **For M2**, there are several tasks that we will be looking at and explaining how they work: - Hashing - Internet Transmissions (RSA, AES, DES) - Website Digital Certificates - Virtual Private Networks - Wi-Fi (WEP, WPA) - Two Factor Authentication - One time Pad I'll do a presentation on each subject, but for now there are 2 in there: 1. Encryption - 4 Uses of Cryptography - Hashing (M2).pptx 1. Encryption - 5 Uses of Cryptography - Transmitting Data (M2).pptx

The last page in each presentation shows the task you need to accomplish where you are working for a computer game design company and you have to investigate all of the encryption methods being used and discussing how they work and how secure they are.

If you have any issues with any of this, please let me know and I'll try and explain it better.
Email your completed task to Mr Allan for assessment.

Mr Murphy Students to read through the lesson presentation for P1 – Security Threats.
Students should complete the task of investigating a security breach within a real company/business.
The students should begin the write up for this section ensuring that they cover the following topics:
- Internal Threats (Deliberate and Accidental)
- External Threats (Physical Threats)

This should be either 3 PowerPoint slides or around 1 page word processed in a standard font size (10/12)

Mr Rigby Revision for PPE that will be taking place on Wednesday. Use notes from books. PPE will take place on Wednesday 14th October.