DISCRETIONARY TASKS – IT, Digital Media, Creative iMedia and Computer Science

Please find below additional distance learning tasks. These are optional extension tasks if students have completed work set on ShowMyHomework.

Websites Useful for Further Reading

Key Stage 3 https://www.bbc.co.uk/bitesize/subjects/zvc9q6f

Key Stage 4 https://www.bbc.co.uk/bitesize/examspecs/zmtchbk (OCR specification) https://student.craigndave.org/gcse-videos
https://www.senecalearning.com/ (The OCR GCSE Computer Science section)

Key Stage 5 https://isaaccomputerscience.org/ select OCR Specification

Extended Learning Tasks

Subject:	Year:
Computing	Year 7

Topic 1

E-Safety

Extended Learning Task 1:
Complete one of the social media tasks from the Nandos menu (see separate document)

Topic 2

Computer Systems and Programming

Extended Learning Task 1:
Create a mind map evidencing your understanding of the history of computers. Use any key dates you have learned, make it informative and eye catching!

Extended Learning Task 2:
Write an interview script for one of the inventors of historical computers you have been learning about. Think about what you could ask, as well as what answers you would get from the inventors.

Extended Learning Task 3:
Design a textbook page for next year's year 7. Informing them how computers have developed. Be creative, use any computer program, and include factual information. You could include links to other websites too.

Topic 3

Human-Computer Interaction

Extended Learning Task 1:
Create a storyboard design for a TG App. Consider how the user would interact with the product. What features would it need? How would the user navigate the product?

Topic 4

Digital Artefacts

Extended Learning Task 1:
Apply the skills you have learned and find three websites about the Battle of Stamford Bridge (the location of the skeleton). Evaluate the reliability of each website you come across from Task 1 and make a note of the most reliable website you found.

Extended Learning Task 2:
Produce a written evaluation on what you have learned so far about the reliability of internet-based sources. Compare and contrast these against other sources of information.

Topic 5

Multimedia projects

Not applicable (you are currently doing this topic)

ICT – TAKEAWAY HOMEWORK MENU

"Social media is a force for amazing good and profound evil."

Discuss, with reference to the above statement, the ethical, moral and social issues surrounding the use of social media.

Write a **newspaper article** on the topic of the secure use of online technology

Include specific, accurate information, with good English. You could include images and/or quotes. Have a look at a newspaper for some inspiration!

Design an attention-grabbing **webpage** on how to report inappropriate conduct

Be creative, use any computer program, and include factual information. You could include links to other websites too.

Create a **poster or leaflet** on social media. Focus on responsible use.

Use any key terms you have learnt, make it informative and eye catching!

Create a **factsheet** summarising the unit on social media.

Use correct terminology and use the internet/books to include extra facts (no copy and paste!)

Create a **mind map** summarising what

Identify **key terms** you have learned in

Extended Learning Tasks

Subject:	Year:
Computing	Year 8

Topic 1

Computational Thinking (Python)

Extended Learning Task 1:
Write a program that will ask the user for two numbers a then divide one by the other. The number of times one goes into another and the remainder should be displayed. For example, If 3 and 2 were entered: 3/2 = 1 remainder 1. The input and output should be user friendly. Improve the previous program to show only the integer part of the answer.

Extended Learning Task 2:
Both a fridge and a lift have heights, widths and depths. Work out how much space is left in the lift once the fridge is inside. Assume that the fridge dimensions will fit. The input and output should be user friendly.

Extended Learning Task 3:
Write a program that asks the user for the amount of money they will take on holiday and convert this into the equivalent amount in Euros, ignoring any Cents that might result from the conversion. The input and output should be user friendly.

Topic 2

Spreadsheet modelling

Extended Learning Task 1:
Design a spreadsheet which calculates the payroll of Google executives. It must calculate their tax based on their pay rate & hours worked and use different tax "bands" depending on how much they earn. You can make up the tax bands and how much they get paid!

Topic 3

Databases

Extended Learning Task 1:
Create a glossary with the following key terms and their definitions:
Field, Data type, Record, Table, Query, Form, Report

Extended Learning Task 2:
Explain why we use databases and the benefits of computerised databases over manual ones. As an extension, explain the benefits of relational databases over flat files.

Extended Learning Task 3:
You are designing a database for an online DVD rental company. Create table specifications with appropriate field names and data types for the following three tables: Customer, Order, Stock.

Topic 4

Computer Systems

Extended Learning Task 1:
The increased use of computer systems has changed the ways in which people interact with each other.
Explain how developments in hardware and software have affected the ways in which people communicate with each other.

Topic 5

The focus this half term is:

Multimedia (Music Festival project)

Not applicable (this is a future project)

Year 9 Digital Media

Students can access the Creative iMedia “Knowledge Organisers” in Student Resources, in the following folder:

- **ICT**
- **KS4 ICT**
- **Creative iMedia**
- **R087**
- **Research**
- **Knowledge Organisers**

These are extensive and students can read through these.

Extended Learning Tasks - Python

Subject:	Year:
Computing	Year 9

Autumn Half Term 1	Spring Half Term 1	Summer Half Term 1
The focus this half term: ***Computational Thinking – grade 4 problems****	The focus this half term: ***Computational Thinking – grade 5 problems****	The focus this half term: ***Computational Thinking – grade 6 problems****
Extended Learning Task 1: Task 19 Times Table *Create a program which will produce the times table for a number entered by the user* *eg if the user enters '2' it should produce:* *1 x 2 = 2* *2 x 2 = 4* *3 x 2 = 6*	**Extended Learning Task 1: Task 4 Password reset** *Only accept a new password if it is:* *1. At least eight characters long* *2. Has lower case and upper case letters.* *The password reset program should also make the user input their new password twice so that the computer knows that the user has not made any mistakes when typing their new password.*	**Extended Learning Task 1: Task 7 Letter list** Write a program that lets a user choose a letter. The program will then find all the words beginning with that letter in a list and print them out. It should also say how many words it found.
Extended Learning Task 2: Task 18 Squares *Create a program that will ask the user for a number and then print out a list of numbers from 1 to the number entered and the square of the number. For example, if the user entered '3'* *then the program would output:* *1 squared is 1* *2 squared is 4* *3 squared is 9*	**Extended Learning Task 2: Task 2 Averages** *Make a program that asks the user for a series of numbers until they either want to output the average or quit the program.*	**Extended Learning Task 2: Task 16 Shopping list** Create a program that will keep track of items for a shopping list. The program should allow you to keep adding new items. You should also be able to record which shop you are going to visit for the item.
Extended Learning Task 3: Task 20 Binary *Create a program to convert from hexadecimal to decimal.*	**Extended Learning Task 3: Task 5 basic lists** *Make a program that lets a user input a series of names into a list. The program should then ask the user whether they want to print out the list in the original order, or in reverse.*	**Extended Learning Task 3: Task 1 Mastermind** Generate a random four digit number. The player has to keep inputting four digit numbers until they guess the randomly generated number. After each unsuccessful try it should say how many numbers they got correct, but not which position they got right. At the end of the game should congratulate the user and say how many tries it took.

Autumn Half Term 2	Spring Half Term 2	Summer Half Term 2
The focus this half term: ***Computational Thinking – grade 4 problems****	The focus this half term: ***Computational Thinking – grade 5 problems****	The focus this half term: ***Computational Thinking – grade 6 problems****
Extended Learning Task 1: Task 11 Count words in string *Counts the number of individual words in a string.*	**Extended Learning Task 1: Task 10 Palindrome** *Checks if the string entered by the user is a palindrome. A palindrome is a word that reads the same forwards as it does backwards like "racecar".*	**Extended Learning Task 1: Task 9 Quiz Maker** *Make an application which takes various questions from a file, picked randomly, and puts together a quiz for students, and then reads a key to grade the quizzes. Each quiz can be different.*
Extended Learning Task 2: Task 13 Count vowels *Enter a string and the program counts the number of vowels in the text.*	**Extended Learning Task 2: Task 6 Max and min list** *Write a program that lets the user input a list of numbers. Every time they input a new number, the program should give a message about what the maximum and minimum numbers in the list are.*	**Extended Learning Task 2: Task 15 Change Return** *The user enters a cost and then the amount of money given. You should write a program that works out what denominations of change should be given in pounds, 50p, 20p, 10p etc.*
Extended Learning Task 3: Task 12 Pig Latin *Pig Latin is a game of alterations played on the English language game. To create the Pig Latin form of an English word the initial consonant sound is transposed to the end of the word and an ay is affixed (Ex.: "banana" would yield anana-bay). Read Wikipedia for more information on rules (http://en.wikipedia.org/wiki/Pig_Latin).*	**Extended Learning Task 3: Task 3 Email validator** *Make a program to check whether an email address is valid or not. For instance, you could make sure that there are no spaces, that there is an @ symbol and a dot somewhere after it. Also check the length of the parts at the start, and that the end parts of the address are not blank.*	**Extended Learning Task 3: Task 14 Currency converter** *Converts various units between one another. The user enters the type of unit being entered, the type of unit they want to convert to and then the value. The program will then make the conversion.*

These tasks may either be expressed as Python programs, or as pseudocode. Either is acceptable.

Year 10 Creative iMedia – Extended learning: Create a glossary of key terms

How the Internet Works

Read https://www.bbc.co.uk/bitesize/guides/zbtsgk7/revision/1
Relevant terms include:

- The World Wide Web
- ISP (Internet Service Provider)
- Web browser
- Search engine
- URL (address)
- Router/modem
- Server
- Protocol
- Ethernet
- Wi-Fi

Structure of a Website / Components of a Web Page

Read https://www.bbc.co.uk/bitesize/guides/z96psbk/revision/1
Components of a web page include:

- Structure
- Content (images, text, embedded content)
- Navigation system (menu, bar)
- HTML
- Cascading Style Sheets
- Alt Text
- Multimedia assets (sound, animation, video)
- Hotspots
- Hyperlinks

Remember to use additional sources to complete your research. Include these sources in your research

LO1 Key:
Purpose and component features of websites
Devices used to access web pages
Internet connection methods

Year 10 Computer Science Remote Learning Programme

There are two exam components in Computer Science.
Component 01, Computer Systems, has eight topics.
Component 02, Computational Thinking, has six topics.
Each component has a separate exam at the end of year 11.
The following is a list of the topics – you can use this as a checklist.
You can go through the topics in any order you wish. The shaded topics are more advanced and can be left until year 11 but you may tackle them if you wish.

Topic	Completed?
1.1 Systems architecture	
1.2 Memory	
1.3 Storage	
1.4 Wired and wireless networks	
1.5 Network topologies – protocols and layers	
1.6 System security	
1.7 System software	
1.8 Ethical, legal, cultural and environmental concerns	
2.1 Algorithms	
2.2 Programming techniques	
2.3 Producing robust programs	
2.4 Computational logic	
2.5 Translators and facilitators of languages	
2.6 Data representation	

If necessary, you can add a column for date/time so you can allocate a particular time to go through this topic.

Then, for each topic, go through the following steps:

1. Go to **https://student.craigndave.org/gcse-videos**. These are a series of videos produced by Computer Science teachers for each topic in the specification. Watch the relevant video, and in your exercise book, make notes. Remember to pause and rewind if you need to go over something again!
2. Next, go to **www.senecalearning.com**. Sign up if you haven't already. Access the GCSE Computer Science course (GCSE Computing). Here's the link:
   https://app.senecalearning.com/classroom/course/a1ce4570-6e27-11e8-af4b-35cf52f905c2
   Select the relevant topic (these are numbered slightly differently but you should be able to work it out from the topic description) and ensure you test yourself on the questions.

THE FOLLOWING STEP IS OPTIONAL

3. Now you have familiarised yourself with the topic, you can make some revision materials. To do this, you need the **textbook**.
   https://www.cgpbooks.co.uk/secondary-books/gcse/computer-science/cor41-gcse-computer-science-ocr-revision-guide
   Use this to make flash cards for each topic, and test yourself, or even better, get a parent/sibling/friend to test you.

This might seem like a long process but remember, some topics are very short and some topics don't need going over as much as others.