Supporting your child through their Computer Science GCSE

Support with Computer Science Revision

The Computer Science GCSE is assessed in two exams at the end of the course. Each exam is 1 hour and 30 minutes long, and is worth 50% of the final grade. The exams are based around two central themes: 'Computer Systems' and 'Computational Thinking, Algorithms & Programming'. The mock paper will be a combination of the two exam papers that you will sit at the end of Year 11.

All content from any part of the specification may be assessed in the mock paper. As such, some questions will draw together elements of computer science from different topic areas. There will be a mixture of question styles, from simple multiple choice questions to full algorithm design and analysis.

The most prepared students are those who are answering lots of questions as part of their revision and those focusing on their areas of weakness as identified in the past practise exam papers and classwork. Students should also use the revision resources that their class teacher has shared with them. These include: a full set of lesson material, revision notes, flashcards and glossaries for topic – contained on Teams (a mini guide has been emailed to students), revision guides, Seneca as well as a access to every previous exam question through Teams.

We would expect students to setting aside time each week for working on their Computer Science revision. Parents can support by encouraging your child to revise and monitoring that this is taking place. For example, ask them to show you their Computer Science OneNote, or ask them to create revision cards and use them to help their confidence and retention. You can also ask your child to show you their Seneca account if they are using it.

We thank you for your continued support and wish our Year 11s all the best with their upcoming mock

Exam Dates

We have been working hard in lessons all academic year. A mock exam has been scheduled for **Monday 7th November 2022**

The final exam will be **15th May 2023**

Preparation for the examination is absolutely crucial! Encouraging your child to treat this mock exam seriously will help them significantly when it comes to the final exams.

Course details:

GCSE Computer Science
Exam board: OCR
Specification: J277 (from 2020)
Website:
https://www.ocr.org.uk/qualifications/gcse/computer-science-j277-from-2020

Useful revision websites

https://www.senecalearning.com
https://craigndave.org/videos
https://www.bbc.co.uk/bitesize/subjects/z34k7ty
https://www.computerscience.gcse.guru
https://isaaccomputerscience.org

What support is available in school?

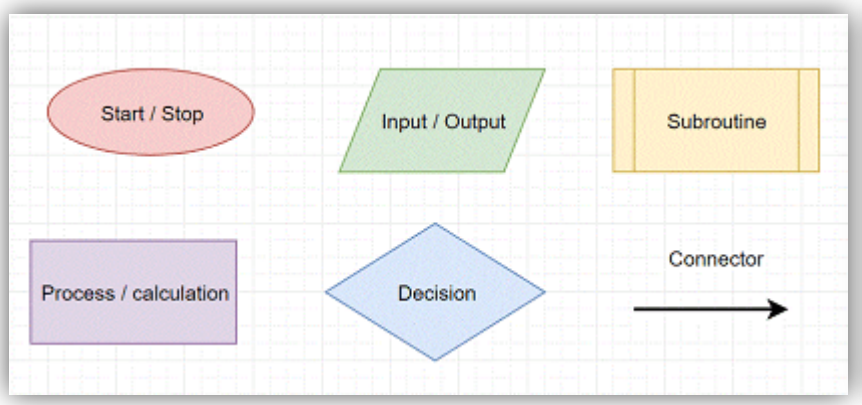
During the school week there are several places where your child can access help. Each of the computer science teachers are available to work with both individuals and groups of students at a mutually agreed time. This includes before school, break or lunchtimes and after school (as long as it does not clash with another subject's intervention time).

Topics your child has covered so far:

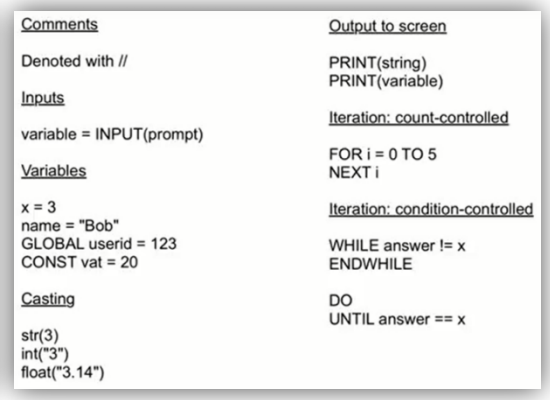
Character Sets, Binary Conversions, Hexadecimal Conversions, Binary Shifts, Components of the CPU, Performance of the CPU, Embedded Systems, Image representation, Filesize calculations, Representation of Sound, Compression, Network Security, Searching and sorting algorithms, Testing algorithms, Writing pseudocode and creating Flowcharts, .

Key Topics your child must know:

Flowcharts:



Pseudocode:



Comments

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Inputs

variable = INPUT(prompt)

Variables

x = 3
name = "Bob"
GLOBAL userid = 123
CONST vat = 20

Casting

str(3)
int("3")
float("3.14")

Output to screen

PRINT(string)
PRINT(variable)

Iteration: count-controlled

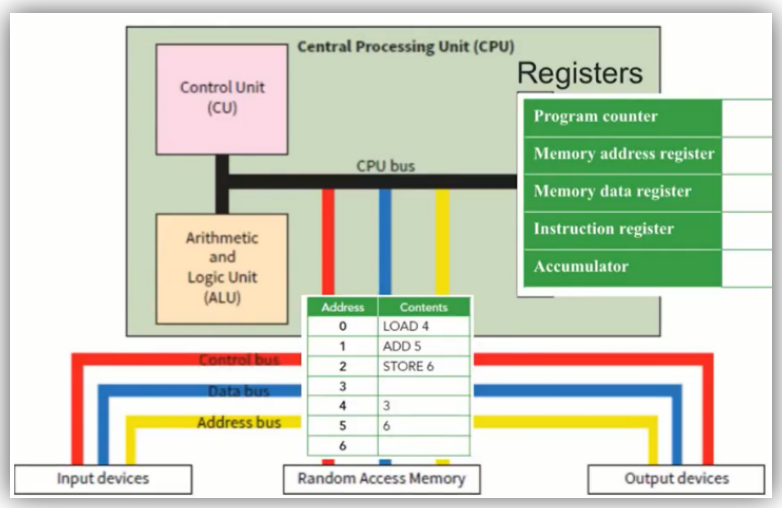
FOR i = 0 TO 5
NEXT i

Iteration: condition-controlled

WHILE answer != x
ENDWHILE

DO
UNTIL answer == x

FDE Cycle:



Data Types:

String – A text value
Integer – A whole number value
Boolean – A True of False value
Float – A decimal number

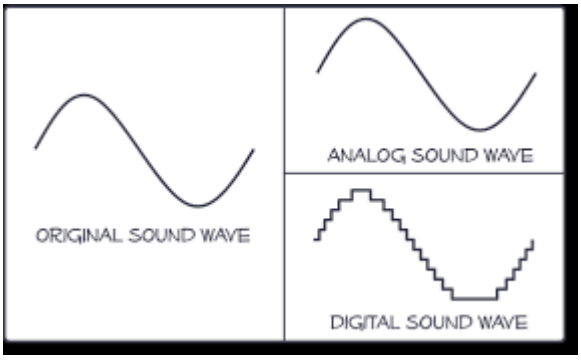
Data Measurements:

Bit, Byte, KiloByte, MegaByte, GigaByte, TeraByte

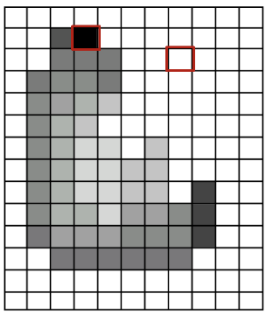
Character Sets:

ASCII, Extended ASCII, Unicode

Representation/Conversion of Sound:



Representation of Images:



=

255	255	255	255	255	255	255	255	255	255	255
255	255	20	0	255	255	255	255	255	255	255
255	255	75	75	255	255	255	255	255	255	255
255	75	95	95	75	255	255	255	255	255	255
255	96	127	145	175	255	255	255	255	255	255
255	127	145	175	175	175	255	255	255	255	255
255	127	145	200	200	175	175	95	255	255	255
255	127	145	200	200	175	175	95	47	255	255
255	127	145	145	175	127	127	95	47	255	255
255	74	127	127	127	95	95	95	47	255	255
255	255	74	74	74	74	74	74	255	255	255
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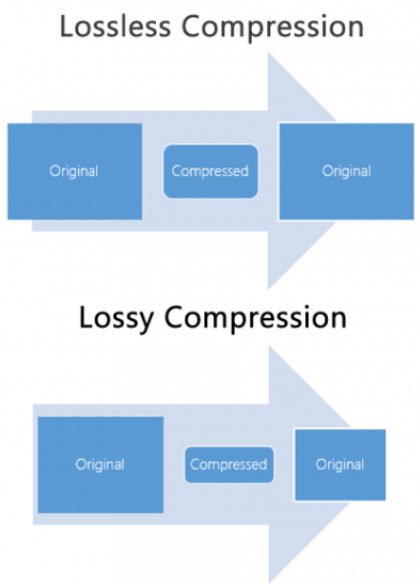
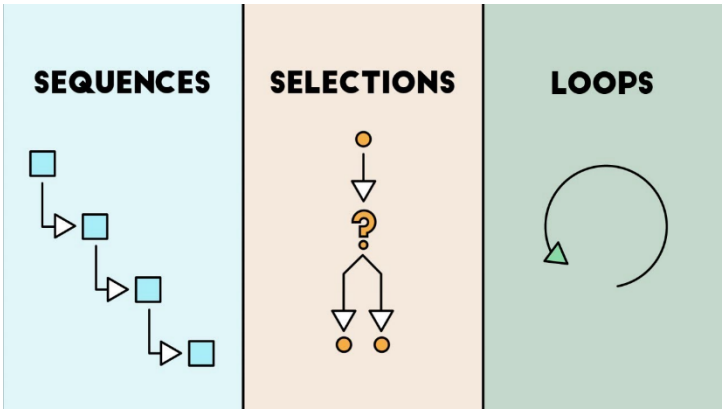
0 = black; 255 = white

Compression:

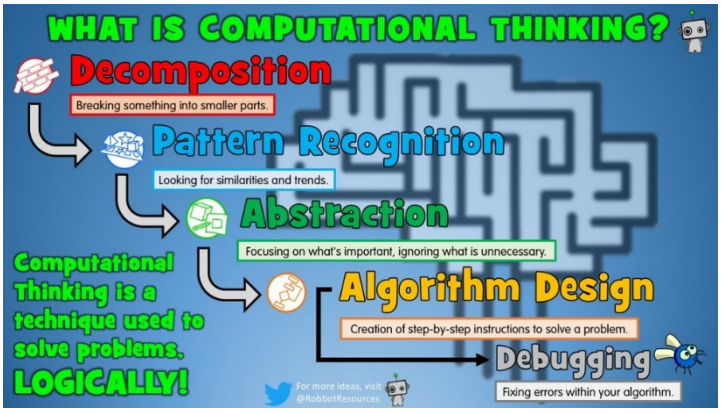


Programing Constructs:

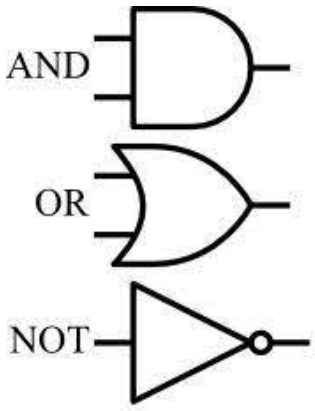


- For loops, While loops, If statements, Switch statements.
- Arrays/ListsArithmatic
- Functions/Procedures
- Casting, Strings, Files

Computational Thinking:

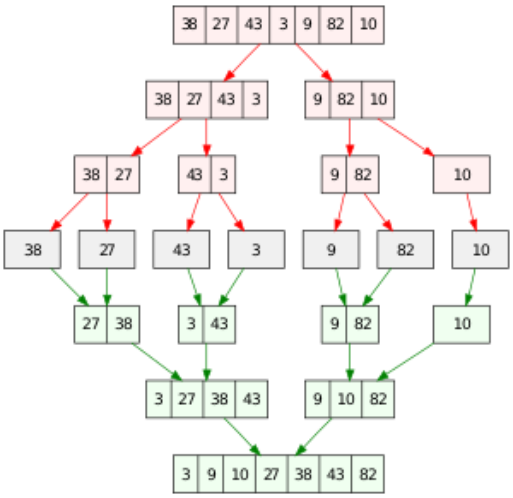


Logic Gates, Systems and Truth Tables:

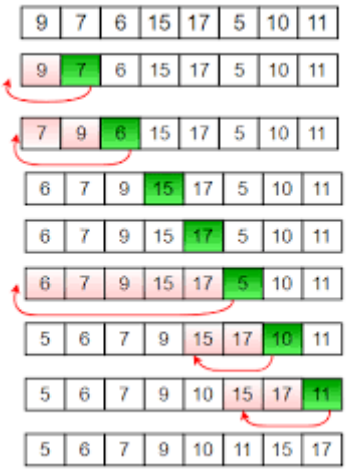


Searching and Sorting Algorithms:

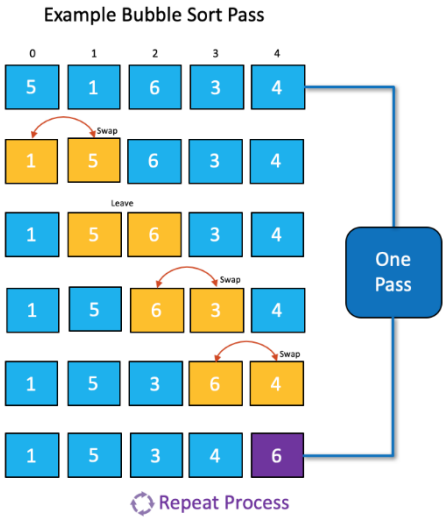
Merge Sort:



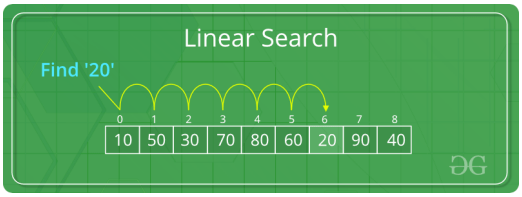
Insertion Sort:



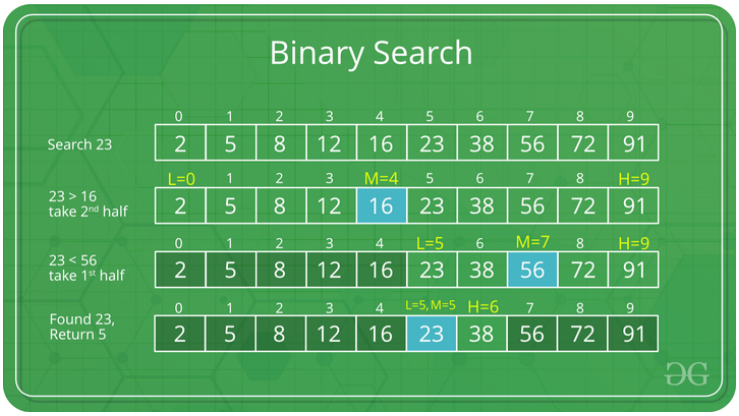
Bubble Sort:



Linear Search:



Binary Search:



Top Tips for Revising Computer Science:

1. **Use the checklist** you have been given to go through each of the topics on the course and rate how confident you are. This will ensure that you are covering all the topics and that you are focussing your time and attention in the places that will have the most impact!

2. **Build yourself up** – For your weaknesses, begin by reading the available materials, watch any available videos. Answer the one and two mark questions using full sentences and the appropriate technical vocabulary. Build on these simpler questions when you begin to attempt the larger mark questions.

3. **Flashcards** - Create flash cards for the topics that you are weaker on. Include the main parts of the theory, simple images and lots of colour. Create your own exam style questions on one side, add the answers to the reverse. Ask your friends/parents/guardians etc to test you using the cards. You can use them any time you have a few spare minutes – on the bus, at break time etc.

4. **Reward yourself** – If you have put a good revision session in and covered a range of topics – give youself a rest and a treat. This can be food, an episode of the goodplace, a visit to a friend, anything you would like to do!

5. **Use the Web** – There are enormous number of free resources available to you online. There are some links contained in this document. Use these to help support your revision – there are many people who explain topics in different ways that might help you. There are also sites which will set questions for you to answer and provide you with the mark scheme.

6. **Practice doing exam style questions under exam conditions**. This will get you used to focussing your thoughts and spending the correct amount of time on each question. It will also help you to improve your exam technique and to realise how fast you need to work in the final exams.

7. **Revise the topics you find hard** – Often, you will find that you want to revise the topics that you already know. This isn't that helpful as you need to be working on the areas you are weaker in. Use your checklist to help you with this. If you are unsure about what to revise, speak to one of the Digital staff and they will point you in the right direction.

8. **Ask for help if you need it** – Any of the Digitial staff will make time to help you with your revision and with topics that you feel you don't understand. This does not have to be your class teacher! Arrange a time to work with them – bring a friend if you need moral support!

9. **Act now!** Starting to revise now may seem too early, but putting a few minutes in each day will really help when the time comes to sit the final exams. Attend intervention when available!

Available Revision Materials:

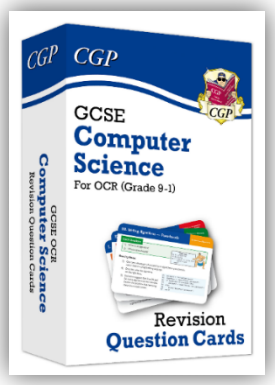
Past exam papers…these can be found on: https://www.ocr.org.uk/qualifications/gcse/computer-science-j277-from-2020/assessment/

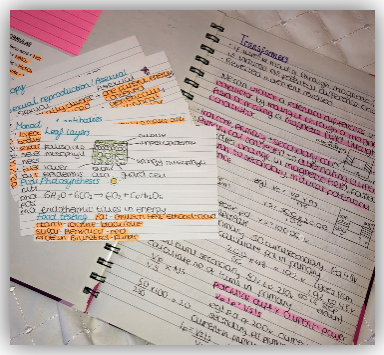
Your child has been given a full exam practice booklet along with the answers which can be used for revision and self testing. The Brunts Digital staff are more than happy to mark these booklets and to go through the answers should your child find they need more support in a particular area. We reccomend that your child completes the exam prep from these booklets along side the lessons that are currently being delivered. This should help them to retain as much information as possible.

All of the Computer Science Lesson Powerpoints along with revision notes, flashcards etc are available online for free through Teams. All previous exam questions, arranged by topic are also available through Teams.

Revision Cards:

Your child can make their own, or these can be purchased from school for £7.50 each. Additionally, the website 'craiganddave.org' also have sets which can be bought.





Revision Guides:

There are a selection of other revision materials that can be ordered from one of the Computer Science teachers. Guides and workbooks are £3.00.