

Year 10 Computer Science

Exam board : OCR

Course page: <https://www.ocr.org.uk/qualifications/gcse/computer-science-j277-from-2020/>

Specification: <https://www.ocr.org.uk/images/558027-specification-gcse-computer-science-j277.pdf>

Revision recommendations

Regular revision is the best way to stay confident and ready. Spacing out your practice over time is far more effective than last-minute cramming. The earlier you begin, the stronger your knowledge will be – and the better your results.

◆ Top Digital Resource Seneca Learning

- Sign in with your Google account.
- Join our class here:
<https://app.senecalearning.com/dashboard/join-class/vkncdw68zw>
- Includes a Python coding course and an OCR GCSE Computer Science revision course.
- Interactive and engaging – excellent for both theory and programming.

◆ Top Offline Resource CGP Revision Bundle (available to buy on parent pay)

- Revision Guide – all the key content, no waffle.
- Practice Paper Workbook – with answers in the back.
- Flashcards – perfect for testing yourself anytime, anywhere.

◆ Other Good Digital Resources

- BBC Bitesize – Clear, reliable theory revision (less useful for coding).
<https://www.bbc.co.uk/bitesize/examspecs/zmtchbk>
 - Craig & Dave Videos – Comprehensive explanations. Remember: take Cornell notes!
<https://craigndave.org/ocr-gcse-j277-videos/>
 - Snakify – Great for practising Python, though some questions are worded oddly.
<https://snakify.org/en/>
 - OCR Past Paper Finder – Past papers + mark schemes direct from OCR. The more past papers you complete, the better prepared you'll be!
<https://www.ocr.org.uk/qualifications/past-paper-finder/>
 - Sololearn is a phone app that can be used to reinforce coding knowledge. I recommend working through the 'coding foundations' course - Note: it offers a subscription service, just close it when it pops up, the free service is just fine.
- ◆ Wider Reading & Extra Interest (Optional)
- These aren't on the exam but are great if you want to explore computer science further:
- Linus Tech Tips (YouTube) – Fun, engaging tech channel -
<https://www.youtube.com/user/LinusTechTips>
 - BBC Sounds – Scam Secrets (Podcast) – Real scams explained; links to computing & social engineering.
<https://www.bbc.co.uk/sounds/brand/m002h2gt>

Course Content

Our course is interleaved. We cover both unit 1 content and unit 2 content throughout the 2 years. Every 2 weeks students will cover a week of unit 1, and a week of unit 2.

| Unit 1 - Computer systems | | | | | | Unit 2 - Algorithms and programming | | |
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| Topic covered | Content | Assessment and homework | When delivered | Topic covered | Content | Assessment and homework | When delivered? | |
| System Architecture | <p>students will learn how the CPU and computer systems as a whole are structured and how those individual components work together.</p> <p>By the end of this unit students will be expected to understand the following:</p> <ul style="list-style-type: none"> The names of the CPU components and how these work together in the FDE cycle - along with performance characteristics of the CPU How computer memory/storage works and different attributes for each. | <p>Homework: fortnightly Cornell Notes activities based upon the next week's learning.</p> <p>Assessment: Paper based end of topic assessment with a wide variety of exam-style questions</p> | Term 1 & 2 | Programming fundamentals | <p>The focus on programming across year 10 allows students to understand programming concepts in a more detailed way than ever before. Each concept is taught in a teary setting, looking at how the concept works and its pseudocode/flowchart. Then reinforced practically using python.</p> <p>By the end of this unit will be able to understand the following:</p> <ul style="list-style-type: none"> Programming fundamentals (inputs, outputs, variables, arithmetic) Using sequence Using Selection Using iteration | <p>Homework: fortnightly Cornell Notes activities based upon the next week's learning.</p> <p>Assessment: Regular digital cumulative homeworks assessing programming concepts up to that point.</p> | Term 1, 2 and 3 | |

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| Data Representation | <p>Focus is on how data is stored in a computer system using binary.</p> <p>By the end of this unit students will be expected to understand the following:</p> <ul style="list-style-type: none"> • The different ways that we can represent binary numbers • How to convert binary numbers with decimal and hexadecimal numbers • How binary is used to represent text, audio and images in a computer system. | Terms 2&3 | Algorithms | <ul style="list-style-type: none"> • Using procedures and functions • Using SQL (Structured query language) <p>Students will learn a number of fundamental algorithms, along with an understanding of how computers complete basic tasks.</p> <p>By the end of this unit students will be able to describe and replicate the following algorithms</p> <ul style="list-style-type: none"> • Binary search • Linear search • Bubble sort • Merge sort • Insertion sort <p>They will also be able to describe the following computational techniques confidently</p> <ul style="list-style-type: none"> • Abstraction • Decomposition • Computational thinking | <p>Homework: fortnightly Cornell Notes activities based upon the next week's learning.</p> <p>Assessment: Paper based end of topic assessment with a wide variety of exam-style questions. Including some cumulative questions from previous topics</p> | Terms 4 & 5 |
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| Computer Networking | <p>We focus on how computers communicate with each other, both on a large scale such as the world wide web, and on a small scale such as a home network.</p> <p>By the end of this unit students will be expected to understand the following:</p> <ul style="list-style-type: none"> • The components required to create a computer network and how the performance of a network can be affected. • The different ways that we can set up networks to improve performance, cost effectiveness and durability. • The protocols that computers use to transfer different types of data. | <p>Homework: fortnightly Cornell Notes activities based upon the next week's learning.</p> <p>Assessment: Paper based end of topic assessment with a wide variety of exam-style questions. Including some cumulative questions from previous topics</p> | Terms 3&4 | | | | |
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