

# Computer Science (OCR)

<b>Exam Duration</b>	<b>2 exams</b> <b>Computer systems</b> 1 hour 30 minutes <b>Computational thinking, Algorithms and Programming</b> 1 hour 30 minutes	<b>Equipment</b>	<b>pens</b>
<b>Revision Resources</b>	<p><b>New GCSE Computer Science OCR Revision Guide</b> - for the Grade 9-1 Course Paperback – 12 Apr 2016, ISBN-13: 978-1782946021</p> <p><b>New GCSE Computer Science OCR Exam Practice Workbook</b> - for the Grade 9-1 Course (includes Answers) Paperback – 21 Apr 2016 by <a href="#">CGP Books</a> (Author, Editor) ISBN: 9781782946038</p>		
<b>Exam Revision Checklist</b>			
<b>Content</b>			<b>Revised?</b>
<b>1</b>	Components of a computer system	CPU (CU & ALU) Fetch, decode and execute cycle CPU registers(MAR, MDR,counter and accumulator) Memory RAM and ROM Secondary storage System software (OS) and parts of OS Clock speed Cache size Embedded systems	
<b>2</b>	Computer networks	LAN, WAN, MAN, PAN, VPN,DNS, NIC, NAS Client server and peer to peer networks Network hardware including router , NIC, transmission media etc. DNS Hosting Cloud Virtual networks Encryption Frequency and channels	
<b>3</b>	Network topologies	Bus, Ring, Star, Mesh topologies	

		Network protocols e.g. TCP/IP, HTTP, FTP, POP	
4	Computer storage	Primary and secondary storage Different types of storage media and its characteristics Optical storage Magnetic storage Solid state storage Cloud storage	
5	Binary numbers and conversion to decimal	Binary to decimal and decimal to binary conversion, Logic gates, Binary to hexadecimal and octal conversions. Octal and hexadecimal to binary conversion	
6	Algorithms	Pseudocode and flowcharts for a given scenario Abstraction Selection Iteration Decomposition Algorithmic thinking	
7	Security threats	Viruses, malware, botnet, SQL injection, ransomware etc. Social engineering Brute force attacks, denial of service attacks, Data interception and theft, Network policies, Penetration testing Network forensics Firewall, user access levels	
8	Binary number	Conversions from binary to decimal and hexadecimal Conversion from decimal number to binary and hexadecimal Adding binary numbers Character set and ASCII table	
9	Data structure	Data types e.g. integer, string and boolean Purpose and limitation of each data type	

<b>10</b>	Search methods	Binary search Linear search Bubble sort Merge sort Insertion sort	
<b>11</b>	IDE(Integrated Development Environment)	Properties of IDE Types of error (Logical and syntax errors) and debugging methods	
<b>12</b>	Boolean logic	Logic gates e.g. AND gate, NOT gate, OR gates etc. Truth tables Trace tables Casting data Iteration Selection	
<b>13</b>	Programming techniques	Sequence Selection Iteration File handling operations e.g. Open, read, write, close etc. Different types of errors including logical error, syntax error and run time error.	
<b>14</b>	Data representation	Units e.g. bit, nibble, byte, kilobyte, megabyte, gigabyte etc. Character Sets including unicode and ASCII code. Images and how they are represented Meta data Sound Compression including lossy and lossless compressions	