CHELSEA ACADEMY

Anchored in Christ

GCSE Computer Science Handbook

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OCR Computer Science for GCSE

Examining body: OCR

Course overview:

Our GCSE in Computer Science is engaging and practical, encouraging creativity and problem solving. It encourages students to develop their understanding and application of the core concepts in computer science. Students also analyse problems in computational terms and devise creative solutions by designing, writing, testing and evaluating programs.

Specification code: **J277**

Qualification number: **601/8355/X**

First teaching 2020, with first assessment 2022

The key features of OCR's GCSE (9–1) in Computer Science for are:

- Valuable thinking and programming skills that are extremely attractive in the modern workplace
- A deep understanding of computational thinking and how to apply it through a chosen programming language
- Develop not only your understanding of current and emerging technologies, but also your understanding of how they work and apply this knowledge and understanding in a range of contexts
- Acquire and apply knowledge, some technical skills and an understanding of the use of algorithms in computer programs to solve problems using programming
- Use your knowledge and understanding of computer technology to become an independent and discerning user of ICT, able to make informed decisions about its use, and aware of the implications of different technologies
- Develop computer programs to solve problems
- Evaluate the effectiveness of computer programs/solutions and the impact of and issues related to the use of computer technology in society.

Course Summary

Students take J277/01 and J277/02 to be awarded the OCR GCSE (9–1) in Computer Science.

Content Overview	**Assessment Overview**
J277/01: Computer systems This component will assess: • 1.1 Systems architecture • 1.2 Memory and storage • 1.3 Computer networks, connections and protocols • 1.4 Network security • 1.5 Systems software • 1.6 Ethical, legal, cultural and environmental impacts of digital technology	**Written paper: 1 hour and 30 minutes** **50% of total GCSE** **80 marks** This is a non-calculator paper. All questions are mandatory. This paper consists of multiple choice questions, short response questions and extended response questions.
J277/02: Computational thinking, algorithms and programming This component will assess: • 2.1 Algorithms • 2.2 Programming fundamentals • 2.3 Producing robust programs • 2.4 Boolean logic • 2.5 Programming languages and Integrated Development Environments	**Written paper: 1 hour and 30 minutes** **50% of total GCSE** **80 marks** This is a non-calculator paper. This paper has two sections: Section A and Section B. Students must answer both sections. All questions are mandatory. In Section B, questions assessing students' ability to write or refine algorithms must be answered using **either** the OCR Exam Reference Language **or** the high-level programming language they are familiar with.

Practical Programming
All students must be given the opportunity to undertake a programming task(s), either to a specification or to solve a problem (or problems), during their course of study. Students may draw on some of the content in both components when engaged in Practical Programming.

Assessment:

Unit 1: Computer systems, Written exam paper, 1h 30m, 50% of the qualification.
Unit 2: Computational thinking, algorithms and programming, Written exam paper, 1h 30m, 50% of the qualification.

Aims and Learning Outcomes

GCSE specifications in Computing should encourage candidates to be inspired, moved and challenged by following a coherent, satisfying and worthwhile course of study. They should help candidates to gain an insight into related sectors. They should prepare candidates to make informed decisions about further learning opportunities and career choices.

GCSE specifications in Computer Science must enable candidates to:

- develop their understanding of current and emerging technologies, understanding of how they work and apply this knowledge and understanding in a range of contexts
- acquire and apply a knowledge, some technical skills and an understanding of the use of algorithms in computer programs to solve problems using programming
- use their knowledge and understanding of computer technology to become independent and discerning users of IT, able to make informed decisions about the use and be aware of the implications of different technologies
- acquire and apply creative and technical skills, knowledge and understanding of IT in a range of contexts
- develop computer programs to solve problems
- develop the skills to work collaboratively
- evaluate the effectiveness of computer programs/solutions and the impact of, and issues related to, the use of computer technology in society.

Why should you choose this subject?

A modern course for a modern world
While learners will no doubt already have some knowledge of computers and related areas, the course will give them an in-depth understanding of how computer technology works and a look at what goes on "behind the scenes".

Benefits:
that pervade their world. This knowledge is empowering, enriching, and inspiring; the skills involved readily transferable. Writing a computer program, while seemingly esoteric, is the closest a child can come to thinking about thinking. Likewise, debugging a program is the closest one can come to learning. Amongst other things, Computer Science embodies logic, rigour and problem solving. Some commentators have dubbed it 'the new Latin'."

Computer Science as a school Subject, seizing the opportunity (2012)

OCR's GCSE Computing fulfils the Computer Science element of the EBacc

From January 2013 our GCSE Computer Science counts as a science option in the English Baccalaureate (EBacc) for secondary school league tables - alongside Physics, Chemistry and Biology. Any student who sits any three of the four separate sciences and achieves at least a C in two of them will meet the science requirement of the EBacc.

Science plus Additional Science will still count towards the EBacc as an alternative combination. Computing cannot be substituted for Science or Additional Science in this combination.

Looking to the future
In fact, information technologies continue to have a growing importance. This means there will be a bigger demand for professionals who are qualified in this area. If learners want to go on to higher study and employment in the field of Computer Science, they will find that this course provides a superb stepping-stone.

Extended curriculum opportunities:
● Visit to Bletchley Park National Codes Centre, Milton Keynes.
● Visit to the Apple Store, White City.
● Opportunity to help in delivery of Computing-related Enrichment programmes to Year 7,Year 8 and year 9 students.
● Access to Micro:bits, Raspberry Pi's and Makey Makey's.

Course Breakdown

Unit 1 - Computer systems (J277/01)

1.1   Systems architecture
● The purpose of the CPU
● Von Neumann architecture:
● MAR (Memory Address Register)
● MDR (Memory Data Register)
● Program counter
● Accumulator
● Common CPU components and their function:
● ALU (Arithmetic Logic Unit)
● CU (Control Unit)
● Cache
● The function of the CPU as fetch and execute instructions stored in memory
● How common characteristics of CPUs affect their performance
● Clock speed
● Cache size
● Number of cores
● Embedded systems:
● Purpose of embedded systems
● Examples of embedded systems

1.2   Memory
- The difference between ram and rom
- The purpose of rom in a computer system
- The purpose of ram in a computer system
- The need for virtual memory
- Flash memory

1.3   Storage
- The need for secondary storage
- Data capacity and calculation of data capacity requirements
- Common types of storage: optical, magnetic, solid state
- Suitable storage devices and storage media for a given application, and the advantages and disadvantages of these, using characteristics: capacity, speed, portability, durability and reliability

1.4   Wired and wireless networks
- Types of networks: LAN (Local Area Network) and WAN (Wide Area Network)
- Factors that affect the performance of networks
- The different roles of computers in a client-server and a peer-to-peer network
- The hardware needed to connect stand-alone computers into a local area network: wireless access points, routers / switches, nic (network interface controller / card) and transmission media
- The internet as a worldwide collection of computer networks: DNS (domain name server), hosting, the cloud
- The concept of virtual networks

1.5   Network topologies, protocols and layers
- Star and mesh network topologies
- Wifi: frequency and channels and encryption
- Ethernet
- The uses of IP addressing, MAC addressing, and protocols including:
- TCP/IP (Transmission Control Protocol/Internet Protocol), HTTP (Hyper Text Transfer Protocol), HTTPS (Hyper Text Transfer Protocol Secure), FTP (File Transfer Protocol), POP (Post Office Protocol), IMAP (Internet Message Access Protocol) and SMTP (Simple Mail Transfer Protocol)
- The concept of layers
- Packet switching.

1.6   System security
- Forms of attack
- Threats posed to networks: malware, phishing, people as the 'weak point' in secure systems (social engineering), brute force attacks, denial of service attacks, data interception and theft, the concept of SQL injection, poor network policy
- Identifying and preventing vulnerabilities: penetration testing, network forensics, network policies, anti-malware software, firewalls, user access levels, passwords and encryption.

1.7   Systems software
- The purpose and functionality of systems software
- Operating systems: user interface, memory management/multitasking, peripheral management and drivers, user management, file management
- Utility system software: encryption software, defragmentation, data compression, the role and methods of backup: full and incremental.

1.8 Ethical, legal, cultural and environmental concerns

- How to investigate and discuss computer science technologies while considering: ethical issues, legal issues, cultural issues, environmental issues and privacy issues.
- How key stakeholders are affected by technologies
- Environmental impact of computer science
- Cultural implications of computer science
- Open source vs proprietary software
- Legislation relevant to Computer Science: The Data Protection Act 1998 and 2018, Computer Misuse Act 1990, Copyright Designs and Patents Act 1988, Creative Commons Licensing and Freedom of Information Act 2000

- The UK GDPR is the UK General Data Protection Regulation. It is a UK law which came into effect on 01 January 2021. It sets out the key principles, rights and obligations for most processing of personal data in the UK, except for law enforcement and intelligence agencies.

Unit 2 - Content of Computational thinking, algorithms and programming (J277/02)

2.1 Algorithms

computational thinking: abstraction, decomposition and algorithmic thinking
standard searching algorithms: binary search and linear search
standard sorting algorithms: bubble sort, merge sort and insertion sort
how to produce algorithms using: pseudocode and using flow diagrams
interpret, correct or complete algorithms.

2.2 Programming techniques

- The use of variables, constants, operators, inputs, outputs and assignments
- The use of the three basic programming constructs used to control the flow of a program: sequence, selection and iteration (count and condition controlled loops)
- The use of basic string manipulation
- The use of basic file handling operations: open, read, write and close
- The use of records to store data
- The use of sql to search for data
- The use of arrays (or equivalent) when solving problems, including both one and two dimensional
- Arrays
- How to use sub programs (functions and procedures) to produce structured code
- The use of data types: integer, real, boolean, character and string and casting
- The common arithmetic operators
- The common boolean operators.

2.3 Producing robust programs

- Defensive design considerations: input sanitisation/validation, planning for contingencies, anticipating misuse and authentication
- Maintainability: comments and indentation
- The purpose of testing
- Types of testing: iterative and final/terminal
- How to identify syntax and logic errors
- Selecting and using suitable test data.

2.4 Computational logic

- Why Data Is Represented in Computer Systems in Binary Form
- Simple Logic Diagrams Using the Operations And, or and Not

- Truth Tables
- Combining Boolean Operators Using And, or and Not to Two Levels
- Applying Logical Operators in Appropriate Truth Tables to Solve Problems
- Applying Computing-related Mathematics: + – / * Exponentiation (^) MOD DIV

2.5 Translators and facilities of languages
- Characteristics and purpose of different levels of programming language, including low level languages
- The purpose of translators
- The characteristics of an assembler, a compiler and an interpreter
- Common tools and facilities available in an integrated development environment (ide): editors, error diagnostics, run-time environment and translators

2.6 Data representation
Units
- Bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte
- How data needs to be converted into a binary format to be processed by a computer

Numbers
- How to convert positive denary whole numbers (0–255) into 8 bit binary numbers and vice versa
- How to add two 8 bit binary integers and explain overflow errors which may occur
- Binary shifts
- How to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa
- How to convert from binary to hexadecimal equivalents and vice versa
- Check digits

Characters
- The use of binary codes to represent characters
- The term 'character-set'
- The relationship between the number of bits per character in a character set and the number of characters which can be represented (for example ascii, extended ascii and unicode)

Images
- How an image is represented as a series of pixels represented in binary
- Metadata included in the file
- The effect of colour depth and resolution on the size of an image file.

Sound
- How sound can be sampled and stored in digital form
- How sampling intervals and other factors affect the size of a sound file and the quality of its playback: sample size, bit rate, sampling frequency.

Compression
- Need for compression
- Types of compression: lossy and lossless

Find out more:

Full course specification is at:
http://www.ocr.org.uk/Images/225975-specification-accredited-gcse-computer-science-j276.pdf

For some fun taster activities:
http://www.cs4fn.org/

Further information about Computing in Schools:
http://www.computingatschool.org.uk/

Intro to coding
www.codeacademy.com

Text Book:
OCR Computing for GCSE
by S Robson (Author), P M Heathcote (Author)
ISBN 978 1 444 17779 4

Revision Book:
GCSE Computer Science OCR Revision Guide
by CGP Revision Books

There are a few website sites which you can use for help:

http://www.teach-ict.com/gcse_computing/ocr/GCSE_A451_topics.html

http://www.teach-ict.com/gcse_computing/gcse_computing_quizzes.htm
https://www.rigb.org/christmaslectures08/
It is also important to keep up-to-date with the latest developments in the world of technology.
Use the sites below as a starting point but there are lots more.

https://www.bbc.co.uk/news/technology
https://www.wired.com/
https://www.cnet.com/

Rules and Expectations in Computing

1. Spend **at least** 60-90 minutes per week on Independent Learning

2. In addition to IL tasks set, spend about 20 minutes every week revising by practicing software skills

3. Meet all IL deadlines

4. When you experience difficulty with a topic or particular skill, seek help straight away

5. See staff in advance if you are unable to attend a lesson and ask for lesson resources to be emailed to you.

6. Catch up on work missed through illness using the lesson presentations.

7. Do not be afraid to experiment with software. The best users of technologies are those who take risks with it.

8. Familiarise yourself with the GCSE specification

9. Use www.codeacademy.com to help with programming concepts

10. If you are below target, ensure that you know exactly what to do to get back on track. Feel free to email:

Mr Osman Khan Osman.khan@chelsea-academy.org
Mr Hussein Mowlid.Hussein@chelsea-academy.org

Personalised Learning Checklist

1.1 Systems architecture

Topic	R	A	G
The purpose of the cpu Teach ICT: Resources BBC: Resources BBC: Resources OCR: Resources Teach with ICT: Resources			
Von Neumann architecture: MAR (Memory Address Register) MDR (Memory Data Register) Program Counter Accumulator			
Common CPU components and their function: resource | resources ALU (Arithmetic Logic Unit) CU (Control Unit) Cache			
The function of the CPU as fetch and execute instructions stored in memory			
How common characteristics of CPUs affect their performance: clock speed cache size number of cores			
Embedded systems: purpose of embedded systems examples of embedded systems. Resource			

1.2 Memory

Topic	R	A	G
The difference between RAM and ROM resource – primary storage			
The purpose of ROM in a computer system			
The purpose of RAM in a computer system			
The need for virtual memory			
Flash memory			

1.3 Storage

Topic	R	A	G
The need for secondary storage data capacity and calculation of data capacity requirements: resource | resource			
Common types of storage: optical magnetic solid state			
Suitable storage devices and storage media for a given application, and the advantages and disadvantages of these, using characteristics: capacity speed portability durability reliability cost.			

1.4 Wired and wireless networks

Topic	R	A	G
Types of networks: resource LAN (Local Area Network) WAN (Wide Area Network)			
Factors that affect the performance of networks			
The different roles of computers in a client-server and a peer-to-peer network			
The hardware needed to connect stand-alone computers into a Local Area Network: wireless access points routers/switches NIC (Network Interface Controller/Card) transmission media			
The internet as a worldwide collection of computer networks: DNS (Domain Name Server) hosting the cloud the concept of virtual networks.			

1.5   Network topologies, protocols and layers

Topic	R	A	G
Star and mesh network topologies			
Wifi frequency and channels encryption			
Ethernet			
The uses of IP addressing, MAC addressing, and protocols including TCP/IP (Transmission			

Control Protocol/Internet Protocol HTTP (Hyper Text Transfer Protocol) HTTPS (Hyper Text Transfer Protocol Secure FTP (File Transfer Protocol) POP (Post Office Protocol) IMAP (Internet Message Access Protocol) SMTP (Simple Mail Transfer Protocol) resource			
The concept of layers			
Packet switching: resource			

1.5 System security

Topic	R	A	G
Forms of attack			
Threats posed to networks: malware phishing people as the 'weak point' in secure systems (social engineering) brute force attacks denial of service attacks data interception and theft the concept of SQL injection poor network policy resource			
Identifying and preventing vulnerabilities: penetration testing network forensics network policies anti-malware software firewalls user access levels passwords encryption resource			

1.6 Systems software

Topic	R	A	G
The purpose and functionality of systems software http://teachwithict.weebly.com/software.html			
Operating systems: resource user interface memory management/multitasking peripheral management and drivers user management file management			
Utility system software: encryption software defragmentation data compression the role and methods of backup: full incremental. resource			

1.7 Ethical, legal, cultural and environmental concerns

Topic	R	A	G
How to investigate and discuss Computer Science technologies while considering:			

Topic	R	A	G
ethical issues legal issues cultural issues environmental issues. privacy issues. resource			
How key stakeholders are affected by technologies resource			
Environmental impact of Computer Science resource			
Cultural implications of Computer Science resource			
Open source vs proprietary software resource			
Legislation relevant to Computer Science: The Data Protection Act 1998 Computer Misuse Act 1990 Copyright Designs and Patents Act 1988 Creative Commons Licensing Freedom of Information Act 2000. resource			

2.1 Algorithms

Topic	R	A	G
Computational thinking: resource			
Abstraction			
Decomposition: resource			
Algorithmic thinking : resource	resource password			
Standard searching algorithms: resource	resource			
Binary search: resource			
Linear search: resource			
Standard sorting algorithms: resource			
Bubble sort: resource			
Merge sort: resource	python			
Insertion sort: resource	python			
How to produce algorithms using:			
Pseudocode			
Using flow diagrams http://teachwithict.weebly.com/flowcharts.html			
Interpret, correct or complete algorithms			

2.2 Programming techniques

Topic	R	A	G
The use of variables, constants, operators, inputs, outputs and assignments http://teachwithict.weebly.com/python.html			

	R	A	G
The use of the three basic programming constructs used to control the flow of a program:			
Sequence: resource			
Selection: resource			
Iteration (count and condition controlled loops): resource			
The use of basic string manipulation: resource			
Open			
Read			
Write			
Close			
LEARN SQL http://www.pythonschool.net/category/databases.html http://www.w3schools.com/sql/ https://www.khanacademy.org/computing/computer-programming/sql http://pythonschool.net/databases/introduction-to-databases/			
The use of records to store data			
The use of SQL to search for data			
The use of arrays (or equivalent) when solving problems, including both one and two dimensional arrays			
How to use sub programs (functions and procedures) to produce structured code			
The use of data types: resource			
Integer			
Real			
Boolean			
Character and string			
Casting			
The common arithmetic operators			
The common Boolean operators			

2.3 Producing robust programs

Topic	R	A	G
defensive design considerations: resource			
input sanitisation/validation			
planning for contingencies			
Anticipating misuse			
Authentication			
maintainability: resource			
Comments			
Indentation			
The purpose of testing resources			
Types of Testing:			
Iterative			

Topic			
Final/terminal			
How to identify syntax and logic errors resources			
Selecting and using suitable test data			

2.4 Computational logic

Topic	R	A	G
Why data is represented in computer systems in binary form http://teachwithict.weebly.com/binary-lessons.html			
Simple logic diagrams using the operations AND, OR and NOT			
Truth tables			
Combining Boolean operators using AND, OR and NOT to two levels			
Applying logical operators in appropriate truth tables to solve problems			
Applying computing-related mathematics:			
+			
-			
/			
*			
Exponentiation			
(^)			
MOD			
DIV			

2.5 Translators and facilities of languages

Topic	R	A	G
Characteristics and purpose of different levels of programming language, including low level languages			
The purpose of translators			
The characteristics of an assembler, a compiler and an interpreter			
Common tools and facilities available in an integrated development environment (IDE):			
Editors			
Error diagnostics			
Run-time environment			
Translators			

2.6 Data representation

Topic	R	A	G
Units			
Bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte http://www.ocr.org.uk/qualifications/by-subject/computing/computing-resources/representation-of-data-in-computer-systems/			
How data needs to be converted into a binary format to be processed by a computer.			
Numbers			
How to convert positive denary whole numbers (0–255) into 8 bit binary numbers and vice versa			
How to add two 8 bit binary integers and explain overflow errors which may occur			
Binary shifts https://raychambers.wordpress.com/2017/01/02/9th-day-of-christmas-data-representation-videos-for-computer-science-ocr-1-9/ https://www.youtube.com/watch?v=JEnpyrn7Rgo			
How to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa			
Check digits			
Characters			
The use of binary codes to represent characters			
The term 'character-set'			
The relationship between the number of bits per character in a character set and the number of			

characters which can be represented (for example ASCII, extended ASCII and Unicode). https://www.youtube.com/watch?v=XCzNN4E1nOU			
Images			
How an image is represented as a series of pixels represented in binary			
Metadata included in the file			
The effect of colour depth and resolution on the size of an image file.			
Sound			
How sound can be sampled and stored in digital form			
How sampling intervals and other factors affect the size of a sound file and the quality of its playback:			
Sample size			
Bit rate			
Sampling frequency			
Compression			
Need for compression			
Types of compression:			
Lossy			
Lossless			

Key Terms

Access time - The performance of a hard drive or other storage device - how long it takes to locate a file.

Active program or window - The application or window at the front (foreground) on the monitor.

Alert (alert box) - a message that appears on screen, usually to tell you something went wrong.

Alias - an icon that points to a file, folder or application (System 7).

Apple menu - on the left side of the screen header. System 6 = desk accessories System 7 = up to 50 items.

Application - a program in which you do your work.

Application menu - on the right side of the screen header. Lists running applications.

ASCII (pronounced ask-key) - American Standard Code for Information Interchange. A commonly used data format for exchanging information between computers or programs.

Background - part of the multitasking capability. A program can run and perform tasks in the background while another program is being used in the foreground.

Bit - the smallest piece of information used by the computer. Derived from "binary digit". In computer language, either a one (1) or a zero (0).

Backup - a copy of a file or disk you make for archiving purposes.

Boot - to start up a computer.

Bug - a programming error that causes a program to behave in an unexpected way.

Bus - an electronic pathway through which data is transmitted between components in a computer.

Byte - a piece of computer information made up of eight bits.

Card - a printed circuit board that adds some feature to a computer.

Cartridge drive - a storage device, like a hard drive, in which the medium is a cartridge that can be removed.

CD-ROM - an acronym for Compact Disc Read-Only Memory.

Chooser - A desk accessory used to select a printer, or other external device, or to log onto a network.

Clipboard - A portion of memory where the Mac temporarily stores information. Called a Copy Buffer in many PC applications because it is used to hold information which is to be moved, as in word processing where text is "cut" and then "pasted".

Clock Rate (MHz) - The instruction processing speed of a computer measured in millions of cycles per second (i.e., 200 MHz).

Command - the act of giving an instruction to your Mac either by menu choice or keystroke.

Command (apple) key - a modifier key, the Command key used in conjunction with another keystroke to activate some function on the Mac.

Compiler - a program the converts programming code into a form that can be used by a computer.

Compression - a technique that reduces the size of a saved file by elimination or encoding redundancies (i.e., JPEG, MPEG, LZW, etc.)

Control key - seldom used modifier key on the Mac.

Control panel - a program that allows you to change settings in a program or change the way a Mac looks and/or behaves.

CPU - the Central Processing Unit. The processing chip that is the "brains" of a computer.

Crash - a system malfunction in which the computer stops working and has to be restarted.

Cursor - The pointer, usually arrow or cross shaped, which is controlled by the mouse.

Daisy chaining - the act of stringing devices together in a series (such as SCSI).

Database - an electronic list of information that can be sorted and/or searched.

Data - (the plural of datum) information processed by a computer.

Defragment - (also - optimize) to concatenate fragments of data into contiguous blocks in memory or on a hard drive.

Desktop - 1. the finder. 2. The shaded or coloured backdrop of the screen.

Desktop file - an invisible file in which the Finder stores a database of information about files and icons.

Dialog box - an on-screen message box that appears when the Mac requires additional information before completing a command.

Digitize - to convert linear, or analogue, data into digital data which can be used by the computer.

Disk - a spinning platter made of magnetic or optically etched material on which data can be stored.

Disk drive - the machinery that writes the data from a disk and/or writes data to a disk.

Disk window - the window that displays the contents or directory of a disk.

Document - a file you create, as opposed to the application which created it.

DOS - acronym for Disk Operating System - used in IBM PCs.

DPI - acronym for Dots Per Inch - a gauge of visual clarity on the printed page or on the computer screen.

Download - to transfer data from one computer to another. (If you are on the receiving end, you are downloading. If you are on the sending end, you are uploading).

Drag - to move the mouse while its button is being depressed.

Drag and drop - a feature on the Mac which allows one to drag the icon for a document on top of the icon for an application, thereby launching the application and opening the document.

Driver - a file on a computer which tells it how to communicate with an add-on piece of equipment (like a printer).

Ethernet - a protocol for fast communication and file transfer across a network.

Expansion slot - a connector inside the computer which allows one to plug in a printed circuit board that provides new or enhanced features.

Extension - a start-up program that runs when you start the Mac and then enhances its function.

Fibre channel - as applied to data storage and network topology - link to FC Glossary.

File - the generic word for an application, document, control panel or other computer data.

Finder - The cornerstone or home-base application in the Mac environment. The finder regulates the file management functions of the Mac (copying, renaming, deleting...)

Floppy - a 3.5 inch square rigid disk which holds data. (So named for the earlier 5.25 and 8 inch disks that were flexible).

Folder - an electronic subdirectory which contains files.

Font - a typeface that contains the characters of an alphabet or some other letterforms.

Footprint - The surface area of a desk or table which is occupied by a piece of equipment.

Fragmentation - The breaking up of a file into many separate locations in memory or on a disk.

Freeze - a system error which causes the cursor to lock in place.

Get info - a Finder File menu command that presents an information window for a selected file icon.

Gig - a gigabyte = 1024 megabytes.

Hard drive - a large capacity storage device made of multiple disks housed in a rigid case.

Head crash - a hard disk crash caused by the heads coming in contact with the spinning disk(s).

High density disk - a 1.4 MB floppy disk.

Highlight - to select by clicking once on an icon or by highlighting text in a document.

Icon - a graphic symbol for an application, file or folder.

Initialize - to format a disk for use in the computer; creates a new directory and arranges the tracks for the recording of data.

Insertion point - in word processing, the short flashing marker which indicates where you're next typing will begin.

Installer - software used to install a program on your hard drive.

Interrupt button - a tool used by programmers to enter the debugging mode. The button is usually next to the reset button.

K - Short for kilobyte.

Keyboard shortcut - a combination of keystrokes that performs some function otherwise found in a pull-down menu.

Kilobyte - 1024 bytes.

Landscape - in printing from a computer, to print sideways on the page.

Launch - start an application.

Measurements (summary) -
*a bit = one binary digit (1 or 0) *"bit" is derived from the contraction b'it (binary digit) -> 8 bits = one byte
*1024 bytes = one kilobyte
*K = kilobyte
*Kb = kilobit
*MB = megabyte
*Mb = megabit
*MB/s = megabytes per second
*Mb/s = megabits per second
*bps = bits per second
i.e., 155 Mb/s = 19.38 MB/s

MB - short for megabyte.

Megabyte - 1024 kilobytes.

Memory - the temporary holding area where data is stored while it is being used or changed; the amount of RAM a computer has installed.

Menu - a list of program commands listed by topic.

Menu bar - the horizontal bar across the top of the Mac¹s screen that lists the menus.

Multi finder - a component of System 6 that allows the Mac to multi task.

Multi-tasking - running more than one application in memory at the same time.

Nanosecond - one billionth of a second. (or, the time between the theatrical release of a Dudley Moore film and the moment it begins to play on airplanes).

native mode - using the computer's original operating system; most commonly used when talking about the PowerPC can run software written for either the 80x0 systems, or the PowerPC¹s RISC code.

NuBus - expansion slots on the Mac which accept intelligent, self-configuring boards. NuBus is a different bus architecture than the newer PCI bus and the boards are not interchangeable.

Operating system - the system software that controls the computer.

Optical disk - a high-capacity storage medium that is read by a laser light.

Palette - a small floating window that contains tools used in a given application.

Partition - a subdivision of a hard drives surface that is defined and used as a separate drive.

Paste - to insert text, or other material, from the clipboard or copy buffer.

PC - acronym for personal computer, commonly used to refer to an IBM or IBM clone computer which uses DOS.

PCI - acronym for Peripheral Component Interchange - the newer, faster bus architecture.

Peripheral - an add-on component to your computer.

Point - (1/72") 12 points = one pica in printing.

Pop-up menu - any menu that does not appear at the top of the screen in the menu bar. (may pop up or down)

Port - a connection socket, or jack on the Mac.

Power PC - a processing chip designed by Apple, IBM and Motorola (RISC based).

Power Mac - a family of Macs built around the PowerPC chip.

Print spooler - a program that stores documents to be printed on the hard drive, thereby freeing the memory up and allowing other functions to be performed while printing goes on in the background.

QuickTime - the Apple system extension that gives one the ability to compress, edit and play animation, movies and sound on the Mac.

RAM - acronym for Random-Access Memory.

Reset switch - a switch on the Mac that restarts the computer in the event of a crash or freeze.

Resize box - the small square at the lower right corner of a window which, when dragged, resizes the window.

RISC - acronym for Reduced Instruction Set Computing; the smaller set of commands used by the PowerPC and Power Mac.

ROM - acronym for Read Only Memory; memory that can only be read from and not written to.

Root directory - the main hard drive window.

Save - to write a file onto a disk.

Save as - (a File menu item) to save a previously saved file in a new location and/or with a new name.

Scroll - to shift the contents of a window to bring hidden items into view.

Scroll bar - a bar at the bottom or right side of a window that contains the scroll box and allows scrolling.

Scroll box - the box in a scroll bar that is used to navigate through a window.

SCSI - acronym for Small Computer System Interface.

SCSI address - a number between zero and seven that must be unique to each device in a SCSI chain. Fast and Wide SCSI devices will allow up to 15 SCSI Ids (hexadecimal); however, the length restriction (3 meters) is such that it is virtually impossible to link 15 devices together.

SCSI port - a 25 pin connector on the back of a Mac (native SCSI port); used to connect SCSI devices to the CPU. Some SCSI cards (like the ATTO) have a 68 pin connector.

SCSI terminator - a device placed at the end of a SCSI chain to complete the circuit. (some SCSI devices are self-terminating, or have active termination and do not require this plug).

Serial port - a port that allows data to be transmitted in a series (one after the other), such as the printer and modem ports on a Mac.

Server - a central computer dedicated to sending and receiving data from other computers (on a network).

Shut down - the command from the Special menu that shuts down the Mac safely.

Software - files on disk that contains instructions for a computer.

Spreadsheet - a program designed to look like an electronic ledger.

Start-up disk - the disk containing system software and is designated to be used to start the computer.

Surge suppressor - a power strip that has circuits designed to reduce the effects of surge in electrical power. (not the same as a UPS)

System file - a file in the System folder that allows your Mac to start and run.

System folder - an all-important folder that contains at least the System file and the Finder.

32 bit addressing - a feature that allows the Mac to recognize and use more than 8MB of memory.

Title bar - the horizontal bar at the top of a window which has the name of the file or folder it represents.

Upload - to send a file from one computer to another through a network.

Uninterruptible Power Source (UPS)- a constantly charging battery pack which powers the computer. A UPS should have enough charge to power your computer for several minutes in the event of a total power failure, giving you time to save your work and safely shut down.

UPS - acronym for Uninterruptible Power Source.

Vaporware - "software" advertised, and sometimes sold, that does not yet exist in a releasable for.

Virtual memory - using part of your hard drive as though it were "RAM".

WORM - acronym for Write Once-Read Many; an optical disk that can only be written to once (like a CD-ROM).

Zoom box - a small square in the upper right corner of a window which, when clicked, will expand the window to fill the whole screen.