

[illegible]



**Examining body:** OCR

**Course overview:**

You will cover the following in GCSE Computing:

- 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
- Acquire and apply creative and technical skills, knowledge and understanding of ICT 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.

## Course Summary:

Unit title and description	Assessment and duration	Weighting
<b>Unit A451: Computer systems and programming</b> This unit covers the body of knowledge about computer systems on which the examination will be based.	1 hour 30 minutes Written paper 80 marks	40%
<b>Unit A452: Practical investigation</b> An investigative computing task, chosen from a list provided by OCR, Controlled assessment which assesses the following: research, technical understanding, analysis of problem, historical perspective, use of technical writing skills, recommendations/evaluation.	Investigative task. OCR-set scenario with a choice of research tasks. 45 marks	30%
<b>Unit A453: Programming Project</b> Students will need to: <ul style="list-style-type: none"> <li>• Understand standard programming techniques</li> <li>• Be able to design a coded solution to a problem including the ability to:                             <ul style="list-style-type: none"> <li>- Develop suitable algorithms</li> <li>- Design suitable input and output formats</li> <li>- Identify suitable variables and structures</li> <li>- Identify test procedures.</li> </ul> </li> <li>• Create a coded solution fully annotating the developed code to explain its function</li> <li>• Test their solution:                             <ul style="list-style-type: none"> <li>- To show functionality</li> <li>- To show how it matches the design criteria</li> <li>- Identifying successes and any limitations.</li> </ul> </li> </ul>	Controlled assessment Programming task. Design, develop and test a solution to a problem within the OCR-set scenario. 45 marks	30%
<b>ASSESSMENT OBJECTIVES</b> Students are expected to demonstrate the following: <ul style="list-style-type: none"> <li>• AO1 Recall, select and communicate their knowledge and understanding of computer technology</li> <li>• AO2 Apply knowledge, understanding and skills to solve problems by using computer programs</li> <li>• AO3 Analyse and evaluate, make reasoned judgements and present conclusions.</li> </ul>		

## Assessment:

Unit 1: Computer systems and Programming, Written exam paper, 1h 30m, 40% of the qualification.

Unit 2: Practical Investigation, Controlled Assessment (timed coursework task), 30% of the qualification.

Unit 3: Programming project, Controlled Assessment (timed coursework task), 30% of the qualification.

Unit	% of GCSE			Total
	AO1	AO2	AO3	
Unit A451: <i>Computing systems and programming</i>	21	14	5	40%
Unit A452: <i>Practical investigation</i>	4	18	8	30%
Unit A453: <i>Programming project</i>	5	16	9	30%
<b>Total</b>	<b>30</b>	<b>48</b>	<b>22</b>	<b>100%</b>

## 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 Computing 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:

- Gives learners a real, in-depth understanding of how computer technology works
- Provides excellent preparation for higher study and employment in Computer Science
- Develop critical thinking, analysis and problem-solving skills.

"Computer Science is educationally important. Just as we give every student the opportunity to learn the workings of physics, chemistry, and biology, because they live in a physical, chemical, biological world, so we should offer every student the opportunity to learn the workings of the digital systems 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 Computing 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.

Learners who have taken a Computing GCSE and who then progress to study the subject at A Level or university will have a sound underpinning knowledge of this subject area.

### **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 and Year 8 students.
- Access to Raspberry Pi's and Makey Makey's.

## Course overview

Unit A451	<i>Computer systems and programming</i>
Written paper 1 hour 30 mins 80 marks 40% of the qualification	Candidates answer all questions.  Question paper that includes a mixture of short and long answer questions, some of which will require candidates to write program code.

### Plus

Unit A452	<i>Practical investigation</i>
Controlled assessment An investigative task Approx 20 hours 45 marks 30% of the qualification	Candidates carry out a practical investigation of a topic chosen from a set of options supplied by OCR.

### Plus

Unit A453	<i>Programming project</i>
Controlled assessment Approx 20 hours 45 marks 30% of the qualification	Candidates create solutions to computing tasks from a set of options supplied by OCR.

## Grading and awarding grades

GCSE results are awarded on the scale A\* to G. Units are awarded a\* to g. Grades are indicated on certificates. However, results for candidates who fail to achieve the minimum grade (G or g) will be recorded as unclassified (U or u) and this is not certificated.

Most GCSEs are unitised schemes. When working out candidates' overall grades OCR needs to be able to compare performance on the same unit in different series when different grade boundaries may have been set, and between different units. OCR uses a Uniform Mark Scale to enable this to be done.

A candidate's uniform mark for each unit is calculated from the candidate's raw mark on that unit. The raw mark boundary marks are converted to the equivalent uniform mark boundary. Marks between grade boundaries are converted on a pro rata basis.

When unit results are issued, the candidate's unit grade and uniform mark are given. The uniform mark is shown out of the maximum uniform mark for the unit, e.g. 100/120.

The specification is graded on a Uniform Mark Scale. The uniform mark thresholds for each of the assessments are shown below:

(GCSE) Unit Weighting	Maximum Unit Uniform Mark	Unit Grade								
		a*	a	b	c	d	e	f	g	u
40%	120	108	96	84	72	60	48	36	24	0
30%	90	81	72	63	54	45	36	27	18	0

A candidate's uniform marks for each unit are aggregated and grades for the specification are generated on the following scale:

Qualification	Maximum Uniform Mark	Unit Grade								
		A*	A	B	C	D	E	F	G	U
GCSE	300	270	240	210	180	150	120	90	60	0

The written paper will have a total weighting of 40% and controlled assessment a weighting of 60%.

A candidate's uniform mark for each paper will be combined with the uniform marks for the controlled assessments to give a total uniform mark for the specification. The candidate's grade will be determined by the total uniform mark.

## Grade Descriptors

Grade descriptions are provided to give a general indication of the standards of achievement likely to have been shown by candidates awarded particular grades. The descriptions must be interpreted in relation to the content in the specification; they are not designed to define that content. The grade awarded will depend in practice upon the extent to which the candidate has met the assessment objectives overall. Shortcomings in some aspects of the assessment may be balanced by better performance in others.

The grade descriptors have been produced by the regulatory authorities in collaboration with the awarding bodies.

### • **Grade F**

- Candidates recall, select and communicate a basic knowledge and understanding computer hardware, software and other related technologies.
- They identify, with guidance, the information relevant to solve them from the context of the problem.
- They apply limited knowledge, understanding and skills to design and implement basic computer programs which solve these problems. In their solutions they use simple models, collect some necessary data, use simple instructions to process the data and present the results.
- They sometimes review their work and provide comments on how they and others use computer technology to solve problems and make simple modifications to improve their work.
- Candidates demonstrate some awareness of the need for safe, secure and responsible practices.
- They use ICT to communicate, demonstrating limited awareness of purpose and audience.

### • **Grade C**



- Candidates recall, select and communicate a good knowledge and understanding of the function, application merits and implications of a range of computer hardware, software and other related technologies.
- They analyse problems, identifying and collecting some information relevant to solve them from the context of the problem.
- They apply knowledge, understanding and skills to design and implement computer programs which solve these problems. In their solutions, they model situations, acquire a input data, sequence instructions, manipulate and process data and present the results of the processing in a mostly appropriate format.
- They review their work and evaluate the way they and others use computer technology to solve problems and make improvements on their work where appropriate.
- Candidates work using safe, secure and responsible practices. They use ICT to communicate, demonstrating consideration of purpose and audience

- **Grade A**
- Candidates recall, select and communicate a thorough knowledge and understanding of the function, application, merits and implications of a broad range of computer hardware, software and other related technologies.
- They systematically analyse problems, identifying and collecting the information required to solve them from the context of the problem. They apply knowledge, understanding and skills to design and implement effective computer programs which solve these problems. In their solutions, they effectively model situations, acquire and validate input data, sequence instructions, manipulate and process data and present the results of the processing in an appropriate format.
- They work systematically and critically evaluate the way they and others use computer technology to solve problems. They iteratively review their work and make improvements where appropriate.
- Candidates work systematically and understand and adopt safe, secure and responsible practices. They use ICT to communicate effectively, demonstrating a clear sense of purpose and audience.

## Quality of written communication

Quality of written communication is assessed in all units.

Candidates are expected to:

- ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear
- present information in a form that suits its purpose
- use a suitable structure and style of writing

## Progression:

The GCSE can lead to further study onto the AS and A-Level Computing and higher education to Computer Science-related study at degree level.



Study of Computing can eventually lead to employment in Software Development, Video Games Design, Database Development, Network Management, IT Consultancy and many other areas.

**Find out more:**

Full course specification is at: <http://www.ocr.org.uk/qualifications/gcse-computing-j275-from-2012/>

For some fun taster activities:

<http://www.cs4fn.org/>

Further information about Computing in Schools:

<http://www.computingschool.org.uk/>

Intro to coding

[www.codeacademy.com](http://www.codeacademy.com)

Text Book:

OCR Computing for GCSE

Sean O'Byrne and George Rouse

ISBN 978 1 444 17779 4

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/ocr/GCSE_A451_topics.html)
- [http://www.teach-ict.com/gcse\\_computing/gcse\\_computing\\_quizzes.htm](http://www.teach-ict.com/gcse_computing/gcse_computing_quizzes.htm)
- <http://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.

- <http://www.bbc.com/news/technology/>
- <http://www.wired.com/>
- [www.cnet.co.uk/](http://www.cnet.co.uk/)

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.codecademy.com](http://www.codecademy.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 Hussain [Shahid.Hussain@chelsea-academy.org](mailto:Shahid.Hussain@chelsea-academy.org)

Mr O'Brien [Patrick.O'Brien@chelsea-academy.org](mailto:Patrick.O'Brien@chelsea-academy.org)



**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 active 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 Mac's 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 computers original operating system; most commonly used when talking about the PowerPC can run software written for either the 80x0 systems, or the PowerPC's 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 form.

**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.