

# Computer Studies



# Computer Studies

## Years 12 – 13

### SĀMOA SECONDARY SCHOOL CURRICULUM

Curriculum Materials and Assessment Division

Ministry of Education, Sports and Culture

This curriculum statement was prepared by the Computer Studies Subject Committee:

Sieni Fiti - CCWS

Makerita Su'a Leota - A'ana 1 Secondary School

Sega Asafo - Sāmoa College

Soane Malia Pulotu -Channel College

Tautalaaso T Seru - Avelle College

Catherine Tusiane - Avoka Girls College

Falefasa Vaotu'ua - Wesley College

Sisavai'i Papali'i- Congregational Senior College

(the late) Aovai Esera - Saint Mary's College

Eteuati Korua - Adventist College

Saofaigali'i Lowe - Vaiola College

Sinalei Tuitagalevao - NUS

Rosemary Esera - MESC

Sui Timoteo - MESC

Sui Timoteo was the CMAD subject contact person and Ioana Chan Mow was the NZAID subject adviser.

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# INTRODUCTION

## BACKGROUND

The Computer Studies Curriculum was developed for students in Years 12 and 13 (ages 15-18) and the basic assumption is that these students have no prior knowledge of computers. However, the diverse level of computer skills of children at present in schools must be taken into consideration.

## THE SITUATION

The development of information technology in Sāmoa is still in its infancy. Sāmoa, being a third world country, faces the same problems as other developing nations. These include lack of resources, the lack of expertise and limited infrastructure. However, it is promising to note that at the time of writing of this document the National ICT Steering Committee is in the process of developing the National ICT policies and strategies.

Although computer technology is still relatively new to Sāmoa, there is a growing awareness within the local community of the value of technology for improved communication and for improving efficiency and productivity.

The value of computer skills has been accentuated even further by the fact that most jobs in the workplace now require computer literacy especially in the main computer applications: spreadsheets, word processing and databases. Students possessing computer skills can make valuable contributions to the community as they can use these skills for conducting research, for storage of valuable information and for more efficient communication.

Computer Studies culminates in a regional PSSC examination. The Year 12 examination is a future development that the Ministry will undertake.

Computer Studies is a resource intensive subject area and for the implementation of a national curriculum to be successful the curriculum needs to go hand in hand with proper technology, planning and teacher training. The successful implementation and sustainability of the curriculum is dependent on adequate technology support in the form of provision of computer maintenance and help desk utilities to ensure an infrastructure which is continuously operational.

Standards for hardware and software have been established by the MESC to support planning and maintenance of schools' computing technology resources.

## **POLICY DOCUMENTS**

The Policy Documents which guide and influence the development of the Years 12 and 13 Computer Studies curriculum are listed below.

- 1) *National ICT Policy Framework and Strategies*
- 2) *Sāmoa Secondary School Curriculum: Curriculum Overview Document, July 1998*
- 3) *SPBEA Year 13 PSSC Prescription*
- 4) *Year 12 Computer Studies Prescription (2001 workshop)*
- 5) *Ministry of Education, Sports and Culture policies and procedures in relation to ICT*

## **SCOPE OF THE CURRICULUM**

This Computer Studies curriculum is for Years 12 and 13 and has been designed for use by all secondary schools in Sāmoa who have opted to include Computer Studies as a subject option in their Year 12 and 13 courses. The curriculum caters for all students at these levels irrespective of gender, belief, ethnic, social and cultural background.

Due to the dynamic and changing nature of computer technology, this curriculum statement needs to be reviewed and evaluated periodically in order to reflect and suit ICT influences and trends. It is also assumed that this curriculum statement, since it is designed with the current situation in mind, will be implemented immediately.

# THE COMPUTER STUDIES CURRICULUM STATEMENT

## ORGANISATION

The Curriculum Statement establishes the knowledge and skills students are expected to develop in years 12 and 13. In line with the structure of all other national Subject Curriculum Statements, the Year 12 and 13 Computer Studies Curriculum Statement is organised to show:

- The general aims of the subject curriculum.
- The organising strands of the curriculum.
- The specific aims of these strands and the achievement objectives for each year level.
- Learning outcomes for each achievement objective.

Furthermore, as a guide to teaching coverage, where a learning outcome is achieved by a range of activities or commands, ranges are assigned to denote the spectrum of activities required to achieve a specific learning outcome.

The current curriculum is structured such that core topics covered in Year 12 are again revised, reinforced and extended in Year 13. It is felt that this structuring best suits the current situation in Sāmoa and accommodates the following factors:

- *Integration of technology is still in its early stages in Sāmoa and the emphasis is on promoting computer literacy and skills.*
- *Most students do not have computers at home and exposure and contact with computers is limited to time within the Computer Studies scheduled hours. Coverage of some of the key skills requires more exposure than at Year 12. They need to be reinforced and extended in the Year 13 curriculum.*
- *Flexibility in the curriculum at Year 13 is provided by the inclusion of optional strands to cater for the diverse skills and backgrounds of teachers and students alike.*
- *It is expected that as the baseline skills of students develop, the focus of the curriculum will be on the promotion of problem solving and critical thinking.*

## CONCEPTUAL FRAMEWORK

The long-term goal of this Computer Studies curriculum is for students to use the tools of computer technology with skill, in an ethical, accurate and insightful manner to meet the needs of the 21st century school room and workplace, but within the framework of Sāmoan culture and society. This goal is to be achieved through the following general aims of the curriculum.

## GENERAL AIMS

The general aims of Years 12 and 13 Computer Studies Curriculum Statement are listed below and reflect the concepts and skills this curriculum sets out to promote and achieve.

The proposed curriculum aims to:

- *Develop a good understanding of basic computer terminology, key concepts and competency in the use and operation of a computer.*
- *Develop knowledge and proficiency in the major software types (both system and application software).*
- *Develop an understanding of ethical, cultural and social issues related to computer technology.*
- *Promote responsible use of computer technology.*
- *Develop positive student attitudes towards computer use that support lifelong learning and productivity.*
- *Develop knowledge and proficiency in using computer programs as a tool to aid learning, increase productivity and promote creativity.*
- *Cultivate an appreciation and awareness of the usefulness of computers in optimising careers and everyday living.*
- *Develop higher learning and critical thinking skills by the use of computer technology resources for problem solving and for making informed decisions.*
- *Develop strategies for problem solving which can be transferred to real life situations.*

## APPROACHES TO TEACHING AND LEARNING

The Years 12 and 13 Computer Studies curriculum is concerned with developing mastery of the common computer applications and consequently the predominant teaching approach is drill and practice. However, a range of other approaches are used to ensure the promotion of active learning and the provision of a stimulating learning environment for the students.

The development of critical thinking and problem solving skills is fostered through the inclusion of programming, spreadsheets and databases and the use of inquiry based approaches. The use of a project-based approach to learning is incorporated in strands such as the Internet, Computer Graphics and Desktop Publishing. Active and authentic learning is promoted through strands such as Data Integration between Computer Applications and the Desktop Publishing presentations.

To promote effective learning, teachers are encouraged and expected to incorporate the following into their repertoire of teaching strategies.

- *Students should be encouraged to discover knowledge for themselves and classroom exercises should be structured so that students can construct their own learning. These constructivist practices are to encourage students to be active learners and to be in control of their learning.*
- *Collaborative learning should be encouraged, where students can share ideas in discussions on class projects and problem solve in areas such as databases, programming and spreadsheets. Through collaboration students can help each other with their learning, develop improved esteem and confidence and foster social interactions. Furthermore, with collaboration, students can share computers which alleviates the chronic problem of computer shortage.*
- *Class exercises and activities such as projects should be structured to promote independent learning by students. Furthermore, they should promote critical thinking and reflection by students on what they have learnt.*

## **RECOMMENDED TEXTS**

### **Spreadsheet Skills**

*by: Lois Anderson and David Esterman*

*Publisher: The Macmillian Company of New Zealand Ltd*

*ISBN: 0333 41656 2*

### **Database Skills**

*by: Lois Anderson and David Esterman*

*Publisher: The MacMillian Company of New Zealand Ltd*

*ISBN: 0333 41660 0*

### **Spreadsheet Projects in Excel for Advanced Level**

*by: Julian Mott and Ian Rendell*

*Publisher: Hodder & Stoughton Education*

*ISBN: 0 340 80007 0*

### **Database Projects in Access for Advanced Level**

*by: Julian Mott and Ian Rendell*

*Publisher: Hodder & Stoughton Education*

*ISBN: 0 340 80007 0*

### **Click on to Computing**

*by: Julia Hallas*

*Publisher: Pearson Education New Zealand Limited*

*ISBN : 0582 71894 5*

## **GENDER ISSUES**

The *Sāmoa Secondary School Curriculum Overview Document* requires education to be gender inclusive. Materials should use gender-neutral language where possible. Hence teachers need to ensure that all teaching practices and activities support this principle.

## **ASSESSMENT AND EVALUATION**

Assessment is the process of gathering meaningful information which is used to make judgments on aspects of the learning cycle such as learners' performance against the achievement objectives, and the quality and effectiveness of learning programmes. Assessment and evaluation of teaching and learning of Computer Studies must reflect the principles in the *Sāmoa Secondary School Curriculum Overview Document*.

The National Curriculum recognizes the relationship between the principles and purposes of the curriculum and methods of assessment. Assessment methods are an important factor in influencing and constraining teaching methods. The things that are assessed are seen as important. The Years 12 and 13 Curriculum Statement employs a range of teaching approaches and therefore the assessment and evaluation procedures need to reflect the nature of Computer Studies at these introductory levels. The way assessment is conducted emphasises the need to gain the skills that are assessed. Written examinations focus on the narrow range of knowledge and skills that can be assessed in written forms. The domination of assessment by pen and paper examinations legitimises the focus on a narrow range of skills and as a result confirms a narrow range of teaching methods.

It is important therefore that:

- *a range of assessment procedures is used to provide useful information on students' progress against the achievement objectives stated in the curriculum;*
- *skills and knowledge such as independent inquiry and many practical skills need to be assessed. These are not easily assessed by examination and need to be assessed through school-based activities such as research projects and assignments;*
- *assessment and evaluation are ongoing and help improve the ways in which Computer Studies programmes are meeting the students' needs;*
- *where appropriate, families and communities be involved as participants in the assessment and evaluation process;*
- *students be involved in the assessment of their own progress in learning Computer Studies.*

Effective Assessment needs to:

- *be valid, reliable and authentic;*
- *help students and teachers focus better on learning;*
- *involve students in worthwhile activities;*
- *be rewarding in terms of offering guidance about progress and skills;*
- *give feedback on how and why a student understands or misunderstands and what direction the student must take to improve.*

Teachers evaluating their programmes or units can use information from assessment. Evaluation is used to measure the success or otherwise of programmes or units. Evaluation requires a teacher to judge what worked well, how well the teaching improved students' learning and the things that need changing to improve the programme or unit for the future. Teachers should involve colleagues and students in the process of evaluation. Students should be asked for their feedback on how well the teaching programme or unit met their learning needs.

# FEATURES OF THE COMPUTER STUDIES CURRICULUM

The achievement objectives at each year level are minimal requirements for all students. From knowledge of their classes, individual teachers may wish to broaden the learning experiences at any year level for some or all of their students.

Consideration is also given to the approximate time in weeks that an average student might require in order to achieve the objectives, given the variety of backgrounds that the students may bring with them to Year 12. Allocations are based on a 3 - 4 hour week and a total of 28 teaching weeks per year.

<b>Year 12 Strands</b>	<b>No. of weeks</b>
Strand 1: <i>Personal Computer Systems and Management</i>	5
Strand 2: <i>Using Personal Computer Applications</i>	18
Strand 3: <i>Computer Graphics and Desktop Publishing</i>	5
<b>Total Weeks</b>	<b>28</b>

<b>Year 13 Strands</b>	<b>No. of weeks</b>
Strand 1: <i>Personal Computer Systems and Management</i>	5
Strand 2: <i>Using Personal Computer Applications</i>	12
Strand 3: <i>Programming Personal Computers</i>	7
Strand 4: <i>Data Integration between Computer Applications</i>	2
OPTIONS	2
Strand 5: <i>Desktop Publishing on a Personal Computer</i>	
Strand 6: <i>Using Personal Computers to make Computer Presentations</i>	
Strand 7: <i>The Internet</i>	
<b>Total Weeks</b>	<b>28</b>

The Committee felt that the tables on the previous page could be used as a rough working guide allowing for individual variation. This allocation would also allow time for revision and assessment.

The idea of coherent progression is central throughout the Computer Studies curriculum achievement objectives. Students are expected to achieve at a particular level before progressing to more complex objectives at higher levels. Because the students are achieving at each level there should only be a need for minimal revision when topics resume at the subsequent level.

# COMPUTER STUDIES

## STRANDS, AIMS, ACHIEVEMENT OBJECTIVES AND LEARNING OUTCOMES

YEARS 12

### **Pre-requisites**

*None*

### **Core Strands**

1. *Personal Computer Systems and Management*
2. *Using Personal Computer Applications*
3. *Computer Graphics and Desktop Publishing*

## **Personal Computer Systems and Management**

The aims of this strand are to train students in the basic skills of:

- *Handling personal computer hardware, ensuring all components operate as an integrated unit.*
- *Managing personal computer files through an ability to use the computer's operating system or file management software.*
- *Protecting files from all forms of corruption and understanding ethical issues.*
- *Keyboarding.*

### **1. PERSONAL COMPUTER SYSTEM AND MANAGEMENT**

#### **Achievement Objective 1.1**

Describe, operate and maintain the hardware components of a personal computer.

#### **Learning Outcomes**

Students should be able to:

- *Give a simple definition of each component and describe the interactions between the components;*  
**Range:** *central processing unit, memory, keyboard, mouse, disk drive video display;*
- *Describe and maintain the environmental conditions required by a computer system;*
- *Identify simple hardware faults;*  
**Range:** *power loss, loose or disconnected plugs;*
- *Discuss power supply problems in our country, the possible effects on personal computers, and steps that can be taken to overcome the problems;*  
**Range:** *Power surge, spikes, brown out, UPS.*

# Year 12 Strand 1

## Achievement Objective 1.2

Operate a personal computer printer.

### Learning Outcomes

Students should be able to:

- Describe the interaction between the printer and the CPU;
- Print data from an application software package;
- Explain simple printer error messages;
- Replace printer consumables according to the manufacturer's instructions;

**Range:** paper, ribbons;

- Identify simple hardware problems;

**Range:** power off, loose or disconnected plugs.

## Achievement Objective 1.3

Describe the purpose of an operating system.

### Learning Outcome

Students should be able to:

- Describe the personal computer's operating system.

## Achievement Objective 1.4

Describe how computer data is stored.

### Learning Outcomes

Students should be able to:

- Describe memory (RAM) and disk storage, their purposes and the flow of information between them;

- Explain storage concepts;

**Range:** bit and byte;

- Describe the relation between bits and bytes in terms of simple ASCII code and binary numbers.

## Achievement Objective 1.5

Perform operating system operations and system configurations.

### Learning Outcomes

Students should be able to:

- Turn the computer on and off, demonstrating a cold start, warm start and power down;

- Perform simple OS operations;

- Explain simple operating system error messages;

**Range:** date and time;

- Format a floppy disk;

- Change an active disk drive.

### Achievement Objective 1.6

Develop keyboarding skills

#### Learning Outcomes

Students should be able to:

- *Demonstrate how to correctly place their fingers on the home keys;*
- *Demonstrate how to correctly finger all the letters on the keyboard;*
- *Know the positions of each letter on the keyboard;*
- *Know the correct fingering of the following keys;*  
**Range:** *semi-colon, full-stop, comma, slash;*
- *Demonstrate the use of the shift key to produce capital letters;*
- *Demonstrate the correct way to turn on and off the Caps Lock key and demonstrate the typing of capital letters;*
- *Demonstrate the input of written information at a rate of 20 words per minute;*
- *Demonstrate the input of written information while looking at the monitor;*
- *Copy written information while looking at the text being copied;*
- *Demonstrate the correct fingering for the numbers zero to nine;*
- *Demonstrate the input of numeric information;*
- *Demonstrate the use of the mouse.*

### Achievement Objective 1.7

Describe personal computer software.

#### Learning Outcomes

Students should be able to:

- *Describe system and application software and their relationships;*
- *Describe common applications and their purposes;*  
**Range:** *word-processing, spreadsheet, database, desktop publishing, graphics, communications;*
- *Start a menu driven program and quit it.*

# Year 12 Strand 1

**Achievement Objective 1.8**  
Manage and protect computer files.

**Learning Outcomes**

Students should be able to:

- *Create, locate and display the contents of directories (folders);*
- *Use a simple text editor to create a file;*
- *Locate and view the contents of a file using an appropriate software application;*
- *Copy, rename and move files to different directories (folders) and delete a file;*
- *Demonstrate appropriate handling of floppy disks so as to avoid damage;*
- *Demonstrate anti-virus procedures to protect a personal computer.*

**Achievement Objective 1.9**  
Locate a computer file using file management procedures.

**Learning Outcomes**

Students should be able to:

- *Explain the use of meaningfully labelled directories (folders) and the advantages of grouping files within them;*
- *Navigate along a directory tree (folders hierarchy);*
- *Locate a file using available file name search utilities.*

**Achievement Objective 1.10**  
Explore ethical issues related to accessing data held in computer systems.

**Learning Outcomes**

Students should be able to:

- *Identify and discuss ethical issues;*  
**Range:** *individual privacy, corporate confidentiality, piracy, copyright;*
- *Demonstrate their responsibility to other people's data at all times.*

**Achievement Objective 1.11**  
Explore the impact of computers in society with specific reference to Sāmoa.

**Learning Outcome**

Students should be able to:

- *Identify and discuss the impact of computers in society with reference to Sāmoa in particular and possible effects on the culture.*

## Using Personal Computer Applications

The aims of this strand are to train students in the basic skills of:

- *Using a word processor.*
- *Using a spreadsheet.*
- *Using a flat-file database.*

## 2. PERSONAL COMPUTER APPLICATIONS

### WORD PROCESSING

#### Achievement Objective 2.1

Demonstrate an understanding of word-processing principles and terminology.

#### Learning Outcomes

Students should demonstrate understanding of:

- *The principles of word-processing;*  
*Range: document creation, retrieval editing, formatting, storing, printing;*
- *Current word-processing terms and be able to correctly interpret them;*  
*Range: spell check, thesaurus, wysiwyg;*
- *Word-processing software applications and be able to identify equipment options;*  
*Range: separate and integrated software applications, business and personal use applications, chip-based electronic typewriters;*
- *Font terminology and definition;*  
*Range: font, type, size (point), style, proportional and fixed spacing.*

#### Achievement Objective 2.2

Access and exit from a word-processing program and make equipment adjustments.

#### Learning Outcomes

Students should be able to:

- *Open and close files;*
- *Identify the menu options correctly;*  
*Range: retrieve, edit, format, save and print.*

# Year 12 Strand 2

## Achievement Objective 2.3

Use word-processing principles and functions to enter, edit and format text.

### Learning Outcomes

Students should be able to:

- *Demonstrate their ability to use the cursor and insert/type-over functions;*
- *Enter and edit text;*  
**Range:** *cut, copy, paste, drag and drop, backspace, delete, undo, redo;*
- *Format text;*  
**Range:** *bold, underline, italic, alignment, increase indent, decrease indent, bullets and numbering, paragraph, line spacing;*
- *Select appropriate fonts.*

## Achievement Objective 2.4

Use word-processing principles and functions to operate system features and produce files.

### Learning Outcomes

Students should be able to:

- *Use the help facility;*
- *Produce files that incorporate text manipulation required by 2.3;*
- *Block, move, and copy text;*
- *Use search, find and replace options;*
- *Use tabulation options;*
- *Use spell checking and dictionary options;*
- *Insert tables.*

## Achievement Objective 2.5

Use word-processing data security procedures.

### Learning Outcome

Students should be able to:

- *Understand that files should be regularly saved while working.*

## Achievement Objective 2.6

Use word-processing file manipulation techniques.

### Learning Outcomes

Students should be able to:

- *Carry out a range of file manipulation procedures;*  
**Range:** *create, save, edit, rename, (save as) copy, delete, close document windows;*
- *Operate file management systems within the application.*

**Achievement Objective 2.7**

Preview and print word-processing files.

**Learning Outcomes**

Students should be able to:

- *Use print preview if available;*
- *Print a document.*

**SPREADSHEETS:**

**Achievement Objective 2.8**

Demonstrate knowledge and uses of spreadsheets.

**Learning Outcomes**

Students should be able to:

- *Describe the advantages of using a spreadsheet;*
- *Reference a cell;*
- *Identify cell types;*  
*Range: labels, value, formulae;*
- *Demonstrate the ability to move the cursor about the spreadsheet;*
- *Identify different spreadsheet programs.*

**Achievement Objective 2.9**

Produce a simple spreadsheet file containing labels, values and mathematical formulae.

**Learning Outcomes**

Students should be able to:

- *Load and exit a spreadsheet program;*
- *Use online help where available;*
- *Use spreadsheet functions to enter, edit and calculate values;*  
*Range: Function: SUM, AVERAGE, COUNT;*  
*Operators: addition, subtraction, multiplication, division:  
to be used in calculations;*  
*Formula: relative cell addresses;*  
*Format: cell width, alignment, text and number format  
(decimal and dollar);*
- *Create a proper spreadsheet layout;*

# Year 12 Strand 2

## **Achievement Objective 2.10**

Manage spreadsheet files.

### **Learning Outcomes**

Students should be able to:

- *Demonstrate the ability to manage files;*  
*Range: create, name, save, copy, rename, abandon changes, locate directions (folders), display directory (folder) contents, locate files;*
- *Demonstrate data-integrity practices;*  
*Range: compare data with source, use check totals;*
- *Print a page;*

## **Achievement Objective 2.11**

Manipulate data in a spreadsheet.

### **Learning Outcome**

Students should be able to:

- *Graph cell ranges (column, bar) within a spreadsheets using default settings.*

## **DATABASES**

### **Achievement Objective 2.12**

Demonstrate knowledge of the uses and features of databases.

### **Learning Outcomes**

Students should be able to:

- *Describe the advantages of using a database;*
- *Describe a flat-file as a table of rows (records) and columns (fields);*
- *Identify field sizes and type;*  
*Range: text, number; formula, date;*
- *Identify examples of database programs;*
- *Define a database management system;*
- *Differentiate between a database management system and a database file.*

### **Achievement Objective 2.13**

Manipulate data in a database.

### **Learning Outcomes**

Students should be able to:

- *Use online help;*
- *Filter a database alphabetically and numerically.*

**Achievement Objective 2.14**

Create a database using text numbers.

**Learning Outcomes**

Students should be able to:

- *Load and quit a database program;*
- *Apply database functions;*

*Range: create and edit records, browse the database, find simple data occurrences.*

**Achievement Objective 2.15**

Manage database files.

**Learning Outcomes**

Students should be able to:

- *Demonstrate file management techniques;*

*Range: create, name, save, copy rename, abandon changes, locate directories (folders), display directory (folder) contents, and locate files;*

- *Understand the need for data integrity practices.*

### **Computer Graphics and Desktop Publishing**

The aims of this strand are to train students in the basic skills of:

- *Planning the use of computer graphics applications.*
- *Drawing, painting and printing computer graphics.*
- *Desktop Publishing on a personal computer and producing basic documents.*

Note: The presentation must contain the use of the following tools: line, oval, rectangle, polygon, curve and text; and the following painting tools: brush, pencil, spray, fill tool. These requirements could be demonstrated by producing an advertisement, book illustration, logo, etc.

### **3. COMPUTER GRAPHICS AND DESKTOP PUBLISHING**

#### **Achievement Objective 3.1**

Plan the use of a computer graphics application and show basic drawing skills.

##### **Learning Outcomes**

Students should be able to:

- *Plan the steps required to produce graphics.*
- *Demonstrate basic drawing skills:*

*Range: line, oval, circle, rectangle, square, polygon, curve, text.*

#### **Achievement Objective 3.2**

Draw computer graphics.

##### **Learning Outcomes**

Students should be able to:

- *Use graphics to represent what is planned;*
- *Use graphics to demonstrate transformed images;*

*Range: move, resize, reshape, flip, rotate, modify level relative to other images, fill, modify line weight, delete.*

**Achievement Objective 3.3**

Paint a computer graphic.

**Learning Outcomes**

Students should be able to:

- *Use graphics to demonstrate painting skills;*  
*Range: brush, pencil, spray, erase;*
- *Demonstrate transformed painted graphics;*  
*Range: move, fill, erase.*

**Achievement Objective 3.4**

Print computer graphics.

**Learning Outcomes**

Students should be able to:

- *Prepare graphic by previewing and printing using a suitable page orientation;*
- *Set the printer to the appropriate resolution to print the graphic.*

**Achievement Objective 3.5**

Demonstrate knowledge of the uses and features of Desktop Publishing on a personal computer

**Learning Outcomes**

Students should be able to:

- *Identify uses for Desktop Publishing;*
- *Demonstrate the principles of page layout appropriate to the document being produced;*
- *Identify Desktop Publishing applications, e.g. PageMaker, Ventura, Publisher, etc.*

**Achievement Objective 3.6**

Produce Desktop Publishing documents.

**Learning Outcomes**

Students should be able to:

- *Load and quit a Desktop Publishing program;*
- *Use the online help facility if available;*
- *Load a pre-formatted word-processed document into the Desktop Publishing document and edit and reformat appropriately;*
- *Insert a graphic; resize and move it to an appropriate place in the document.*
- *Use shapes, headlines, multi-columns, text flow and other available options to enhance the document.*
- *Add and remove pages as required without loss of essential data.*

# Year 12 Strand 3

**Achievement Objective 3.7**  
Manage Desktop Publishing files.

**Learning Outcomes**

Students should be able to:

- *Demonstrate the ability to manage files;*  
*Range: create, name, save, copy, rename, abandon changes, locate directories (folders), display directory (folder) contents, and locate files;*
- *Print documents.*
- *Open and close files*
- *Identify the menu options correctly*  
*Range: retrieve, edit, format, save and print*



# COMPUTER STUDIES

## STRANDS, AIMS, ACHIEVEMENT OBJECTIVES AND LEARNING OUTCOMES

### YEAR 13

#### **Pre-requisite**

*Students to have completed Year 12 Computer Studies*

#### **Core Strands (Compulsory)**

1. *Personal Computer Systems and Management*
2. *Using Personal Computer Applications*
3. *Programming Personal Computers*
4. *Data Integration Between Computer Applications*

#### **Optional Strands (Choose ONE)**

5. *Desktop Publishing on a Personal Computer*
6. *Using Personal Computers to Make Computer Presentations*
7. *The Internet.*

The course is 1 year in duration.

### Personal Computer Systems and Management

The aims of this strand are to train students in the basic skills of:

- *Handling personal computer hardware, ensuring all components operate as an integrated unit.*
- *Managing personal computer files through an ability to use the computer's operating system or file management software.*
- *Protecting files from all forms of corruption and understanding ethical issues.*

And also to give students an appreciation of:

- *The history of how computer hardware and software developed*

#### 1. PERSONAL COMPUTER SYSTEM AND MANAGEMENT

##### Achievement Objective 1.1

Describe, operate and maintain the hardware components of a personal computer.

##### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Give a sample definition of each component;*
- *Describe the interactions between components;*
- *Describe and maintain the environmental conditions required by the computer system;*
- *Identify simple hardware faults;*
- *Discuss power supply problems in our country, the possible effects on personal computers, and steps that can be taken to overcome the problems.*

# Year 13 Strand 1

## **Achievement Objective 1.2**

Operate a personal computer printer.

### **Learning Outcomes**

Students should review and extend these from Year 12 and be able to:

- *Describe the interaction between the printer and CPU;*
- *Print data from an application software package;*
- *Explain simple printer error messages;*
- *Replace printer consumables according to the manufacturer's instructions;*
- *Identify simple hardware problems.*

## **Achievement Objective 1.3**

Describe the purpose of an operating system .

### **Learning Outcomes**

Students should be able to:

- *Describe the personal computer's operating system;*
- *Describe and compare DOS and Windows OS and networking vs. stand alone OS.*

## **Achievement Objective 1.4**

Describe how computer data is stored.

### **Learning Outcomes**

Students should be able to:

- *Describe the technology employed with memory and disk storage, their advantages and disadvantages;*
- *Describe the relation between bits and bytes in terms of simple ASCII code and binary numbers.*

## **Achievement Objective 1.5**

Perform operating system operations and system configurations.

### **Learning Outcomes**

Students should be able to:

- *Format a floppy disk;*
- *Create a systems floppy disk and boot the computer from it;*
- *Change an active disk drive;*
- *Perform print screen operations.*

**Achievement Objective 1.6**

Develop keyboarding skills.

**Learning Outcome**

Students should be able to:

- *Describe the use of keys in a QWERTY keyboard (and in particular, identify major keyboard areas).*

**Achievement Objective 1.7**

Describe personal computer software.

**Learning Outcomes**

Students must be able to:

- *Describe a computer program as a sequence of code;*
- *Name at least two common programming languages;*

**Achievement Objective 1.8**

Manage and protect computer files.

**Learning Outcomes**

Students must be able to:

- *Create, locate and display the contents of directories (folders);*
- *Locate and view the contents of a file using an appropriate software application;*
- *Use a simple text editor to create a file;*
- *Copy, rename and move files to different directories;*
- *Back up files;*
- *Demonstrate the use of anti-virus procedures to protect a personal computer.*

**Achievement Objective 1.9**

Locate computer files using file management procedures.

**Learning Outcomes**

Students must be able to:

- *Explain the use of meaningfully labelled directories (folders);*
- *Navigate along a directory tree (folder hierarchy);*
- *Locate files using available file name search utilities.*

**Achievement Objective 1.10**

Perform automated operations.

**Learning Outcomes**

Students must be able to:

- *Describe automated operations;*
- *Develop and run three automated operations.*

Year  
**13**  
Strand 1

**Achievement Objective 1.11**

Describe trends in computer technologies.

**Learning Outcome**

Students must be able to:

- *Identify and discuss the latest trends in computer technologies.*

**Achievement Objective 1.12**

Explore the interactions between computers and society including more general issues such as the digital divide.

**Learning Outcomes**

Students should be able to:

- *describe how technology interacts with society including issues such as the digital divide;*
- *identify and be aware of possible career opportunities in the field of computers.*

**Achievement Objective 1.13**

Describe the major hardware and software developments since 1970 that have produced the modern personal computer .

**Learning Outcome**

Students should be able to:

- *Describe the first early computers;*
- *Describe how certain hardware items were developed;*

**Range :** *Name four people who have been important in the development of personal computers since 1970.*

### Using Personal Computer Applications

The aims of this strand are to train students in the basic skills of:

- *Using a word processor.*
- *Using a spreadsheet.*
- *Using a flat-file database.*

## 2. PERSONAL COMPUTER APPLICATIONS

### WORD PROCESSING

#### Achievement Objective 2.1

Demonstrate an understanding of word-processing principles and terminology

#### Learning Outcomes

Students should review and extend from Year 12 the ability to demonstrate an understanding of:

- *The principles of word-processing;*  
*Range: document creation, retrieval editing, formatting, storing, printing;*
- *Current word-processing terms and be able to correctly interpret them;*  
*Range: mail-merge, spell check, thesaurus, wysiwyg, macros;*
- *Word-processing software applications and be able to identify the application and advantages of word processing;*  
*Range: separate and integrated software applications, business and personal use applications, chip-based electronic typewriters;*
- *Font terminology and definition;*  
*Range: font, type, size (point), style, proportional and fixed spacing.*

#### Achievement Objective 2.2

Access and exit from a word-processing program and make equipment adjustments.

#### Learning Outcomes

Students should be able to:

- *Open and close files;*
- *Use templates and wizards e.g. fax, memo report, web page;*
- *Identify the menu options correctly;*  
*Range: retrieve, edit, format, save and print.*

# Year 13 Strand 2

## Achievement Objective 2.3

Use word-processing principles and functions to enter, edit and format text.

### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Demonstrate their ability to use the cursor and insert/type-over functions;*
- *Enter and edit text e.g. cut, copy, paste, drag and drop, backspace, delete, undo, redo;*
- *Format text e.g. bold, underline, italic, alignment, increase indent, decrease indent, bullets and numbering, paragraph, line spacing, page numbering;*
- *Select appropriate fonts;*
- *Setting tabs, left, right centre and decimal.*

## Achievement Objective 2.4

Use word-processing principles and functions to operate system features and produce files.

### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Use the help facility;*
- *Produce files that incorporate text manipulation required by 2.3;*
- *Format a document using line and paragraph options;*  
**Range:** *borders and shading, line spacing;*
- *Create headers and footers;*
- *Block, move, and copy text;*
- *Use search, find and replace options;*
- *Create tables;*  
**Range:** *Delete, insert, alignment, merge;*
- *Use spell checking and dictionary options;*
- *Templates and wizards e.g. Fax, memo report, web page.*

## Achievement Objective 2.5

Use word-processing data security procedures.

### Learning Outcomes

Students should be able to:

- *Make back up files to a floppy disk and identify other system back up options;*
- *Understand that files should be saved while working;*

**Achievement Objective 2.6**

Use word-processing file manipulation techniques.

**Learning Outcomes**

Students should review Year 12 objectives and extend their ability to:

- *Carry out a range of file manipulation procedures;*  
*Range: create, save, edit, rename, (save as) copy, delete, close document windows;*
- *Operate file management systems within the application.*

**Achievement Objective 2.7**

Preview and print word-processing files.

**Learning Outcomes**

Students should be able to:

- *Use a print screen facility;*
- *Print a whole document, selected text, selected pages;*
- *Use different print orientations e.g. portrait, landscape.*

**SPREADSHEETS:**

**Achievement Objective 2.8**

Demonstrate knowledge and uses of spreadsheets.

**Learning Outcomes**

Students should review Year 12 objectives and extend their ability to:

- *Describe the advantages of using a spreadsheet;*
- *Reference a cell;*
- *Identify cell types;*  
*Range: labels, value, formulae;*
- *Demonstrate the ability to move the cursor about the spreadsheet;*
- *Identify different spreadsheet programs;*

# Year 13 Strand 2

## Achievement Objective 2.9

Produce a simple spreadsheet file containing labels, values and mathematical formulae.

### Learning Outcomes

Students should review from Year 12 and extend the ability to:

- *Load and exit spreadsheet programs;*
- *Use online help where available;*
- *Use spreadsheet functions to enter, edit and calculate values;*

**Range:** Function: SUM, AVERAGE, COUNT, IF, MAX, MIN, STDV;

*Operators: addition, subtraction, multiplication, division: as used in calculations;*

*Formula: absolute, relative cell and mixed cell addresses;*

*Format: cell width, alignment, text and number format (decimal and dollar) border;*

- *Create a proper spreadsheet layout.*
- *Edit a worksheet;*

**Range:** rename, insert, delete sheet.

## Achievement Objective 2.10

Manage spreadsheet files .

### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Demonstrate the ability to manage files;*

**Range:** create, name, save, copy, rename, abandon changes, locate directories (folders), display directory (folder) contents, locate files;

- *Cross-check data with the source;*
- *Print a page using appropriate page orientation (landscape, portrait).*

## Achievement Objective 2.11

Manipulate data in a spreadsheet.

### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Graph cell ranges within a spreadsheet using default settings;*

**Range:** column, bar;

- *Apply "what if" queries to a spreadsheet;*
- *Sort a range of data or a given column.*

## DATABASES

### Achievement Objective 2.12

Demonstrate knowledge of the uses and features of databases.

#### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Define a database;*
- *Describe the advantages of using a database;*  
*Range: integrity, redundancy, duplication;*
- *Describe a flat-file as a table of rows (records) and columns (fields)*
- *Identify field sizes, type, and primary key;*  
*Range: text, number, date-time, currency, auto number, Yes/No;*
- *Define a database management system, differentiate between a database file and a database management system.*

### Achievement Objective 2.13

Manipulate data in a database.

#### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Use online help;*
- *Sort the database;*  
*Range: Primary and secondary field;*
- *Apply a query using database logic functions;*  
*Range: AND, OR, simple and compound statements;*
- *Delete records and use other delete related commands;*  
*Range: undelete, zap, pack;*
- *Create a report using wizard and design views.*

### Achievement Objective 2.14

Create a database using text numbers and arithmetic formulae.

#### Learning Outcomes

Students should review Year 12 objectives and extend their ability to:

- *Load and exit a database program;*
- *Apply database functions;*  
*Range: create and edit records, browse the database, find simple data occurrence.*

Year  
**13**  
Strand 2

**Achievement Objective 2.15**

Manage database files.

**Learning Outcomes**

Students should review Year 12 objectives and extend their ability to:

- *Demonstrate file management techniques;*  
*Range: create, name, save, copy, rename, abandon changes, locate directories (folders), display directory (folder), contents, locate files;*
- *Understand the need for data integrity practice and understand the idea of redundancy;*
- *Demonstrate data-integrity practices;*  
*Range: compare data with source, input controls, use check totals;*
- *Print reports and query outputs.*

### Programming Personal Computers

The aim of this strand is to train students in the basic skills of:

- *Planning and writing a computer program from a structure diagram or flowchart.*

### 3. PROGRAMMING PERSONAL COMPUTERS

#### Achievement Objective 3.1

Demonstrate an understanding of computer programming principles and terminology.

##### Learning Outcomes

Students should be able to:

- *Define a computer program as a set of instructions written in a certain language;*
- *Describe the terms: high level language (Binary Codes), compiler, interpreter, source code, object code (executable file);*
- *Appreciate computer programs as a solution to a problem;*
- *Apply principles of logic flow in relation to problem solving;*
- *Briefly describe each of the following;*

**Range:** *machine code, assembler.*

#### Achievement Objective 3.2

Apply principles of planning for a computer program.

##### Learning Outcomes

Students should be able to:

- *Demonstrate problem specification using structure diagrams or flowcharts (algorithms);*
- *Research a problem in terms of its input / output requirements;*
- *Evaluate the suitability of developing a computer program to solve a problem;*

**Range:** *sequential flowchart, structure diagram, algorithm.*

### Achievement Objective 3.3

Code a program from a given structure diagram or flowchart.

#### Learning Outcomes

Students should be able to:

- *Create, define and use variables;*
- *Write computer code using a suitable text editor;*
- *Write program code which leads to the solution of the problem as specified;*
- *Understand the steps involve in writing, compiling and executing (run).*

# Year 13

## Strand 4

### Data Integration between Computer Applications

The aims of this strand are to train students in the basic skills of:

- *Combining data from word-processor, spreadsheet and database files.*
- *Integrating data from a range of sources in order to solve a problem.*

## 4. DATA INTEGRATION BETWEEN COMPUTER APPLICATIONS

### Achievement Objective 4.1

Combine data from word-processor, spreadsheet and database files.

#### Learning Outcomes

Students should be able to:

- *Cut and paste data from spreadsheet and database files to a word-processor;*
- *Cut and paste graphs to a word-processor file.*

### Achievement Objectives 4.2

Integrate data from a range of sources in order to solve a problem.

#### Learning Outcome

Students should be able to:

- *Select the best way to integrate data from a range of sources in order to solve a problem.*

# Year 13

## Optional Strands

### Strand 5

#### Desktop Publishing on a Personal Computer

The aim of this strand is to train students in the basic skills of:

- *Desktop Publishing on a personal computer and producing basic Desktop Publishing documents.*

This is an optional strand.

#### 5. DESKTOP PUBLISHING ON A PERSONAL COMPUTER

##### Achievement Objective 5.1

Demonstrate knowledge of the uses and features of desktop publishing on a personal computer.

##### Learning Outcomes

Students should be able to:

- *Identify uses for Desktop Publishing;*
- *Demonstrate the principles of page layout appropriate to the document being produced;*
- *Identify Desktop Publishing applications, e.g. PageMaker, Ventura, Publisher, etc.*

##### Achievement Objective 5.2

Produce Desktop Publishing documents.

##### Learning Outcomes

Students should be able to:

- *Load and quit a Desktop Publishing program;*
- *Use the online help facility if available;*
- *Load a pre-formatted word-processed document into the Desktop Publishing document and edit and reformat appropriately;*
- *Insert a graphic then resize and move it to an appropriate place in the document;*
- *Use shapes, headlines, multi-columns, text flow and other available options to enhance the document;*
- *Add and remove pages as required without loss of essential data.*

Year  
**13**  
Optional  
Strands

**Achievement Objective 5.3**  
Manage Desktop Publishing files.

**Learning Outcomes**

Students should be able to:

- *Demonstrate the ability to manage files;*  
*Range: create, name, save, copy, rename, abandon changes, locate directories (folders), display directory (folder) contents, and locate files;*
- *Print documents.*

## Optional Strands

### Strand 6

#### Using Personal Computers to make Computer Presentations

The aims of this strand are to train students in the basic skills of:

- *Using the features of computer applications in the presentation of a topic of the student's own choice;*
- *Planing work to use features of computer applications;*
- *Drawing together computer generated materials from a variety of applications into a single presentation on a selected topic;*
- *Identifying elements of sound practice in constructing materials for presentation;*
- *Presenting the topic.*

This is an optional strand.

Note: The presentation must contain text and graphics. The presentation technique can be by documentation, demonstration, computer presentation, or multi-media presentation.

## 6. USING PERSONAL COMPUTERS TO MAKE COMPUTER PRESENTATIONS

### Achievement Objective 6.1

Exploit the features of computer applications.

#### Learning Outcomes

Students should be able to:

- *Demonstrate and identify features of particular applications, which would be useful in the development of a presentation;*
- *Select features from applications which are to be incorporated into a presentation.*

### Achievement Objective 6.2

Plan work that is to exploit features of computer applications.

#### Learning Outcomes

Students should be able to:

- *Construct a paper plan for a presentation which identifies applications to be used in the development of material for presentation;*
- *Identify and select particular features of applications which are to be incorporated into the presentation.*

### Achievement Objective 6.3

Draw together computer generated materials.

#### Learning Outcomes

Students should be able to:

- *Construct elements of the presentations in appropriate applications;*
- *Organize the material within the files of the applications;*
- *Draw together material from the files of the applications to compile as a single complete presentation.*

### Achievement Objective 6.4

Identify elements of sound practice.

#### Learning Outcomes

Students should be able to:

- *List the decisions which were taken in the choices made in the construction process;*
- *Describe elements of sound practice which were considered during the construction process.*

### Achievement Objective 6.5

Present the topic.

#### Learning Outcome

The information must:

- *Be communicated to the target audience;*
- *Meet its design specifications.*

# Optional Strands

## Strand 7

### The Internet

The aims of this strand are to train students to:

- *Access and use the Internet for researching information.*
- *Plan, create, send, receive and save email messages.*

This is an optional strand.

## 7. THE INTERNET

### Achievement Objective 7.1

Explain what the Internet is.

#### Learning Outcomes

Students should be able to:

- *Describe the Internet as a network of networks;*
- *Explain what services are available on the Internet (email, file transfer, World Wide Web);*
- *Understand and develop an awareness of the advantages and disadvantages of using the Internet;*
- *Understand different file formats.*

### Achievement Objective 7.2

Demonstrate how to access the Internet.

#### Learning Outcomes

Students should be able to:

- *Connect to an Internet service provider;*
- *Start a web browser such as Internet Explorer to view web sites;*
- *Evaluate the appropriateness of a website.*

**Achievement Objective 7.3**

Demonstrate how to search for information.

**Learning Outcomes**

Students should be able to:

- *Describe what a search engine is and its use, giving examples;*
- *Use a search engine to search for information for research.*

**Achievement Objective 7.4**

Plan the use of email.

**Learning Outcomes**

Students should be able to:

- *Define and understand the use of email;*
- *Identify the program tools to exchange email messages.*

**Achievement Objective 7.5**

Create email.

**Learning Outcomes**

Students should be able to:

- *Identify and load email software;*
- *Write message headers and appropriate content;*
- *Address messages correctly;*  
*Range: single and multiple recipients;*
- *Attach a document to the email message.*

**Achievement Objective 7.6**

Send, receive, organize and save email.

**Learning Outcomes**

Students should be able to:

- *Send email and ensure the message has been sent;*

# **COMPUTER STUDIES**

**STRANDS, AIMS  
AND ACHIEVEMENT OBJECTIVES**

**YEARS 12 AND 13**

# STRANDS, AIMS AND ACHIEVEMENT OBJECTIVES FOR YEAR 12

## Year 12 Strands Aims and Achievement Objectives

### STRAND 1:

#### PERSONAL COMPUTER SYSTEMS AND MANAGEMENT

The aims of this strand are to train students in the basic skills of

- Handling personal computer hardware, ensuring all components operate as an integrated unit.
- Managing personal computer files through an ability to use the computer's operating system or file management software.
- Protecting files from all forms of corruption and understanding ethical issues.
- Key boarding.

#### Achievement Objectives

- 1.1 *Describe, operate and maintain the hardware components of a personal computer.*
- 1.2 *Operate a personal computer printer.*
- 1.3 *Describe the purpose of an operating system.*
- 1.4 *Describe how computer data is stored.*
- 1.5 *Perform operating system operations and system configurations.*
- 1.6 *Develop keyboarding skills.*
- 1.7 *Describe personal computer software.*
- 1.8 *Manage and protect computer files.*
- 1.9 *Locate a computer file using file management procedures.*
- 1.10 *Explore ethical issues related to accessing data held in computer systems.*
- 1.11 *Explore the impact of computers in society with special relevance to Sāmoa.*

### STRAND 2:

#### USING PERSONAL COMPUTER APPLICATIONS

The aims of this strand are to train students in the basic skills of:

- Using a word processor.
- Using a spreadsheet.
- Using a flat-file database.

**Year  
12  
Strands  
Aims  
and  
Achievement  
Objectives**

**Achievement Objectives**

- 2.1 *Demonstrate an understanding of word-processing principles and terminology.*
- 2.2 *Access and exit from a word-processing program and make equipment adjustments.*
- 2.3 *Use word-processing principles and functions to enter, edit and format text.*
- 2.4 *Use word-processing principles and functions to operate system features and produce files.*
- 2.5 *Use word-processing data security procedures.*
- 2.6 *Use word-processing file manipulation techniques.*
- 2.7 *Preview and print word-processing files.*
- 2.8 *Demonstrate knowledge and uses of spreadsheets.*
- 2.9 *Produce a simple spreadsheet file containing labels, values and mathematical formulae.*
- 2.10 *Manage spreadsheet files.*
- 2.11 *Manipulate data in a spreadsheet.*
- 2.12 *Demonstrate knowledge of the uses and features of databases.*
- 2.13 *Manipulate data in a database.*
- 2.14 *Create a database using text numbers.*
- 2.15 *Manage database files.*

**STRAND 3:**

**COMPUTER GRAPHICS AND DESKTOP PUBLISHING**

The aims of this strand are to train students in the basic skills of:

- Planning the use of computer graphics applications.
- Drawing, painting and printing computer graphics.
- Desktop Publishing on a personal computer and producing a basic documents.

**Achievement Objectives**

- 3.1 *Plan the use of a computer graphics application and show basic drawing skills.*
- 3.2 *Draw computer graphics.*
- 3.3 *Paint a computer graphic.*
- 3.4 *Print computer graphics.*
- 3.5 *Demonstrate knowledge of the uses and features of desktop publishing on a personal computer.*
- 3.6 *Produce Desktop Publishing documents.*
- 3.7 *Manage Desktop Publishing files.*

# STRANDS, AIMS AND ACHIEVEMENT OBJECTIVES FOR YEAR 13

## Year 13 Strands Aims and Achievement Objectives

### STRAND 1:

#### PERSONAL COMPUTER SYSTEMS AND MANAGEMENT

The aims of this strand are to train students in the basic skills of

- Handling personal computer hardware, ensuring all components operate as an integrated unit.
- Managing personal computer files through an ability to use the computer's operating system or file management software.
- Protecting files from all forms of corruption and understanding ethical issues.

And also to give students an appreciation of

- The history of how computer hardware and software developed.

#### Achievement Objectives

- 1.1 *Describe, operate and maintain the hardware components of a personal computer.*
- 1.2 *Operate a personal computer printer.*
- 1.3 *Describe the purpose of an operating system.*
- 1.4 *Describe how computer data is stored.*
- 1.5 *Perform operating system operations and system configurations.*
- 1.6 *Develop keyboarding skills.*
- 1.7 *Describe personal computer software.*
- 1.8 *Manage and protect computer files.*
- 1.9 *Locate computer files using file management procedures.*
- 1.10 *Perform automated operations.*
- 1.11 *Describe trends in computer technologies.*
- 1.12 *Explore the interactions between computers and society including more general issues such as the digital divide.*
- 1.13 *Describe the major hardware and software developments since 1970 that have produced the modern personal computer.*

# Year 13 Strands Aims and Achievement Objectives

## STRAND 2:

### USING PERSONAL COMPUTER APPLICATIONS

The aims of this strand is to train students in the basic skills of:

- Using a word processor.
- Using a spreadsheet.
- Using a flat-file database.

#### Achievement Objectives

- 2.1 *Demonstrate an understanding of word-processing principles and terminology.*
- 2.2 *Access and exit from a word-processing program and make equipment adjustments.*
- 2.3 *Use word-processing principles and functions to enter, edit and format text.*
- 2.4 *Use word-processing principles and functions to operate system features and produce files.*
- 2.5 *Use word-processing data security procedures.*
- 2.6 *Use word-processing file manipulation techniques.*
- 2.7 *Preview and print word-processing files.*
- 2.8 *Demonstrate knowledge and use of spreadsheets.*
- 2.9 *Produce a simple spreadsheet file containing labels, values and mathematical formulae.*
- 2.10 *Manage spreadsheet files.*
- 2.11 *Manipulate data in a spreadsheet.*
- 2.12 *Demonstrate knowledge of the uses and features of databases.*
- 2.13 *Manipulate data in a database.*
- 2.14 *Create a database using text numbers and arithmetic formulae.*
- 2.15 *Manage database files.*

## STRAND 3:

### PROGRAMMING PERSONAL COMPUTERS

The aim of this strand is to train students in the basic skills of

- Planning and writing a computer program from a structure diagram or flowchart.

#### Achievement Objectives

- 3.1 *Demonstrate an understanding of computer programming principles and terminology.*
- 3.2 *Apply principles of planning for a computer program.*
- 3.3 *Code a program from a given structure diagram or flow chart.*

# Year 13 Strands Aims and Achievement Objectives

## STRAND 4:

### DATA INTEGRATION BETWEEN COMPUTER APPLICATIONS

The aims of this strand are to train students in the basic skills of:

- Combining data from word processor, spreadsheet, and database applications.
- Integrating data from a range of sources in order to solve a problem.

#### Achievement Objectives

- 4.1 *Combine data from word-processor, spreadsheet and database files.*
- 4.2 *Integrate data from a range of sources in order to solve a problem.*

## STRAND 5:

### DESKTOP PUBLISHING ON A PERSONAL COMPUTER

The aim of this strand is to train students in the basic skills of:

- Desktop publishing on a personal computer and producing a simple Desktop Publishing document.

#### Achievement Objectives

- 5.1 *Demonstrate knowledge of the uses and features of desktop publishing on a personal computer.*
- 5.2 *Produce Desktop Publishing documents.*
- 5.3 *Manage Desktop Publishing files.*

## STRAND 6:

### USING PERSONAL COMPUTERS TO MAKE COMPUTER PRESENTATIONS

The aims of this strand are to train students in the basic skills of:

- Using the features of computer applications in the presentation of a topic of the student's own choice.
- Planning work that is to use features of computer applications.
- Drawing together computer generated materials from a variety of applications into a single presentation on a selected topic.
- Identifying elements of sound practice in constructing materials for presentation.
- Presenting the topic.

**Year  
13  
Strands  
Aims  
and  
Achievement  
Objectives**

**Achievement Objectives**

- 6.1 *Exploit the features of computer applications.*
- 6.2 *Plan work that is to exploit features of computer applications.*
- 6.3 *Draw together computer generated materials.*
- 6.4 *Identify elements of sound practice.*
- 6.5 *Present the topic.*

**STRAND 7:  
THE INTERNET**

The aims of this strand are to train students to:

- Access and use the Internet for researching information.
- Plan, create, send, receive and save email messages.

**Achievement Objectives**

- 7.1 *Explain what the Internet is.*
- 7.2 *Demonstrate how to access the Internet.*
- 7.3 *Demonstrate how to search for information.*
- 7.4 *Plan the use of email.*
- 7.5 *Create email.*
- 7.6 *Send, receive, organize and save email.*



# **COMPUTER STUDIES**

## **GLOSSARY**

# GLOSSARY

## Accessories

Additional hardware or software to be used by the computer.

## Active cell

The cell that is currently selected and is shown with a frame around it.

## Alt

A key, on the keyboard that is used in combination with other keys to provide extra functions.

## Application Software

Written to do a certain function. (e.g. word processor, calculator or solitaire game).

## Ascending

Sort order where A is at the top of the list.

## ASCII

American Standard Code for Information Interchange - a method for encoding characters in the computer.

## Assembly Language

A language made to help programmers write in a level above machine language, but still rather primitive.

## Average

Statistical function that calculates the mean of a set of numbers.

## Back up

The process in which the user moves all important data to a secondary device for safe keeping.

### OR

The act of writing the data and information to a second device for safekeeping.

### OR

The redundant files saved on the secondary device.

## Backspace

For deleting one space to the left of the cursor.

## Binary

A mathematical system that has two cases: 0 or 1.

## Bit

A single binary number.

## Border

A tool that allows you to place a box around text or numbers.

## Borders

Frames put around a table, cell, or page.

## Bullet

A character inserted before text to emphasize the text.

## Byte

Eight bits or eight binary digits.

## Bytes

This is the memory unit of the computer used for processing and storing data and instructions.

**Carpal Tunnel Syndrome**

A disease of the wrists often caused by using poor keyboard posture at a computer for long periods of time.

**Cartridge Tape Drive**

A storage device that uses tape cassettes to store data.

**CD-ROM**

A metal disk that spins around inside the computer with laser heads that move around the disk to read information or data.

**Cell**

Part of a table or spreadsheet where a column and row intersect.

**Cell address**

The combination of the column address and the row address that indicates the exact location of a cell.

**Clicking**

Pressing the left mouse button, used to highlight an item.

**Column**

A part of a table or spreadsheet: the vertical set of data.

**Computer**

A machine system capable of accepting, storing, processing and outputting data input by a user.

**OR**

An electronic device, operating under the control of instructions stored in its own memory unit, which can accept data, process data arithmetically and logically, produce output from the processing and store the results for future use.

**Computing**

The act of performing calculations.

**Content**

A Help tool tab which gives you the list of topics contained in help.

**Contents**

What is contained in an area such as a cell in a spreadsheet.

**Copy**

Makes a copy of the selection and places it on the clipboard.

**Copying**

Making a second copy of a file, folder or application on another device or area.

**CPU**

Central Processing Unit, the brain of the computer made up of integer and floating point units.

**Ctrl**

Used in combination with other keys to extend the functionality.

**Cut**

Removes the selection from the document and puts it on the clipboard.

**Data Representation**

The way a number or text is stored in a computer.

**Database**

A collection of information.

**Datasheet view**

View in Access that allows you to view or enter actual data into the database.

**Delete**

Removal of whatever is selected.

**Descending**

Sort order where the letter Z is first in the list.

**Desktop**

The screen area which is first presented to the user.

**Directory**

Similar to a drawer which holds different folders and files.

**Diskette**

A secondary storage device useful for transporting data from one computer to another. Also called "floppy disks," see also FLOPPY DRIVE.

**Editing**

The process of altering a document.

**Email**

Electronic mail: a tool that allows you to send and receive messages over the Internet.

**Enter key**

When this key is pressed it tells the computer to accept the instruction.

**Ergonomics**

The body of knowledge whose application is the design of tools, machines, systems, tasks, jobs, and environments for safe, comfortable and effective use.

**ESC**

Key: in most applications used to cancel and to back out of the process.

**Field**

One data item in a database.

**Files**

Documents created by an application.

**Flat file**

A file in which all data is stored within one table.

**Floppy Drive**

A device on the front of the computer which accepts a diskette on which files can be saved or from which programmes can be installed. Usually the A:/ drive.

**Folder**

Similar to a manila folder which holds different documents (files) as well as other folders. See also DIRECTORY.

**Font**

A style of type.

**Formatting**

The process of changing the appearance and layout of a document.

**Formatting disk drive**

The process that removes all information from a drive and puts the sector cylinder marks in.

**Function**

A function is a formula that manipulates numerical data.

**Function Keys**

Programmable keys which perform special operations in many applications (e.g. F1, F2).

**Hard Drive**

Also called the C:\ Drive. This is used to save all work to the computer itself. OR A device that stores settings, programs and the operating system while the computer is off. It is simply a multitude of metal disks that spin around inside the computer, with heads that move around those disks. Those heads read and write data to the metallic disks.

**Hardware**

The physical parts of a computer that you can touch and feel. Any computer machinery that performs information processing functions. This is in contrast to the Software.

**Input**

The process of entering data into the computer, such as scanning or keyboarding.

**Input Devices**

Any part of the computer which is used to transfer data into a computer system for storage and processing e.g.: keyboard.

**Internet**

The electronic network that connects the computers together. A network of networks of millions of computers communicating with each other.

**Keyboard**

An input device for characters and numbers.

**Machine Language**

The lowest level of computer language written in numeric form.

**Megabytes**

A unit of memory equal to 2 raised to the 20th power, or 1024576 bytes.

**Microprocessor**

This is the central processor of a personal computer. They are identified by numbers such as 8086, 286, 386, 486, 586 and 686.

**Modem**

Device that converts signals from digital to analog and analog to digital for transmission and receiving, so that the digital data of a computer may be transmitted using analog signals over the telephone network.

**Monitor**

An output device that features the display screen.

**Mouse**

An input device used to position the cursor on the screen.

**Operating System**

The parts of the computer system that control the hardware functions and interface with the application software.

**Output Devices**

Any part of the computer which is used to output any data or information e.g. printer.

**Paste**

Enters whatever is on the clipboard into the current document.

**Printer**

An output device that transfers data to paper.

**Programming**

The process of writing code or an application for a computer.

**Query**

A request whose response will be a list of records or fields of records in the database that satisfy that request.

**RAM**

Random Access Memory, The part of the computer storage system that stores programs and data during processing only as electricity flows through it.

**Range**

When more than one cell is selected in a spreadsheet the list of cell address is called the range.

**Record**

A set of data items related to each other.

**ROM (Read Only Memory)**

This is the memory chip that permanently stores instructions and data. When the computer is turned off, this memory still retains the information.

**Root Directory**

In a hierarchy of files and folders, the root directory always appears at the top level.

**Search Engine**

The tool that performs the search on the web based on web page content e.g. Google, Yahoo

**Shift Key**

Used to type capitals and the top row characters. Can also be used in combination with ALT, CTRL and/or the function keys to provide extra functions.

**Software**

Programs that give the instructions to the computer as to what is to be done.

**Sort**

Organizing data in order, either alphabetical as A-Z or Z-A or if numerical, largest to smallest or reverse.

**Spreadsheet**

A grid of columns and rows.

**Surge protector**

A device that stops any large power surges entering the computer from the power supply.

**Text**

Any data that contains letters and numbers; it can not be used in arithmetic expressions.

**UPS (Uninterruptible Power Supply).**

A battery which is capable of supplying temporary power to the system when the main power fails. The advantage of this is to give the user time to save work before the computer is shut down.

**Virus**

A software program designed to deliberately damage the hardware, files or software of your computer, transmitted by diskettes, mail, or web downloads, and transformed to damage the host machine or transmit itself to other machines.

**Web**

Short for World Wide Web.

**Web Browser**

A tool provided by some sites that allows you to search the Web for desired information.

**Word Processing**

The creation of textual documents.