



Western Cape Education Department

GUIDELINES
for
ICT INTEGRATION
with
NCS SUBJECTS
in
GRADES 10-12

January 2007

The Intention of the Guidelines

This document aims to assist schools in the process of integrating ICT (Information and Communication Technologies) with their teaching and learning. It provides guidance in

- General use of ICTs across all subjects
- Use of ICTs in each specific FET subject
- Educational software and how to evaluate it
- Use of the World Wide Web in each subject
- Digital resources being provided by the WCED

Each teacher should, as a minimum, have access to the introduction and the pages dealing with his/her specific subject.

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Acronyms

AS	Assessment standard
CD-ROM:	Compact disc – read-only memory
Ce-I	Centre for e-Innovation
DVD	Digital Versatile Disc/ Digital Video Disk
FET	Further Education & Training
HEI	Higher Education Institution
ICT	Information & Communication Technology
INSET	In-service training
LO	Learning outcome
NCS	National Curriculum Statement
SKAV	Skills, Knowledge, Attitudes and Values

Guidelines for ICT Integration with NCS Subjects in Grades 10-12:

INTRODUCTION

A global revolution is currently taking place in education and training. It is driven by the changing nature of work, the realities of the information age, new global partnerships and an awareness of the need for equal distribution of educational opportunities. *White Paper on e-Education: Transforming Learning and Teaching through Information and Communication Technologies (ICTs)* Department of Education, 2004.

Context

Information and Communication Technologies are becoming more and more integral to the lives of South Africa's citizens. To prepare them for their adult working lives, but also to enhance their education, learners are being given access to computers and other digital resources as an integral part of their preparation for the National Senior Certificate. Unprecedented access for all to relevant information through the World Wide Web is an important facility in the implementation of outcomes-based education.

The Further Education and Training phase of the National Curriculum Statement is being implemented from 2006. A number of subjects specify the use of digital resources in order for learners to achieve the learning outcomes. Computer Applications Technology and Information Technology learners will use computers from the beginning of 2006 as they enter Grade 10. The following subjects are being prioritised nationally for learner computer use from 2007: Accounting, Civil Technology, Design, Electrical Technology, Engineering Graphics and Design, Geography, Life Orientation, Mechanical Technology, Tourism and Visual Arts. It is clear that other subjects will also be enhanced by the use of digital resources.

Digital resources include teaching and learning material distributed by means of telecommunications, satellite technologies, CD ROMs and television broadcast media. One type of digital support material that is widely used in South African schools is educational software and applications. Associated with these are computer peripherals such as interactive whiteboards, probes, sensors, keyboards and other computer-controlled equipment to enhance learning and teaching.

Educational software and its evaluation

Generally speaking, the Western Cape Education Department does not prescribe specific learning and teaching materials. With ring-fenced funds from the Department, schools may select learning and teaching support materials which they judge will best support learning and teaching in their classrooms. This is also the case when schools buy software using their own funds – that is, funds which have not come from the WCED. However, since digital resources are new to many schools, the Department is providing initial guidance in the selection of software, and schools that are using WCED funds to buy software are expected to choose it from the Recommended Software lists have been incorporated into this document. When in doubt, Khanya schools should consult with their facilitators. If they wish to buy specific software which is not on the list, they must contact Mr Clinton Walker of Khanya (021 467-2227), and make arrangements for him to see and approve of the software before they purchase it.

The Department is also seeking to provide some of the resources needed in schools. One such resource is Rubricate Senior, software that will enable teachers to construct rubrics based on the NCS policy documents, for assessment in grades 10-12. This is available from 2006, to all Western Cape schools (whether WCED or independent) that offer the NCS.

Rubricate Senior currently covers the following FET subjects:

Accounting, Computer Applications Technology, Design, Geography, History, Home Language in English, Home Language in Afrikaans, Home Language in isiXhosa, Life Orientation, Life Sciences, Mathematical Literacy, Mathematics, Physical Sciences and Visual Arts.

Schools will want to review available software and select what best suits their circumstances. Appendix A is a software evaluation and profile form, which can be used to evaluate software for possible use in schools.

Teachers need to take into account the following factors when selecting software:

- The purpose of the software, e.g. information transfer, drill & practice, simulation / case studies, problem solving, calculation, creative thinking, writing, graphics, logic and critical thinking
- The way in which it is to be used - by individuals, small groups, or for whole class teaching with or without an interactive whiteboard or a NetOp system
- Its compliance with the school network, and whether it is Windows- or Linux-based
- What support is available for the software: whether there is a help line or online help, free training, and whether the publisher offers free updates
- The cost: whether it is payable once off or a recurring annual fee

Once these aspects have been ascertained, teachers should consider the following aspects of the software:

- Its content:
 - Relevance to the NCS subject(s) for which it would be used and its compatibility with OBE methodologies (NCS subject learning outcomes and assessment standards addressed by the software)
 - Appropriateness or adaptability to the South African context: free from cultural, racial, gender and language bias and in language suitable for learners
 - Accuracy of information
 - Logical progression in conceptual development and content
 - Where necessary, scope for differentiation, allowing learners to work on different levels
 - Provision for interactive learner participation and learner interest, variation in activities, with increasing complexity
 - Sufficient, relevant practice in appropriate skills.
- Its presentation:
 - Learning outcomes should be clearly stated with easy-to-use screen instructions
 - Appropriate presentation format and use of colour, sound and graphics
 - Appropriate learner control
 - Free of technical flaws
- Its use of question and response:
 - The questions asked or required responses should be appropriate to learning outcomes
 - There should be appropriate evaluation of learner responses and appropriate feedback to learners which provides remedial assistance where necessary

- Its teacher and learner management facilities:
 - Customisation for individual learning needs
 - Option for learners to exit and resume at a later stage
 - Learner performance record
 - Educator control
 - Testing for prior learning
 - Addition of own learning material
 - The amount of time the teacher must spend on preparation
- It is a bonus when the software is also useful for teachers' own professional development

It is evident that the factors above are not necessarily either positive or negative as they may be irrelevant to what the learners need to achieve. They should be evaluated in terms of what is appropriate for the classroom situation.

Installation of software on school networks

Software vendors are required to include installation services as well as support, maintenance and upgrades in the purchase price of their products. Installation notes of evaluated and approved software for Khanya labs will be supplied by The Centre for e-Innovation's Research and Development section. This section is situated in the College of Education Building, New Nooiensfontein Road, Kuils River - at the back of the EMDC East Metropole offices. Installation notes are also obtainable from the Digital Resources website, from the IT Manager at each EMDC, or from Khanya facilitators.

Software compatibility with school networks

Computers in most schools in the WCED operate on a Windows platform. However, the growing use of open source platforms in schools is becoming a significant factor that has necessitated a widening of the search for appropriate educational software to enhance teaching and learning in our classrooms. Because of the lack of accessible open source software, most software recommended in following pages is Windows-compatible. However, as we become aware of useful open source software these titles will be added.

Copyright, intellectual property and piracy

The WCED upholds the principles and provisions of the Copyright Act, No 98 of 1978 as amended, and the Patents Act, No 57 of 1978 as amended. The purpose of copyright law is to protect the interests of the copyright owners - the authors, developers and publishers, as creators of intellectual property. Copyright law affects digital educational resources as much as print or any other medium. There is a moral as well as a legal obligation for all in the education system to operate within copyright law, to respect intellectual property, and to avoid and prevent software piracy.

The system of software licensing sets clear permissions for purchasers in the use of software onsite. It is the responsibility of schools to purchase the correct license for their circumstances from the software provider. This may be a site license, single or multiple user license, and be valid for the life of the software or for a fixed period of time. Exceptions are

- shareware (copyrighted, with free access, but the user is requested to pay a small amount to use the program)
- public-domain software (not copyrighted; free and can be used without restriction)
- freeware (copyrighted, usually allowing free use of the software, but no alteration or sale)
- open source software (the source code is freely available for use and modification, particularly for sharing with the community. Some products may be 'OS certified'.)

Schools must thus operate within copyright law, ensuring that teachers and learners respect intellectual property at all times, and take appropriate steps to prevent software piracy in the school community.

The World Wide Web

As more schools gain access to the Web, the value of educational websites for teachers and learners in the Western Cape becomes more evident. There has never before been such free and open access to information. With the advent of outcomes-based education, learners are required to find, process and present information. Although textbooks remain of prime importance, learners need access to a far wider range of learning resources, whether print or multimedia, than ever before. Because access to the Internet is still relatively costly in South Africa, schools need to investigate facilities such as an intranet so that teachers can download useful websites for use by their learners offline.

Schools using the Internet for the first time need to set up an Acceptable Use Policy which lays down the conditions under which the Web and email may be used, and sets the standards of acceptable behaviour. An intranet will help to solve the problem of learners accessing inappropriate websites.

A number of useful websites are mentioned in the rest of this Guide. The electronic version of this document will be updated from time to time, as further curriculum, software and online resource information become available. If you would like to add to it, please send any useful URLs or information on ICT subject integration to Alixe Lowenherz at alowen@pgwc.gov.za

Mindset

WCED schools are being given access to Mindset multimedia, video and print materials initially for Mathematics, Physical Sciences, English and Life Orientation in FET and the senior phase of GET. These digital resources have been developed for the South African curriculum. They have been designed for access through television sets (or interactive whiteboards) in classrooms for whole class teaching or on individual computers on school networks.

Teacher In-service Training

During the course of 2006, 2007 and 2008, a number of teacher training courses will be held to familiarise teachers with specialist subject software, Rubricate and other digital resources such as Mindset, and to assist them in planning the integration of these resources with their FET subjects. Schools will be notified accordingly.

Digital Resources for FET subjects

The following tables contain information regarding the use of ICT-based support materials in the NCS FET subjects. They specify learning outcomes and assessment standards that involve computer use, as well as the aspect of each subject that is most appropriate to the use of computers. Mention is also made of planning and assessment, the suggested time learners need to use a computer in that subject per week, suggested software and computer peripherals, relevant websites and the location of computers for learner use.

It should be noted that the website addresses were operational at the time of publication. If this is no longer the case, readers should check whether new addresses for these sites have been posted in the updated version of this document on the Digital Resources website.

APPLICATIONS AND SOFTWARE FOR USE IN ALL FET SUBJECTS FOR GRADES 10-12

The following types of application and software enable teachers and learners in all subjects to use computers to implement and enhance the curriculum. The list below is not exclusive or exhaustive, and does not preclude the use of other appropriate software. It ranks applications and software from essentials to more specialised resources.

Word processor, spreadsheet, presentation and database applications: Microsoft Office or Open Office

Antivirus software: Norton, McAfee

Software to read pdfs: Adobe Acrobat Reader

Web browser: Explorer, Netscape, Opera, Mozilla Firefox

Email: Pegasus, Outlook Express, Mozilla Thunderbird

Graphics software: Image Composer, Adobe Creative Suite II, Adobe Photoshop Essentials, CorelDraw, Fireworks (Macromedia)

Utility software: Winzip, NetOp (computer lab management tool), Flash Player, Quick Time, Windows Media Player

Mind-mapping software: Inspiration, Smart Ideas, Visio

Encyclopaedia: Encarta, SA Encyclopaedia / Ensiklopedie

Content development tools: Hot Potatoes (from <http://hotpot.uvic.ca/>), Evalunet, Construct Author, Navigator and Roleplaying Engine (Reusable Objects), Breeze, W3 generator (from Cape Multimedia)

Web authoring software: Microsoft FrontPage

Intranet program: IntraWeb

Antispyware: Spybot

All WCED secondary schools are currently being given access to the following digital resources:

Assessment software: Rubricate (also being supplied to independent Western Cape schools)

Mindset multimedia, video and print materials for Mathematical Literacy, Mathematics, Sciences, English and financial literacy

Suggested peripherals for all subjects:

CD and DVD writers, data projectors, digital cameras, interactive whiteboards, printers for A4, A3 and colour, scanners, television, depending on need.

In addition to the websites listed in each subject, it is suggested that the following sites be consulted for information relevant to all subjects:

National Department of Education website (policy and news):

<http://www.education.gov.za/>

National Education portal:

<http://www.thutong.org.za>

Provincial education portal

<http://wced.wcape.gov.za/home/home.html>

including the Curriculum website

<http://curriculum.wcape.school.za>

Digital Resources website

<http://curriculum.wcape.gov.za/site/113/>

the Examinations website

<http://data.westerncape.gov.za/pls/emis/webpub2.examresults.home>

Edulis (WCED Library and Information Service):

<http://edupals.wcape.gov.za>

Edumedia (WCED media production service):

http://edumedia.wcape.school.za/catalog/welcome_s.html

Khanya

<http://www.khanya.co.za>

Cape Gateway (information about provincial services such as libraries)

<http://www.capegateway.gov.za/>

Wikipedia (free online encyclopaedia)

<http://en.wikipedia.org/>

English

<http://af.wikipedia.org/wiki/Tuisblad>

Afrikaans

http://xh.wikipedia.org/wiki/Main_Page

IsiXhosa

Search Engines

<http://www.google.co.za/>

<http://www.medialab.nl/> safe and efficient educational search engine

<http://ice.medialab.nl/> safe and efficient educational search engine, especially for younger learners

Excellent international curriculum resource sites and portals

<http://www.teem.org.uk> (UK)

Excellent software and online resources evaluation

<http://www.curriculumonline.gov.uk> (UK)

An excellent multimedia resources site, which includes numerous links to free resources suitable to support teaching and learning in most FET subjects. Worth exploring.

<http://tre.ngfl.gov.uk> (UK)

The Teacher Resource Exchange (TRE) is a moderated database of resources and activities created by teachers. Resources on the exchange are checked by subject specialists to ensure they are of the highest possible quality.

<http://www.teachernet.gov.uk/wholeschool/ictis/> (UK)

A useful site which explores learning, teaching and managing of ICT in teaching and learning.

<http://www.ali.apple.com/> (US)

Apple Learning Interchange – An exciting and innovative learning exchange showcasing purposeful and vibrant use of ICT in numerous subjects

<http://horizon.unc.edu/projects/monograph/CD/> (US)

An informative site highlighting accounts of teachers who have agreed to share their experience in using technology in their classes. This site includes exemplars from language, music, science and mathematics subject areas.

<http://www.sitesforteachers.com> (US)

A directory of 959 sites for teachers.

<http://www.moe.gov.sg/edsoftware/ir/> (Singapore)

A fascinating and innovative site providing free access to interactive resources for use in selected FET subjects. Worth viewing.

<http://www.moe.gov.sg/evideo/> (Singapore)

An e-video site providing access to free quality educational videos which can be used to successfully support classroom teaching and learning in selected FET subject areas.

<http://www.dest.gov.au/default.htm> (Australia)

This site shows the breadth and depth of national Australian ICT integration in education policy and research, and its involvement as a force in the economy and society.

<http://www.eddept.wa.edu.au/cmis/eval/curriculum/> (Australia)

This site identifies curriculum materials that support West Australian school curriculum applications. All types of curriculum-related resources are reviewed for teachers and students. Resources are adaptable for use in South Africa.

<http://www.schools.nsw.edu.au/> (Australia)

ICT has been well integrated in New South Wales education for a considerable time. This site provides access to a number of useful resources for schools such as professional support and school technologies (<http://www.schools.nsw.edu.au/learning/yrk12focusareas/learntech/index.php>)

http://www.edu.pe.ca/journeyon/resources_pages/curriculum_guides/hscurriculumguides.htm (Canada)

This site provides access to excellent ICT integration guides for the following Canadian curriculum subjects: Mathematics, Biology, English, Chemistry, Physical Science and Social Science. The suggestions made can be aligned quite effortlessly to comparative FET subjects.

<http://www.schoolnet africa.net> (Africa)

The Schoolnet Africa site provides access to a couple of useful software packages for learners. Follow the learning resources link from the homepage.

<http://www.unescobkk.org/index.php?id=1716>

This UNESCO site link provides meaningful access to numerous educational software sites for a number of subject areas.

<http://www.unescobkk.org/index.php?id=1718>

This UNESCO site link provides valuable information on and simple examples of ICT integration in teaching and learning.

http://www.tki.org.nz/r/ict/software/learning_snapshots_e.php (New Zealand)

This software for learning site provides snapshots of how software is being used successful at teaching and learning sites

The best venue(s) for the location of computers:

- **Workstations for teachers: in staff rooms or work rooms**
- **Workstations for learners: in computer laboratories, as well as single or a small number of workstations in media centres, libraries, classrooms, laboratories, workshops, arts and design rooms.**
- **Notebooks and/or hand-helds for teacher use and flexible groupwork in various locations.**

ACCOUNTING

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Learning Outcome 1, Assessment Standard 2: Within the context of the Accounting cycle, identify and complete source documents, record the information in the subsidiary journals, post to the ledgers and draw up the trial balance manually and/or by using an accounting package.

The aspect of this subject that is most appropriate to the use of computers is:

As above, as well as assessment tasks like the project where research would be necessary.

Suggested computer time per learner per week: **30 minutes**

Planning for computer use should happen within

the subject framework: **Yes**

work schedule: **Yes**

lesson plan: **Yes**

programme of assessment: **Yes**

It's important that use of computer facilities be negotiated at whole school planning.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Projects as stipulated, other tasks could include research, presentations, reports, etc. These could all be computer generated.

Suggested software for use in this subject:

Quickbooks

Pastel

Lledgerz

Interactive Business: Finance and Accounting

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Interactive whiteboards, data projectors

Suggested URLs for websites for use in this subject:

Accounting sub-site on the WCED Curriculum website:

<http://curriculum.wcape.school.za/site/18/page/view>

Department of Trade and Industry

<http://www.thedti.gov.za/>

Cape Town Chamber of Commerce

<http://www.capechamber.co.za/>

Johannesburg Stock Exchange

<http://www.jse.co.za/>

South African Revenue Service

<http://www.sars.gov.za/>

The best venue(s) for the location of computers for this subject:

A computer laboratory where an Accounting class can be taught and where Accounting learners can work during Accounting periods. Also a cluster of 2-4 computers in each Accounting class would be ideal.

Name of curriculum planner with responsibility in the Western Cape for this subject:

Glynis Schreuder

Telephone: **(021) 467 2576**

Email: **gschreuder@pgwc.gov.za**

AFRIKAANS ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Learning Outcome 1: Listening and Speaking – Assessment Standards 1, 2, 3 and 4

Learning Outcome 2: Reading and Viewing – Assessment Standards 1, 2, 3 and 4

Learning Outcome 3: Writing and Presenting – Assessment Standards 1, 2 and 3

Learning Outcome 4: Language – Assessment Standards 1, 2 and 3

- **Acceleration process - learner paced and learner based**

The aspect of this subject which is most appropriate to the use of computers is:

- **All 4 Learning Outcomes play a pivotal role in language acquisition and can also be promoted by means of software.**
- **Skills and content knowledge development**

Suggested computer time per learner per week, where possible: **1 hour**

Planning for computer use should happen within

the subject framework: **Provide a holistic view from Grade 10 – 12. Levels of complexity could be easily captured. Allocate contact time.**

work schedule: **Integrate with tasks and consider why, when, what, how and assessment**

lesson plan: **Exemplars of lessons**

programme of assessment: **Purpose, method, evidence required.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Listening and Speaking activities

Reading strategies based on various text forms

Writing and presenting – planning skills, writing strategies and techniques and presenting of final draft

Language exercises

NB; It is important that users of software should always be aware of the spelling and grammar that is used.

Suggested software for use in this subject:

EYE Read

Readers are Leaders

CAMI Read

Suggested peripherals for use in this subject:

Interactive whiteboards, data projectors, laptops, school intranet system, Internet access

Suggested URLs for websites for use in this subject:

Afrikaans sub-site on the WCED curriculum website

<http://curriculum.wcape.school.za/site/59/>

University of Pretoria – Resource site for teachers

<http://www.onnet.up.ac.za/>

Roekeloos – Afrikaans resource site

<http://www.roekeloos.co.za/boekrak/boekr138.html>

This site includes an English-Afrikaans dictionary.

African Languages – list of Afrikaans sites

<http://www.africanlanguages.com/afrikaans/>

Spel - list of Afrikaans software products and sites

<http://www.spel.co.za/>

Afrikaans Wikipedia

<http://af.wikipedia.org/wiki/Tuisblad>

News24 – links to Afrikaans newspapers online

<http://www.news24.com/News24/Home/>

HEIs (partnership with WCED for INSET through websites

The best venue(s) for the location of computers for this subject:

The Afrikaans classroom. This gives the teacher and the learner greater flexibility in terms of access and planning – learners can work in small groups or individually but under supervision

Curriculum advisers with responsibility in the Western Cape for this subject:

Telephone:

Email:

AGRICULTURAL SCIENCES
ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

Learning Outcome 1 Assessment standard 4: Use information communication technology skills related to agricultural production practices in Grade 11

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Learning outcomes 1 (assessment standards 1 – 3) and Learning outcomes 2 (assessment standards 1 – 4)

Although it is not compulsory, it would be to their advantage to use certain software programs such as simulations, programs where they can vary the variables in an experiment, animations, drawings, electron micrographs from the internet, Excel to record results and plot graphs, irrigation and fertilisation programs, etc.

The aspect of this subject which is most appropriate to the use of computers is

Drawings, images, flow charts and pictures from the internet

Dissections – software programmes are available

Experiments – to vary the different variables (production factors) (pH, temperature, oxygen and carbon dioxide concentration, irrigation, fertilisation)

Graphing – plot different types of graphs (line, histograms, pie charts)

Suggested computer time per learner per week: **30 minutes in Grade 11**

Planning for computer use should happen within

the subject framework: **The use of the computer room (topic, term, dates, addressing LO1 AS4 in Grade 11)**

work schedule: **number of periods – number of class sections – topic (software programme)**

lesson plan: **The activity – software – teachers activity/action / learners activity**

programme of assessment:

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Graphs, tables, illustrations, flow charts, electron micrographs in research projects as long as they are acknowledged

Suggested software for use in this subject:

<p>Data Harvest equipment sets and software</p> <p>Sunflower Multimedia for Science</p> <p>Xplorer GLX</p>	
<p>Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc</p> <p>pH, temperature, light intensity sensors</p> <p>A white board, a data projector, a laptop for teacher's use</p> <p>Six workstations with computers (laptops) for group work</p>	
<p>Suggested URLs for websites for use in this subject:</p> <p>Agricultural Science sub-site on the WCED curriculum website http://curriculum.wcape.school.za/site/16/page/view/642</p> <p>Eurekaalert – directory of sites http://www.eurekaalert.org/</p> <p>National Dept of Agriculture http://www.nda.agric.za</p> <p>Agritv -Agriculture site http://www.agritv.co.za</p> <p>Agricon Africa http://agribiz.netfirms.com/index.htm</p> <p>Agriculture in South Africa http://www.intouchagri.co.za/newspage.asp</p> <p>Organic Farming http://www.go-organic.co.za/</p>	
<p>The best venue(s) for the location of computers for this subject:</p> <p>In the science lab</p>	
<p>Other suggestions, issues, ideas, points of view:</p> <p>To integrate ICT into the Agricultural Sciences NCS successfully, it is necessary to place the hardware and peripherals in the science lab, with an Internet connection.</p>	
<p>Name of curriculum planner with responsibility in the Western Cape for this subject:</p> <p>Tommy Botha</p>	<p>Telephone: 021 467-2557/ 0845510508</p> <p>Email: tbotha@pgwc.gov.za mwtcl@mweb.co.za</p>

BUSINESS STUDIES

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

No specific Assessment Learning Outcomes and Assessment standards – recommended that learners use computer in Business Studies mainly for:

- Preparation of assignments and projects: Mainly Word, Excel, Power Point, (also Electronic White board)
- Surfing of the web for research purposes
- Using recommended software to help attain certain Assessment standards, e.g. business games
- Assimilation of contents (e.g. mind-mapping) by means of suitable software, especially for teachers, but also for learners, e.g. ‘Smart Ideas’ and ‘Inspiration’
- Participation in Business Studies related (especially entrepreneurship) competitions (e.g. market days/ Business plans etc)
- Regular (daily access) Web search of current economic issues – especially News paper articles etc on suitable web-sites – presentation thereof by means of Power point / electronic white board

Possible applications:

Learning Outcome 1 Business Environments

Grade 10 / 11 /12 LO 1 AS1 – 2: Components and features of business environments – use also “Google earth”

AS3: Web search/monitoring: News pages : Socio-economic issues that impact on business (Grade 10) / social responsibility (Grade 12)

AS4: Web research (including “Google world”) – Investigation on nature of business in the vicinity (Grade 10) / Links between enterprises Grade 11 – Environments effecting a specific business (Grade 12)

AS 1-4: Presentations by learners making use of Power Point / Electronic white board

Learning Outcome 2: Business Ventures

Grade 10: AS1-2 Design and use a market research instrument (Ms Word/Power Point / Electronic whiteboard)

AS3: Web search including “Google earth”

AS6 Web search/monitoring of News pages – Present a variety of business related information clearly and accurately in verbal and non-verbal format (including graphs) MS Word/Excel (graphs) Power Point / electronic white board

Grade 11: AS3 Apply Gantt charts and time lines – e.g. Smart Notebook : (Gallery-Professional - Strategy

& Gallery: History – Time lines)

AS 6 Web search/monitoring of News pages – Present a variety of business related information clearly and accurately in verbal and non-verbal format (including graphs) MS Word/Excel (graphs) Power Point / electronic white board (Including “Smart Ideas” or “Inspiration”

AS7 Access web-sites e.g. Department of Trade and Industry (DTI) for procedures, forms, contracts etc. for starting a business

Grade 12: AS7 Web Research - Access web-sites of Banks, other Investment institutions, for investment opportunities

Learning Outcome 3: Business Roles

Grade 10 AS 3.2 Problem solving – Electronic white board Software e.g. Smart Notebook

AS 7 PACE Program – Investigate business careers

Grade 11 AS3 Apply principles and skills of professional, responsible, ethical and effective business practice – also Presentation skills (e.g. Power Point / e.g. Electronic whiteboard with Software for Professional business skills e.g. Smart Notebook (Gallery – Professional: Planning/Strategy/Financial formulae)

AS 7 PACE Program – Investigate business careers

Grade 12: AS 3 Make recommendations for improvement of business situations - Presentation skills (e.g. Power Point / e.g. Electronic whiteboard with Software for Professional business skills e.g. Smart Notebook (Gallery – Professional: Planning/Strategy/Financial formulae)

AS7 Possible business careers – PACE programme

Learning Outcome 4: Business Operations

Grade 10 AS1-4 Software: “Smart Ideas” and “Inspiration

Grade 11 AS 1-5 Software: “Smart Ideas” and “Inspiration” AS 4 : Marketing activities - Software : Interactive Business : “The marketing Mix”

Grade 12 AS 3 Web search on relevant legislation: e.g. Department of Trade and Industry etc

AS 3-6 Software: “Smart Ideas” and “Inspiration

The aspect of this subject which is most appropriate to the use of computers is:

*** Monitoring of daily business issues on news paper & financial magazine web-sites (one topic per learner per year)**

*** Web search on curriculum related topics, as mentioned above. Formatting of rough work of research projects/assignments on computer by learners, using MS Word, inserting Pictures, Tables, graphs etc (Grade 10 – 5 Assessment standards for all learners – grade 11 and 12: 2 research AS's per year)**

*** Presentations of information, research assignments etc on Power Point/electronic white board**

(one per learner per Grade)
Suggested computer time per learner per week: 30 minutes
<p>Planning for computer use should happen within</p> <p>The subject framework: Planning of access to computer room, where available, e.g. 20 hours per grade per year, and co-ordination of specific periods when learners need time in the computer room (e.g. times planned when research needs to be done per grade).</p> <p>Work schedule: More specific computer needs of learners within the year (specific time frames according to year work schedule per grade, e.g. how many periods (co-ordinate different grades/class groups)</p> <p>Lesson plan: As per work schedule – Presentations, research during class time as per ASs.</p>
<p>The following computer generated items are acceptable in a learner’s portfolio of school-based assessment in this subject:</p> <ul style="list-style-type: none"> • Power Point presentations • Projects/assignments prepared on MS Word etc
<p>Suggested software for use in this subject:</p> <p>PACE programme – grade 10 career investigation</p> <p>Interactive Business: The Marketing Mix</p> <p>Smart Ideas</p> <p>Inspiration</p> <p>Google World</p>
<p>Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc</p> <ul style="list-style-type: none"> • Interactive whiteboard • Data projector • TV for Mindset LTSM
<p>Suggested URLs for websites for use in this subject:</p> <p>Bized: http://www.bized.ac.uk</p> <p>Economics & Business Educator’s Association: http://www.ebea.org.uk</p> <p>Dept of trade and industry</p>

<p>http://www.thedti.gov.za/</p> <p>Cape Town Chamber of Commerce http://www.capechamber.co.za/</p> <p>Chamber of commerce and Industry http://www.chamsa.org.za/</p> <p>Johannesburg Stock Exchange (JSE) http://www.jse.co.za/</p> <p>South African Revenue Service (SARS) http://www.sars.gov.za/</p> <p>Black Economic Empowerment (BEE) http://www.bee-smme.co.za/index.htm</p> <p>Gauteng Economic Development (GED) http://www.geda.co.za/</p>	
<p>The best venue(s) for the location of computers for this subject:</p> <p>Ideally, a cluster of computers, Internet linked, in classroom</p> <p>Otherwise, regular access of learners to computer lab, with Internet access.</p>	
<p>Name of curriculum planner with responsibility in the Western Cape for this subject:</p> <p>Lodi van Deventer</p>	<p>Telephone: 021 – 467 2563</p> <p>Email:</p> <p>jvdevent@pgwc.gov.za</p>

CIVIL TECHNOLOGY
ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

Grade 10 Learning Outcome 4 Assessment Standard 4

Introduction to CAD drawings

Grade 11 Learning Outcome 4 Assessment Standard 4

Basic CAD drawings.

Grade 12 Learning Outcome 4 Assessment Standard 2 & 3

Drawing house plans

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

The practice in industry and in the drawing office is to move away from paper-based drawings. The

focus has become increasing more towards CAD generated drawings. In order to make education relevant to the world of work it is essential that learners be exposed to the current technologies.

The aspect of this subject which is most appropriate to the use of computers is

Executing Civil and Electrical layout drawings using Computer Aided Drawing software.

Suggested computer time per learner per week: **50 minutes**

Planning for computer use should happen within

work schedule: **YES**

A clear indication on the work schedule when the activity is going to take place and what hard and software will be required.

lesson plan: **YES**

It must be indicate the activities which will lead to achievement of the Learning Outcomes

programme of assessment: **YES**

CAD is an assessment item which counts towards the learners' internal assessment mark.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

CAD drawings

Suggested software for use in this subject:

AutoCAD

AllyCAD

CADDIE

ModelSmart

OR any other suitable CAD package

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

A3 printer, data projector, white board

Suggested websites/facilities for teacher training:

<http://curriculum.wcape.school.za/site/35/page/view/>

The best venue(s) for the location of computers for this subject:

Computer laboratory

Name of curriculum planner with responsibility in the Western Cape for this subject:

W J Mercuur

Telephone: **021 467 2242**

Email: wmercuur@pgwc.gov.za

COMPUTER APPLICATIONS TECHNOLOGY ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

LO 1: Operational knowledge of ICTs (and all its Assessment Standards)

LO 2: Integrated end-user computer applications skills and knowledge in problem solving (and all its Assessment Standards)

LO 3: Information management (and all its Assessment Standards)

- **As Computer Applications Technology is about the effective use of ICTs in an end-user environment, all the LOs and ASs demand the use of computers.**

Suggested computer time per learner per week: **4 hours**

Planning for computer use should happen

At all the stages of planning: the subject framework, work schedule, lesson plan, and programme of assessment

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

- **Most of the items in the Programme of Assessment, as well as for daily assessment would be electronic.**
- **Comment: There is strong debate around the use of electronic assessment tasks to assess the "theory aspects" of the subject where the software automatically mark and generate the marks.**

Suggested software for use in this subject:

- **Operating Systems**
Windows platform: Windows 98, (preferably XP Professional)
Open Source platform: Linux Suse, Linux Redhat, Linux Fedora or any recent Linux distribution
- **Office automation**
Microsoft: MS Office Professional
Optional Packages: MS Publisher and/or Frontpage
Database Package: MS Access
Anti-Virus Package: Norton Anti-Virus

Open Source: Open Office, Star Office
Optional Packages: any suitable publisher and/or web development software
Database Package: REKALL, MySQL

- **Internet Browsers and Email software**
Microsoft: Explorer, Netscape or Opera
E-Mail: Pegasus or Outlook Express
Open Source: Mozilla, any suitable browser
- **Data Recovery software:**
- **Software that would serve as a 4th / additional package** (additional to word-processing, spreadsheets and database). It can be presentations, web authoring, desktop publishing, graphics, CAD, etc.
- **Typing tutor** program such as Typequick or KAZ

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

- **In fact ALL peripherals, both as part of the subject “content” and as aids to teach the subject (including a TV for Mindset LTSM).**

Suggested URLs for websites for use in this subject:

Curriculum Website:

<http://curriculum.wcape.school.za/site/119/page/view/>

Other Websites

<http://www.tomshardware.com/>
www.pcwebopedia.com
www.news.com/Categories/Index/0,3,2,0Q.html
www.aldridge.com
www.ora.com/reference/dictionary/

Memory and Cache (start with the first one)

www.pcguides.com/ref/ram/logic-c.html
www.mindspring.com/~12co/CacheFAQ.html

IDE and SCSI

<http://hardware.pairnet.com/scsiide>
<http://sophia.dtp.fmph.uniba.sk/pchardware/idescsi.html>

Smartcards

www.cip.com.au/scard/

Speech recognition (voice-writing)

<http://speakingolutions.com>;
<http://www.dragonsys.com>;
(Source: Business Education Forum, February 2002 (<http://www.nbea.org>))

Assistive technology

<http://www.nlb-online.org/>
<http://nyise.org/braille.htm>;

<http://www.abledata.com>;
<http://www.fentek-ind.com>
<http://www.tamkeen.ae>

Handheld computers (palmtops)

<http://www.palm.com/education/>
<http://www.palm.com/products/handhelds/>

Keyboard instruction

<http://www.dmoz.org/Computers/Software/Educational/Typing>
<http://ktouch.sourceforge.net>;
<http://www.qwerty.com>

The best venue(s) for the location of computers for this subject:

Computer lab

Other suggestions, issues, ideas, points of view:

- **CAT teachers must first of all be competent in using ICTs and applications effectively themselves, as well as being able to transfer their competencies to learners through appropriate teaching and learning strategies.**

Name of curriculum planner with responsibility in the Western Cape for this subject:

Ighsaan Francis

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Email: ifrancis@pgwc.gov.za

CONSUMER STUDIES

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standard

LO. 1 AS 1 and 2 Grades 10, 11 and 12

LO. 2 AS 1- 4 Grades 10, 11, and ass.1 – 3 Grades 12

LO. 3 AS 1 Grade 10, AS 1, 2 Grade 11, and AS 1 – 3 Grade 12

LO. 4 AS 1 – 4 Grade 10, 11 and 12

The aspect of this subject which is most appropriate to the use of computers is

Research and projects, and practicals

Suggested computer time per learner per week: **Ongoing in classroom as need arises, for reference**

Planning for computer use should happen within

work schedule: - **yes**

lesson plan: - **yes**

programme of assessment:- **yes**.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Cover pages, projects, research tasks

Suggested software for use in this subject:

At present there is no specific software applicable to the whole subject, but for nutrition there is Nutrition Workshop

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Sensors, interactive whiteboards, data projectors, laptops, memory sticks, TV for Mindset LTSM

Suggested URLs for websites for use in this subject:

<http://curriculum.wcape.school.za/site/65/page/view>

A couple of SA sites can be added here as reference for teachers please indicate which are appropriate for subject

South African Bureau of Standards

<http://www.sabs.co.za/>

Fitness Zone - Healthy eating

<http://www.fitnesszone.co.za/nutrition.htm>

Department of Trade and Industry

<http://www.thedti.gov.za/>

University of the Western Cape

<http://www.uwc.ac.za>

Go to the Human Ecology Department

The best venue(s) for the location of computers for this subject:

Consumer laboratory

Name of curriculum planner with responsibility in the Western Cape for this subject:

Bella Soqele

Telephone: 021-4672636

Email: bsoquele@pgwc.gov.za

DANCE STUDIES
ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

LO 3 The learner is able to reflect on music, dance histories in past and present context and health care

Grade 10 Assessment Standard

10.3.2: We know this when the learner gathers, classifies, records and discusses information about: dance in transformative rituals, forms, styles, and purposes of dance, dance performances in the past and the present with reference to choreographic intention, use of design elements and the skills of performers.

Grade 11 Assessment Standard

11.3.2: We know this when the learner investigates and analyses: dance performances in the past and the present with reference to storytelling, biographies, choreographic intention, characteristics of style, skill of the performers, visual or emotional impact, the function and value of dance within diverse societies, communities and culture with reference to expression and communication, education, entertainment, inner fulfilment and self-realisation

Grade 12 Assessment Standard

12.3.2: We know this when the learner investigates and analyses: choreographers' works performed in the past or in the present, the training, education and experiences needed to pursue various dance career options, the planning of community dance projects

Grade 10 Assessment Standard

10.3.3: We know this when the learner demonstrates knowledge and understanding of: the human skeleton, by understanding how the major bones and joints articulate movement, effective nutrition, eating disorders, health care, a positive body image for the dancer

Grade 11 Assessment Standard

11.3.3: We know this when the learner demonstrates knowledge and understanding of: the human skeleton and its joints, explaining how they work in healthy dance practice with reference to posture/ stance, alignment and use of the spine, advanced understanding of health care, including cardiovascular fitness, strength, flexibility and lifestyle choices

Grade 12 Assessment Standard

12.3.3: We know this when the learner demonstrates knowledge and understanding of: the application of practical strategies for injury prevention and care, how to increase physical fitness.

The aspect of this subject which is most appropriate to the use of computers is

Using the internet to access information.

Using PowerPoint and MS Publisher to present information

Suggested computer time per learner per week: **For reference, as need arises**

Planning for computer use should happen within

the subject framework: **projects for each year**

work schedule: **details of requirements for the projects**

lesson plan: **step by step guidelines for each project**

programme of assessment: If learners all have access to computers they could do self and peer assessment on rubrics on the computer

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Assessment tools

History and anatomy projects

Suggested software for use in this subject:

MS Word, MS Publisher, Power Point

Life Line for choreography but only at Grade 12 advanced level

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Whiteboards could be very useful for showing dance videos and DVD's. Data projectors for power point presentations and photographs

Suggested URLs for websites for use in this subject:

Websites for South African Dance History Research

Ballet Companies South Africa

<http://www.balletcompanies.com/Countries/SouthAfrica.shtml>

Jazzart Dance Theatre

<http://www.jazzart.co.za/>

Cape Town City Ballet

<http://www.capetowncityballet.org.za/>

Moving into Dance

<http://www.midance.co.za/>

Ballet Theatre African

<http://www.ballettheatreafrican.co.za/>

Websites for International Dance History Research

Ballet Companies of the World
<http://www.balletcompanies.com/>

Alvin Ailey American Dance Theatre
<http://www.alvinailey.org/>

Spanish Dance
<http://www.dancedirectory.co.za/content/articles/articles.asp?Section=SpanishDancing>

Martha Graham
<http://www.marthagrahamdance.org/company/#photographs>

George Balanchine
<http://michaelminn.net/andros/index.html>

Merce Cunningham
<http://www.merce.org/>

Sir Frederick Ashton
http://www.abt.org/education/archive/choreographers/ashton_s.html

Sir Kenneth Macmillan
<http://www.ballet.co.uk/macmillan/>

Paul Taylor
<http://www.ptdc.org/>

Website for Anatomy and Health
<http://www.angelfire.com/la/dancer/Anatomy.html>

The best venue(s) for the location of computers for this subject:

Classroom/ computer lab.

Name of curriculum planner with responsibility in the Western Cape for this subject:

Jennifer van Papendorp

Telephone: 467-2593

Email: jpapendorp@pgwc.gov.za

DESIGN

ICT INTEGRATION FOR GRADE 10-12

The acquisition of IT skills are part of the development of Design SKAVs but **MUST NEVER BE ALLOWED** to replace manual skills such as drawing, constructing, collaging, mind mapping etc)

E.g.

LO1 Design Process: AS 1 and sub ASs: v, vi, xi

LO2 Design Production: AS 1 and sub ASs: i, iii, v, vii, viii

LO3 Context of Design: AS I and sub ASs: i, iv, viii

Aspects of this subject which are most appropriate to the use of computers:

- **Skills & content knowledge development, ethics (plagiarism and intellectual copyright issues) and global enrichment.**
- **Ability to use IT software in the design process (LO1) and design production (LO2); design in context (LO3) use of IT internet (access to URLS design sites & research).**

Suggested computer time per learner per week: **Approximately 30 min, as need arises for research.**

Planning for computer use should happen within:

- the subject framework: ✓ **allocate contact time (how: +- 6 hours per term)**
- work schedule: ✓ **(integrate with tasks and consider why, when, what, how, and assessment)**
- lesson plan: ✓
- programme of assessment: ✓ **(purpose, method, evidence required).**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject: (depending on design option selected for study)

Sub task(s) in design workbook: e.g.

- **Computer generated items may contribute to the solving of a design problem (as evidence of one aspect of the design process) but they must not constitute the whole process or the final product(s).**
- **Evidence of basic understanding of use and purposes of design software e.g. Adobe Photoshop creative suite and ability to visualise, manipulate images and play with ideas, texts and layouts etc.**
- **Exploration and experimentation with manipulation of images**
- **Ethics and intellectual copyright:**
- **Issues concerning the manipulation of images to support ideology, beliefs, propaganda etc**
 - **Presentation of on going research and content knowledge e.g. as a PPT presentation**
 - **Exploration and experimentation**

Suggested software for use in this subject: there are many design based applications e.g.

Adobe Creative Suite

Corel Draw

DesignNation ProDesktop

GIMP

Suggested peripherals for use in this subject:

Interactive whiteboards, data projectors, laptops, school intranet system, school web sites, internet access etc

Suggested URLs for websites for use in this subject:

There are many design and gallery sites. A suggested start is to focus on WCED curriculum development web site where there are further links:

<http://www.education.gov.za/>

<http://curriculum.wcape.school.za/site/103/page/view/444>

National Department of Education

<http://www.education.gov.za>

HEIs in South Africa

http://africa.msu.edu/s_afr_un.htm

Universities and Universities of Technology in South Africa

http://africa.msu.edu/s_afr_un.htm

Department of Arts and Culture

<http://www.dac.gov.za/>

Iziko Museums of Cape Town

<http://www.museums.org.za/iziko/>

Cape Peninsula University of Technology

<http://info.cput.ac.za/prospectus/cluster.php?d=5>

Google Search engine:

<http://www.google.co.za/>

Look for International government education authority sites (secondary school design; design & technology education sites - UK, US, Australia, New Zealand, Canada, Japan, Korea etc)

Intel Education

<http://www97.intel.com/education/>

The best venue(s) for the location of computers for this subject:

- **In the Design Room as a dedicated workstation. This gives the teacher and learners greater flexibility in terms of access and planning – learners can work in small groups or individually but under supervision.**

Name of curriculum planner with responsibility in the Western Cape for this subject:

Gill Cowan

Telephone:021 467 2556

Email: gcowan@pgwc.gov.za

DRAMATIC ARTS
ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

GRADE 10, 11 and 12:

▪ **Learning outcome 1: Apply Personal Resources**

Assessment Standards: Educators will need support / training in how to source support material from the internet

▪ **Learning Outcome 2: Create, Make and Present**

Assessment Standards: Educators will need support / training in how to source support material from the internet

▪ **Learning Outcome 3: Understand and Analyse**

Assessment Standards: Educators will need support / training in how to source support material from the internet. This is mainly a theoretical outcome; the access to source material is therefore important.

▪ **Learning Outcome 4: Reflect and Evaluate**

Assessment Standards: Educators will need support / training in how to source support material from the internet. This is a research component and the access to material on the internet is important.

The aspect of this subject which is most appropriate to the use of computers is

▪ **Learning Outcome 3: Understand and Analyse**

Assessment Standards: Educators will need support / training in how to source support material from the internet. This is mainly a theoretical outcome; the access to source material is therefore important.

▪ **Learning Outcome 4: Reflect and Evaluate**

Assessment Standards: Educators will need support / training in how to source support material from the internet. This is a research component and the access to material on the internet is important.

Suggested computer time per learner per week: **Variable, for research**

Planning for computer use should happen within

The subject framework, work schedule, lesson plan, and programme of assessment. Educators should be made familiar with different design options in Ms Word. This will enable them to draw up an electronic framework, schedules and lesson plans.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment

in this subject:

Research components, essays and any written presentations for the purposes of assessment.

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Whiteboard with electronic keyboard with midi, TV for Mindset LTSM

Suggested websites/facilities for teacher training:

Theatre History

The following is a very useful site. Dr Oscar G. Brockett, well-known theatre historian, supports it. This site contains links to all theatre history covered in *The Theatre, An Introduction* written and compiled by Brockett (Greek, Roman, Medieval, Western Modern Drama, non-Western Theatre, as well as practical and technical theatre aspects and more):

<http://www.win.net/~kudzu/history.html>

A digital bibliography for Brockett's *History of the Theatre*

<http://www.abacon.com/brockett/links.html>

Interesting site that covers all aspects of theatre history

<http://www.theatrehistory.com>

A very comprehensive guide to internet resources in Theatre and Performance Studies ranging from acting and directing techniques, stagecraft and technical theatre, plays and playwrights, theatre organisations to electronic journals and articles:

http://www.stetson.edu/csata/thr_guid.html

This site contains easy access to useful research sites covering all aspects of theatre history and practical aspects. This site contains easy access to useful research sites covering all aspects of theatre history and practical aspects

<http://www.videoccasions-nw.com/history/jack.html>

Information on Henrik Ibsen

http://www.hf.uio.no/ibsen/enteret/index_eng.html

Information on Samuel Beckett

<http://www.themodernword.com/beckett>

Information on American theatre (vaudeville)

<http://lcweb2.loc.gov/ammem/vshtml/vshome.html>

Elizabethan Theatre: focus on Shakespeare

<http://www.bardware.com>

Development of staging conventions / scenic spectacle

<http://www1.appstate.edu/orgs/spectacle>

Costume design

<http://www.costumes.org>

Theatre History online

<http://www.connectedcourseware.com>

Drama in the Classroom

Drama lessons and notes on all aspects of the curriculum: very valuable

<http://drama-education.com/lessons>

Practical drama lessons

<http://www.teachit.co.uk>

Useful material for lesson planning

<http://www.whatsonstage.com>

Interactive site with practical lesson ideas

<http://www.thevirtualdramastudio.co.uk/>

Interesting information regarding practical drama aspects (acting, directing, choreography, plays, etc)

<http://wwar.com/categories/Theater/>

Technical Aspects of the Theatre

Theatre design: focusing on costume, lighting, set and sound

<http://www.usitt.org>

The best venue(s) for the location of computers for this subject:

Computer access should be available in an additional room. The drama room and hall area must be used for practical work.

Curriculum advisers with responsibility in the Western Cape for Dramatic Arts:

Ina Bruce
Curriculum Advisor Arts and Culture /
Dramatic Art
EMDC South
Cell: 083 111 575
Tel: 021 - 3702049

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Anina Joubert
Curriculum Advisor Arts and Culture /
Dramatic Art
EMDC East
Cell: 084 660 1009
Tel: 021 900 7059

Email: ajouber@pgwc.gov.za

ECONOMICS

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

No specific Assessment Learning Outcomes and Assessment standards. It is recommended that learners use computer in Economics mainly for:

- Preparation of assignments and projects: Mainly Word, Excel, Power Point, (also Interactive White board)
- Searching the Web for research purposes

Possible applications:

LO 1 Macro-economics

Grade 10 LO 1 AS1: Career opportunities – PACE programme

AS2: Web search: Human rights and the environment

AS4: Reasons for business cycles and the impact on the economically vulnerable

Grade 11 LO 1 AS1: Web search: factors of production and their remuneration

Web research: Community participation initiatives and access of economically marginalised groups

AS3: Web search: South Africa socio-economics services

AS4: South African Industries and infrastructure, highlighting exclusion and discrimination

Grade 12 LO.1 AS1 Power Point / Electronic whiteboard presentation of circular flow model – also Excel used to demonstrate National Economic figures, e.g. (Excel: National account aggregates etc.)

AS2: Excel: Business cycles and forecasting

AS3: Exchange rates

Learning Outcome 2: Micro-Economics

Grade 10: AS1 Power point / excel – Make use of graphs to illustrate establishment of prices and quantities

AS3: Power Point / excel: Graphs: public sector involvement

Grade 11: AS 1 - 3: Power Point / Excel

Grade 12: AS 1 - 3: Power Point / Excel

Learning Outcome 3: Economic Pursuits

Grade 10 AS1 – 3: Web research & presentation (Word, Power Point / Electronic white board)

AS1 Stages of Economic development, evidences form Africa, where relevant

AS2 Economic development in South Africa, highlighting indigenous knowledge systems and impact of colonialism and imperialism

AS3 Money and banking

AS4 Composition of SA population and labour force, and impact of HIV/Aids

Grade 11

-

Grade 12: Web search

AS2 South Africa's industrial development policies

AS3 South African international trade policies

SA's role and relative economic importance in Africa

Learning Outcome 4: Contemporary Economic Issues

GENERAL TEACHING AND LEARNING STRATEGIES:

* Regular (daily access) Web search of current economic issues – especially News paper articles etc on suitable web-sites – presentation thereof by means of Power Point / electronic white board.

* Participation in Economics related competitions (e.g. Johannesburg Stock exchange, etc.)

* Monitoring of quantitative elements in Economics (e.g. prices of fuel, consumer items, bond rates, bank rates on suitable web-sites, and calculate (excel) trends, and present (e.g. Power Point/electronic whiteboard.)

Topics:

Grade 10 AS1: Unemployment, economically marginalised persons

AS2: Labour relations and dispute resolution mechanisms (e.g. Trade unions), including labour rights and conventions

AS3: Reconstruction of SA economy after 1994

Grade 11 AS1: Poverty: characteristics, causes and possible solutions

AS2: Globalisation

AS3 Problems of environmental deterioration and insensitive resource exploitation in SA

Grade 12 AS1: Inflation, policies used to combat it

AS2: Economic importance of Tourism to SA / importance of indigenous knowledge systems

AS3: Environmental sustainability – recent international agreements in this regard (e.g. Rio de Janeiro and Johannesburg summits)

The aspect of this subject which is most appropriate to the use of computers is:

*** Monitoring of daily economic issues on news paper & financial magazine web-sites (one topic per learner per year)**

*** Web search on curriculum related topics, as mentioned above. Formatting of rough work of research projects/assignments on computer by learners, using MS Word, inserting Pictures, Tables, graphs etc (Grade 10 – 5 Assessment standards for all learners – grade 11 and 12: 2 research AS's per year)**

Suggested computer time per learner per week: **Grade 10 – 1 hour; Grades 11 and 12 – 30 minutes**

Planning for computer use should happen within

The subject framework: **Planning of access to computer room, where available, e.g. 20 hours per grade per year, and co-ordination of specific periods when learners need time in the computer room (e.g. times planned when research needs to be done per grade).**

Work schedule: **More specific computer needs of learners within the year (specific time frames according to year work schedule per grade, e.g. how many periods (co-ordinate different grades/class groups)**

Lesson plan: **As per work schedule – Presentations, research during class time as per ASs.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

- **Power Point presentations**
- **Projects/assignments prepared on MS Word etc**

Suggested software for use in this subject:

PACE programme – grade 10 career investigation

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

- **Interactive whiteboard**
- **Data projector**
- **TV for Mindset LTSM**

Suggested URLs for websites for use in this subject:

Economics subsite on the WCED Curriculum site

<http://curriculum.wcape.school.za/site/33>

Bized

<http://www.bized.ac.uk>

Economics & Business Educator's Association

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

Economics Network

<http://www.economics.ltsn.ac.uk>

Department of Trade and Industry

<http://www.thedti.gov.za/>

Department of Environmental Affairs and Tourism

<http://www.environment.gov.za/>

Cape Town Chamber of Commerce

<http://www.capechamber.co.za/>

Chamber of commerce and Industry

<http://www.chamsa.org.za/>

Johannesburg Stock Exchange

<http://www.jse.co.za/>

South African Revenue Service

<http://www.sars.gov.za/>

Broad based Economic Empowerment (BEE)

<http://www.bee-smme.co.za/index.htm>

Gauteng Economic Development

<http://www.geda.co.za/>

National Treasury

<http://www.treasury.gov.za/>

The best venue(s) for the location of computers for this subject:

Ideally, a cluster of computers in each classroom with Web access; otherwise the computer lab.

Name of curriculum planner with responsibility in the Western Cape for this subject:

Lodi van Deventer

Telephone: 021 – 467 2563

Email: jydevent@pgwc.gov.za

ELECTRICAL TECHNOLOGY

ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

Grade 12 Learning Outcome 3 Assessment Standard 10:

We know this when the learner is able to combine logic concepts as an introduction to programmable control

Grade 12 Learning Outcome 3 Assessment Standard 12:

We know this when the learner is able to explain the operating principles and application of three-phase motors and control.

Grade 12 learners would benefit significantly by using a computer to achieve the above learning outcomes & assessment standards for computer control, e.g. Programmable Logic Controller (PLC) and programming of a Programmable Integrated Circuit (PIC) have become daily activities in industry. Pedestrian crossings, microwave ovens, music centres, DVD/CD players, washing machines, irrigation systems, and burglar alarms are but a few of the items in the learners' environments that they use in their daily routines. However, Grades 10 and 11 learners would also benefit from hands-on experience of simulating such systems to give them a better understanding of the impact of programmable control in modern society.

The aspect of this subject which is most appropriate to the use of computers is

1. By using the bottom range of PLCs (like for instance the Mitsubishi Alpha range) Grade 10 to 12 learners will be able to simulate ALL the logic concepts demand of the NCS. (10.3.10; 11.3.10 & 12.3.10)

2. By using a computer aided program (like Edison / Tina Pro / Crocodile clips)

Suggested computer time per learner per week: **40 minutes**

Planning for computer use should happen within

work schedule: **YES: A clear indication on the work schedule when the activity is going to take place and what hardware and software will be required.**

lesson plan: **YES: It must be spelled out what activities on the programme will lead to achievement of the Learning Outcomes**

programme of assessment: **YES: If the programme has not got a built in assessment task, the educator must draw up an assessment instrument relevant to the activities and must be given up front.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

A print out of readings, data, graphs and diagrams of the control system will be acceptable. (e.g. Listing of instructions / ladder diagram and circuit diagram of a pedestrian crossing. Listing of instructions / ladder diagram and circuit diagram of an up / down system with interlocks at upper and lower levels.

Suggested software for use in this subject:

Edison Multimedia Lab for Exploring Electricity and Electronics (See <http://www.edisonlab.com> for further information)

Tina Pro

Crocodile clips for Technology

A PLC program, e.g. the Mitsubishi Alpha range, Müller or Siemens.

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

PLC with compatible software, digital input simulator, analogue input simulator and some sort of output model.

PIC trainer with a few PICs

Suggested URLs for websites for use in this subject:

Electronics Workbench

<http://www.electronicworkbench.com>

How electronic gates work

<http://electronics.howstuffworks.com/digital-electronics.htm>

Preparing an SMS reader

<http://www.smspower.org/smsreader/prepare.html>

Edison multimedia program

<http://www.edusoft.co.za/edison.htm>

Crocodile Clips

<http://www.crocodile-clips.com>

How stuff works

<http://howstuffworks.com>

The best venue(s) for the location of computers for this subject:

In the digital electronics lab of a Technology centre

Name of curriculum planner with responsibility in the Western Cape for this subject:

J.P.F. Randewijk

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Email: jrandewijk@pgwc.gov.za

ENGINEERING GRAPHICS & DESIGN
ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

Grade 10 Learning Outcome 4 Assessment Standard 2 & 3

We know this when the learner is able to produce basic CAD drawings

Grade 11 Learning Outcome 4 Assessment Standard 2 & 3

We know this when the learner is able to produce advanced CAD drawings.

Grade 12 Learning Outcome 4 Assessment Standard 2 & 3

We know this when the learner is able to produce complex CAD drawings.

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

The practice in industry and in the drawing office is to move away from paper-based drawings. The focus has become increasing more towards CAD generated drawings. In order to make education relevant to the world of work it is essential that learners be exposed to the current technologies.

The aspect of this subject which is most appropriate to the use of computers is

Executing Civil, Mechanical and Electrical drawings using Computer Aided Drawing software.

Suggested computer time per learner per week: **1 hour 15 minutes**

Planning for computer use should happen within

work schedule: **YES: A clear indication on the work schedule when the activity is going to take place and what hard and software will be required.**

lesson plan: **YES: It must be indicate the activities which will lead to achievement of the Learning Outcomes**

programme of assessment: **YES: CAD is an assessment item which counts towards the learners' internal assessment mark.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

CAD drawings

Suggested software for use in this subject:

AutoCAD

AllyCAD

CADDIE

OR any other suitable CAD package

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

A3 printer, data projector, interactive white board

Suggested websites/facilities for teacher training:

<http://curriculum.wcape.school.za/site/35/page/view/>

The best venue(s) for the location of computers for this subject:

Computer lab

Name of curriculum planner with responsibility in the Western Cape for this subject:

W J Mercurur

Telephone:021 467 2242

Email: wmercurur@pgwc.gov.za

ENGLISH

ICT INTEGRATION FOR GRADES 10-12

The four Learning Outcomes have the function of developing computer literacy through constant interaction.

Learning Outcome 1: Assessment Standards 1, 2, 3 and 4

Learning Outcome 2: Assessment Standard 1, 2, 3 and 4

Learning Outcome 3: Assessment Standard 1, 2 and 3

Learning Outcome 4: Assessment Standard 1, 2 and 3

Learning Programme Guidelines document defines computer literacy as ‘the ability to use computers and to understand and create texts using a computer, such as computer games; multimedia texts that incorporate written text, visual images and sound; graphic texts and emails’.

The aspect of this subject which is most appropriate to the use of computers is:

- **All 4 Learning Outcomes play a pivotal role in language acquisition and can also be promoted by means of software.**
- **Skills and content knowledge development**

Suggested computer time per learner per week: **1 hour**

Planning for computer use should happen within

the subject framework: **Provide a holistic view from Grade 10 – 12. Levels of complexity could be easily captured. Allocate contact time.**

work schedule: **Integrate with tasks and consider why, when, what, how and assessment**

lesson plan: **Exemplars of lessons**

programme of assessment: **Purpose, method, evidence required.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Listening and Speaking activities

Reading strategies based on various text forms

Writing and presenting – planning skills, writing strategies and techniques and presenting of final draft

Language exercises

NB: It is important that users of software should always be aware of the spelling and grammar that is used.

Suggested software for use in this subject:

EYE Read

Inspiration

Literacy Bank

Readers are Leaders

Smart Ideas

Text Detective

Young Writer's Workshop

Suggested peripherals for use in this subject, e.g.

TV for Mindset LTSM, interactive whiteboards, data projectors, laptops, school intranet system, internet access

Suggested URLs for websites for use in this subject:

There are many English sites. A suggested start is to focus on WCED curriculum development website and on international ministries.

- **WCED curriculum development web site**
<http://curriculum.wcape.school.za/>
- **English website:**
<http://curriculum.wcape.school.za/site/36/page/view>
- **English Writing Site**
<http://thewritersnetwork.org/>

Suggested websites/facilities for teacher training:

- **WCED curriculum development web site**
<http://curriculum.wcape.school.za/>
- **WCED English website:**
<http://curriculum.wcape.school.za/site/36/page/view>
- **Molteno Project**
<http://www.molteno.co.za/index.asp>

HEIs (partnership with WCED for INSET through websites)

The best venue(s) for the location of computers for this subject:

The English classroom. This gives the teacher and the learner greater flexibility in terms of access and planning – learners can work in small groups or individually but under supervision

Name of curriculum planner with responsibility in the Western Cape for this subject: **Mrs Phumla Satyo**

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Email: psatyo@pgwc.gov.za

GEOGRAPHY

ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

Learning Outcome 1: According to National Senior Certificate requirements

Learning Outcomes 2 and 3 if used effectively

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment

standards:

Learning Outcome 1: According to National Senior Certificate requirements

Learning Outcomes 2 and 3 if used effectively

The aspect of this subject which is most appropriate to the use of computers is

General Geographic Techniques

Entire curriculum

Suggested computer time per learner per week: **1 hour 15 minutes**

Planning for computer use should happen within

the subject framework: **Yes**

work schedule: **Yes**

lesson plan: **Yes**

programme of assessment: **Yes**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Spreadsheets

GIS generated documents e.g. maps, graphs, tables, cross profiles, long profiles, sketches, diagrams

Suggested software for use in this subject:

- **Word processing**
- **Spreadsheets**
- **Web access**
- **Email**
- **Excel, including MS Map**
- **GIS**

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Interactive whiteboards, data projectors

Suggested URLs for websites for use in this subject:

Google Earth

<http://earth.google.com/>

ESRI – GIS and mapping software

<http://www.esri.com/>

Geomatica GIS software

<http://www.geomatica.co.za/>

Department of Environmental Affairs and Tourism

<http://www.environment.gov.za/>

Click on maps link

Department of Water affairs and Forestry

<http://www.dwaf.gov.za/>

South African Weather Service

<http://www.weathersa.co.za/>

Suggested websites/facilities for teacher training:

<http://curriculum.wcape.school.za/site/39/page/view>

The best venue(s) for the location of computers for this subject:

Computer laboratory

Name of curriculum planner with responsibility in the Western Cape for this subject:

Andrew Isaacs

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HISTORY

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

LO 4: Heritage. All assessment standards. There are very good sites dealing with heritage/monuments and memorials that could be used when working with this Outcome.

LO 1: Using a variety of sources – more and more good historical sources can be found on the web. This would be for learners and for teachers needing sources to use in lessons.

The aspect of this subject which is most appropriate to the use of computers is

There are some software packages that are being produced that are suitable for our curriculum. But apart from teaching and learning in the classroom, the use of computers and internet access can be integrated into professional development for teachers.

Suggested computer time per learner per week: **45-60 minutes, although this is not necessary every week It is suggested that class time in the computer lab be negotiated so that learners have the**

opportunity once or twice a term to spend a longer period working on history activities.

Planning for computer use should happen within
the subject framework:
work schedule:
lesson plan:
programme of assessment:

All of these. If there is limited access to computers and all are wanting to use the computer lab, then access needs to be planned well in advance. This would happen within the subject framework and work schedule. The more detailed planning of how the computers would be used would appear in the lesson plan and programme of assessment.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

PowerPoint presentations developed by learners; their own work done on the computer e.g. research projects or other assignments generated by the use of computers and other software. The important thing is that the work needs to be authentic and fall within the criteria for that particular assignment.

Suggested software for use in this subject:

CD-ROMs that have good content suitable for the content areas of the curriculum.

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

All of those mentioned could enhance the teaching of the subject.

Suggested URLs for websites for use in this subject

WCED Curriculum website:

<http://curriculum.wcape.school.za/>

Click on History: FET

Nuffield Foundation History

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

Classroom resources, lesson plans, and learners' work. A good place to get teaching ideas.

The World War 2 panorama project that is photographing memorials and landmarks of WW2

<http://www.WW2panorama.org/>

An interesting site for Learning Outcome 4.

Imperial War Museum

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

Interesting information about exhibitions and teachers resources about a range of topics.

Propaganda images from Nazi Germany

<http://www.calvin.edu/academic/cas/gpar> (Site page no longer active – suggest replace or remove link)

Facing History and Ourselves

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

South African History Online
<http://www.sahistory.org.za/>

South African History Archive
<http://www.wits.ac.za/saha/>

South African Labour History
<http://www.labourhistory.org.za/>

Suggested websites/facilities for teacher training:

I plan to build a WCED History pathway for teachers to the Facing History and Ourselves website as part of teacher training. If this is successful, I then plan to develop a course using their framework and resources.

The best venue(s) for the location of computers for this subject:

Classroom if possible, for use of small groups and individuals; computer labs.

Name of curriculum planner with responsibility in the Western Cape for this subject:

Gail Weldon

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HOSPITALITY STUDIES

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standard

LO. 1 AS 1, 2, 4 and 5 Grade 10, 11 and AS 1 and 2 in Grade 12

LO. 2 AS 1- 5 Grade 10, and AS 1, 3, 4 in Grade 11, and ass. 2 – 3 Grade 12

LO. 3 AS 1- 5 Grade 10, AS 1, 5 Grade 11, and AS 1 – 2 and 4 – 5 Grade 12

LO.4 AS 1 – 5 Grade 10, AS 1 – 4 in Grade 11 and AS 1 – 4 in Grade 12

The aspect of this subject which is most appropriate to the use of computers is

Research and projects, and practical

Suggested computer time per learner per week: **30 minutes**

Planning for computer use should happen within

work schedule: - **yes**

lesson plan: - **yes**

programme of assessment:- **yes**.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Cover pages and computer icons and pictures

Suggested software for use in this subject:

At present there is no specific software applicable to the subject.

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Sensors, interactive whiteboards, data projectors, laptops, memory sticks

Suggested URLs for websites for use in this subject:

Hospitality website:

<http://curriculum.wcape.school.za/site/65/page/view>

South African Chefs' Association

<http://www.saca.co.za>

Gourmet SA online

<http://www.gourmetsa.com>

Media 24 Ltd

<http://www.food24.co.za>

SABC 2

<http://www.pasella.com>

SETA for Hospitality and Tourism in South Africa

<http://www.theta.org.za>

Hospitality News

<http://www.hospitality.co.za>

South African restaurants)

<http://www.restaurants.co.za>

WINE – online magazine

www.winemag.co.za

University of the Western Cape

<http://www.uwc.ac.za>

The best venue(s) for the location of computers for this subject:

Lecture room and the cooking laboratory

Name of curriculum planner with responsibility in the Western Cape for this subject: **Bella Soqele**

Telephone: **021-4672636**

Email: bsoquele@pgwc.gov.za

INFORMATION TECHNOLOGY ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

LO 1: Hardware and System Software (and most of its Assessment Standards)

LO 2: e-Communication (and all its Assessment Standards)

LO 3: Social and Ethical Issues (and most of its Assessment Standards)

LO 4: Programming and Software Development (and all its Assessment Standards)

- **As Information Technology is about the development of computer applications by using current development tools, as well as activities that deal with problem solving through information management and communication, most of the LOs and ASs demand the use of computers.**

Suggested computer time per learner per week: **4 hours**

Planning for computer use should happen at all the stages of planning: the subject framework, work schedule, lesson plan, and programme of assessment

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

- **Most of the items in the Programme of Assessment, as well as daily assessment would be electronic.**
- **Comment: There is strong debate around the use of electronic assessment tasks to assess the "theory aspects" of the subject where the software automatically mark and generate the marks.**

Suggested software for use in this subject:

- **Operating Systems**
Windows platform: Windows 98, (preferably XP Professional)
Open Source platform: Linux Suse, Linux Redhat, Linux Fedora or any recent Linux distribution
- **Office automation**
Microsoft: MS Office Professional
Database Package: MS Access
Anti-Virus Package: Norton Anti-Virus

Open Source: Open Office, Star Office
Optional Packages: any suitable publisher and/or web development software
Database Package: REKALL, MySQL

- **Web-authoring:**
Frontpage
DreamWeaver
Optional Package: MS Publisher
- **Internet Browsers and Email software**
Microsoft: Explorer, Netscape or Opera
E-Mail: Pegasus or Outlook Express
Open Source: Mozilla, any suitable browser
E-mail: any suitable package
- **Java IDE (JCreator, Ready to Program, JGrasp) Java Development Kit (JDK 1.5)**
- **Data recovery software**

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

- **In fact ALL peripherals, both as part of the subject “content” and as aids to teach the subject (including a TV for Mindset LTSM).**

Suggested URLs for websites for use in this subject:

Information Technology subsite on the Curriculum Website:

<http://curriculum.wcape.school.za/site/119/page/view/>

Other Websites

<http://www.tomshardware.com/>
www.pcwebopedia.com
www.news.com/Categories/Index/0,3,2,0Q.html
www.aldridge.com
www.ora.com/reference/dictionary/

Memory and Cache (start with the first one)

www.pcguides.com/ref/ram/logic-c.html
www.mindspring.com/~12co/CacheFAQ.html

IDE and SCSI

<http://hardware.pairnet.com/scsiide>
<http://sophia.dtp.fmph.uniba.sk/pchardware/idescsi.html>

Smartcards

www.cip.com.au/scard/

Speech recognition (voice-writing)

<http://speakingolutions.com>
<http://www.dragonsys.com>

(Source: Business Education Forum, February 2002 (<http://www.nbea.org>))

Assistive technology

<http://www.nlb-online.org/>
<http://nyise.org/braille.htm>
<http://www.abledata.com>
<http://www.fentek-ind.com>

Handheld computers (palmtops)

<http://www.palm.com/education/>
<http://www.palm.com/products/handhelds/>

Keyboard instruction

<http://www.dmoz.org/Computers/Software/Educational/Typing>
<http://ktouch.sourceforge.net>
<http://www.qwerty.com>

The best venue(s) for the location of computers for this subject:

- **Computer lab**

Other suggestions, issues, ideas, points of view:

- **Not only must IT teachers be competent in using ICTs and applications effectively themselves, but they must also be able to transfer their competencies to learners through appropriate teaching and learning strategies.**

Name of curriculum planner with responsibility in the Western Cape for this subject:

Ighsaan Francis

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Email: ifrancis@pgwc.gov.za

ISIXHOSA

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

L0 2: ASS 1, 2 & 3

LO 3: ASS 1, 2 & 3

LO 4: ASS 1, 2 & 3

The computer would be useful in a wide range of texts such as the ff: transactional texts, creative texts and literary texts, skimming, scanning, editing and proofreading

The aspect of this subject which is most appropriate to the use of computers is:

Research using the Internet, creative and transactional writing

Suggested computer time per learner per week: **30 minutes**

Planning for computer use should happen within

the subject framework: **Scope of the subject, a three- assessment plan, a list of LTSM**

work schedule: **Packaging of the content, sequencing of the content , pace of the content, LTSM**

lesson plan: **Content, context, LOs, ASs, activities, teaching methodology, time allocation and resources.**

programme of assessment: **Designing of rubrics and checklists**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Essays and short pieces

Suggested software for use in this subject:

EYE Read

African Voices

Literacy Banks (in the case of Second Additional Language)

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Data projector and whiteboard

Suggested URLs for websites for use in this subject:

IsiXhosa subsite on Curriculum website

<http://curriculum.wcape.school.za/site/58/page/view>

IsiXhosa reference sites

<http://www.africanlanguages.com/xhosa/>

<http://isixhosa.co.za/>

<http://www.cyberserv.co.za/users/~jako/lang/xho.htm>

isiXhosa Wikipedia

http://xh.wikipedia.org/wiki/Main_Page

isiXhosa Google

<http://www.google.com/intl/xh/>

The best venue(s) for the location of computers for this subject:

Classrooms, in schools with fewer learners, and computer laboratories in bigger schools

Name of curriculum planner with responsibility in the Western Cape for this subject:

Nontsasa Mgabadel

Telephone:

Email: nmgabad@pgwc.gov.za

LIFE ORIENTATION ICT INTEGRATION FOR GRADES 10-12

Learners must use a computer to achieve these learning outcomes & assessment standards:

LO 1 AS 1 - 4: Personal Well-being. Today's Choices II software for learners deals with this LO.

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

LO 1: Personal Well-being: AS 1 – 4

LO 4: Career and Career Choices: AS 1 - 3

Suggested computer time per learner per week: **30 minutes during part of the year for PACE and Today's Choices II**

Planning for computer use should happen within

lesson plan: **the contents within the AS's and the appropriate activities as per CD Rom should be done with the computer**

CASS: Evidence of continuous assessment on LO 1 and LO 4 will have to be included in the learner portfolio. These activities may include work done on the computer from the CD ROM.

The following computer generated items are acceptable in a learner's portfolio in this learning area or phase:
*** to be determined by the teacher, based on the activities included in the learning programme**

Suggested software for use in this learning area or phase:

PACE CD-ROM with Careers Handbook and Learner's Workbook

Today's Choices II CD-ROM, with video cassette, Educator's Guide and Learner's Book.

Suggested peripherals for use in this learning area or phase:

Data projector, TV for Mindset LTSM

Suggested URLs for websites for use in this learning area or phase:

Life Orientation subsite of WCED curriculum site

<http://curriculum.wcape.school.za/site/42/page/view/>

PACE

<http://www.pacecareers.com>

Career Voyager

<http://www.careervoyages.com>

Career planning

<http://www.careerplanning.about.com>

Mayo clinic

<http://www.mayoclinic.com>

Online centre – student health and fitness

<http://www.teenactiv.co.za/>

Career and Lifeskills Resources

<http://www.career-lifeskills.com>

Teenactiv

<http://www.teenactiv.co.za/>

Health 24.com

<http://www.health24.com>

Love life youth site

<http://www.lovelife.org.za/>

Department of Sport and Recreation

<http://www.srsa.gov.za/>

Department of Health

<http://www.doh.gov.za/>

Super sport site

<http://www.supersport.co.za/>

The best venue(s) for the location of computers for this learning area or phase:

Computer lab

Other suggestions, issues, ideas, points of view:

30 minutes per week (although not every week of the year) should be made available for all classes to enable them to work on either the PACE programme, or on Today's Choices.

Learners should be allowed time to search the web to find information on assessment tasks

Name of curriculum planner with responsibility in the Western Cape for this subject in FET

Daleen Christiaans:

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LIFE SCIENCES

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Learning outcomes 1 (assessment standards 1 – 3) and Learning outcomes 2 (assessment standards 1 – 3)

Although it is not compulsory, it would be to their advantage to use certain software programs such as simulations, programs where they can vary the variables in an experiment, animations, drawings, electron micrographs from the internet, Excel to record results and plot graphs, etc.

The aspect of this subject which is most appropriate to the use of computers is

Simulations & animations: Processes and mechanisms

Electron micrographs from the internet

Drawings, images, flow charts and pictures from the internet

Dissections – software programme are available

Experiments – to vary the different variables (pH, temperature, oxygen and carbon dioxide concentration, irrigation, fertilisation)

Graphing – plot different types of graphs (line, histograms, pie charts)

Suggested computer time per learner per week: Ongoing use in science laboratory

Planning for computer use should happen within

the subject framework: **The use of the computer room (topic, term, dates)**

work schedule: **number of periods – number of class sections – topic (software programme)**

lesson plan: **The activity – software – teachers activity/action / learners activity**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment

in this subject:

Graphs, tables, illustrations, flow charts, electron micrographs in research projects as long as they are acknowledged.

Suggested software for use in this subject:

Multimedia Science School

Crocodile clips

Dataharvest

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

pH, temperature, light intensity sensors

A white board, a data projector, a laptop for teacher's use

Six workstations with computers (laptops) for group work,

Suggested URLs for websites for use in this subject:

Biology subsite of WCED Curriculum website

<http://curriculum.wcape.school.za/site/27/page/view/>

Useful links from the Biology website:

<http://curriculum.wcape.school.za/site/27/page/view/632>

University of Western Cape Internet Bio-Ed Project

http://www.botany.uwc.ac.za/sci_ed/

Science in Africa - Africa's First On-Line Science Magazine website:

<http://www.scienceinafrica.co.za/index.htm>

Natural Sciences website:

<http://curriculum.wcape.school.za/site/49/page/view/662>

Blended learning

<http://www.schools.nsw.edu.au/learning/yrk12focusareas/learntech/blended/index.php>
www.biointeractive.org

USA:

Scientific modelling:

<http://www.wcer.wisc.edu/ncisla/muse/>

<http://www.imagiworks.com>

<http://www.education.ti.com>

<http://www.hrw.com>

<http://www.nsta.org>

<http://www.wardsci.com>

<http://www.teachersource.com>

Online Videos

<http://www.racerocks.com/>

<http://www.pbs.org/wgbh/nova/programs.html>

<http://www.channel4.com/learning/>

UK

<http://www.sycd.co.uk>

<http://www.tpthould.dabsol.co.uk>

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

Payment required to download PPT presentations but one can preview them

www.senteacher.org/shot/bonenames.php

www.defra.gov.uk/environment/statistics/eiyp/intro.htm

<http://www.sheffcol.ac.uk/links/Science/>

www.biology4all.co.uk

<http://www.dataharvest.com>

<http://www.crocodile-clips.com>

More useful links ...

<http://www.google.co.za/>

Use this search engine to search by topic, such as **mitochondrion**

<http://www.animalearn.org>

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

<http://www.nabt.org>

<http://www.scilinks.org>

<http://www.granada-learning.com/>

The best venue(s) for the location of computers for this subject:

In the science laboratory

Other suggestions, issues, ideas, points of view:

To integrate ICT into the Life Sciences NCS successfully, it is necessary to place the hardware and peripherals in the science lab and to have an Internet connection.

Name of curriculum planner with responsibility in the Western Cape for this subject:

Tommy Botha

Telephone: 467-2557/ 0845510508

Email: tbotha@pgwc.gov.za

mwtcl@mweb.co.za

MATHEMATICS AND MATHEMATICAL LITERACY

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

The use of a computer in all learning outcomes and assessment standards will obviously enhance teaching and learning, especially where the mathematical concepts depend on visual representation. This is especially so when dealing with graphs (LO 2 and 4) and Space, Shape and measurement (LO 3)

The aspect of this subject which is most appropriate to the use of computers is

Drawing graphs and exploring geometrical shapes and patterns, especially transformations and tessellations

Suggested computer time per learner per week: **50 minutes**

Planning for computer use should happen within

the subject framework: **Yes, in broad strokes indicating the use of ICTs**

work schedule: **Yes, in broad strokes indicating the use of ICTs**

lesson plan: **In this phase of planning, the detail needs to be provided in terms of how, where and when computers will be used**

programme of assessment: **no, unless assessment tasks are use as assessment for learning.**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Graphs and geometrical shapes and patterns, Excel spreadsheets, learner assessment activities

Suggested software for use in this subject:

Office applications such as MS Word e.g. DRAW and EQUATIONS EDITOR and MS Excel

Dynamic geometry packages such as Geometer's Sketchpad, Graph Freeware

<http://www.padowan.dk/graph/index.html>

MasterMaths

MathPro

CAMI

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Laptop, data projector, interactive whiteboard, TV for Mindset LTSM

Suggested URLs for websites for use in this subject:

Mathematics homepage on the WCED Curriculum website:

<http://curriculum.wcape.school.za/site/46/page/view/>

Curriculum resources on the Web from the Mathematics homepage:

SCORE Mathematics Lessons

<http://score.kings.k12.ca.us/lessons.html>

These SCORE Mathematics Lessons have been written by teachers selected to participate in SCORE Mathematics workshops.

The Trillia Group - Basic Concepts of Mathematics

<http://www.trillia.com/zakon1.html>

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

Dedicated to improving the teaching and learning of Mathematics

The UKMT Web Site

<http://www.mathcomp.leeds.ac.uk>

Mathematics competitions in the UK for 12-18 year old school pupils.

The Organic Mathematics Home Page

<http://testapp.mathforum.org:8010/library/view/3094.html>

Discrete Mathematics -- from MathWorld

<http://mathworld.wolfram.com/topics/DiscreteMathematics.html>

Wolfram Web Resources, Astronomy Biography Chemistry, Mathematics Physics.

Appetizers and Lessons for Mathematics and Pattern Based Reason

<http://whyslopes.com/>

Appetizers and Lessons for Mathematics and Reason - a thought-provoking site to challenge how U learn or teach.

Mathematics Problem Solving - Free Worksheets

<http://www.rhlschool.com/math.html>

Search RHL School and EdHelperNet: Mathematics Computation. Times Facts Sheet. Sites for Teachers.

NASA - AMATYC - NSF Mathematics Explorations I and II

<http://www.ccc.commnet.edu/ita/>

Mathematics Explorations I & II.

Mathematical Atlas: A gateway to Mathematics

<http://www.math-atlas.org>

Dave Rusin's survey of research-level **mathematics**, with introductory articles for non-mathematicians

Mathematics

<http://id.mind.net/~zona/mmts/mmts.html>

More Mathematics than Science. ... Expression Evaluation. The Function Institute. The Geometry Section. Graph Paper. Miscellaneous Mathematics. ...

Content Standards for Alaska Students - Math

<http://www.educ.state.ak.us/ContentStandards/Math.html>

Understanding mathematical facts, concepts, principles, and theories.

Project MATHEMATICS!

<http://projectmathematics.com>

Project **MATHEMATICS!** Produces videotape-and-workbook modules that explore basic topics in high school Mathematics

Quia - Mathematics - top 20 activities

<http://quia.com/dir/math/>

Educational activities for teaching Mathematics including concentration, matching, flash cards, etc

NCTM Illuminations

<http://illuminations.nctm.org/>

This site is designed to "illuminate" the new NCTM Principles and Standards for School Mathematics.

Millennium Mathematics Project

<http://mmp.maths.org/>

A national (UK) initiative based in Cambridge. Its broad goal is to help people of all ages and abilities.

<http://dir.yahoo.com/Science/Mathematics/>

This has a weekly selection of graphically interesting Mathematics sites. ...

<http://www.nyu.edu/pages/mathmol/>

This site provides students, teachers and researchers with the basic concepts in Mathematics

K-8 Education Place | Mathematics Center

<http://www.eduplace.com/math/>

The Mathematics Center provides Maths-related resources that include professional development, intervention, data place, brain teasers, textbook support, math links, etc.

Smile Program Mathematics

<http://www.iit.edu/~smile/mathinde.html>

The SMILE website has a collection of almost 200 single concept lessons.

Patterns in Mathematics

<http://www.learner.org/teacherslab/math/patterns/>

Teachers explore how patterns occur in numbers and in words in this interactive lab.

International Mathematics Olympiad

<http://olympiads.win.tue.nl/imo/>

Past International Mathematical Olympiads and links to related web sites.

Fun Mathematics Lessons by Cynthia Lanius

<http://math.rice.edu/~lanius/Lessons/>

Mathematics lessons for elementary, middle, and high school including geometry, fractions, and algebra.

e-Tutor, Inc. Empowering Classrooms... Enriching Minds

<http://www.e-tutor.com/>

Anytime, Anywhere, Everyday Learning e-Tutor offers students, parents and educators the vision, tools and resources for initiating and implementing Internet-based curriculum for K-12.

NCTM e_Resources - Journal Home

http://my.nctm.org/eresources/journal_home.asp?journal_id=1

Journal for Research in Mathematics Education.

California Mathematics Council

<http://www.cmc-math.org/>

The Story on Integrated Mathematics Curricula.

Colourful Mathematics

<http://www.math.ucalgary.ca/~laf/colorful/colorful.html>

Educational software presents advanced Mathematics to K-12 students in a game-oriented approach

Mathematics from FOLDOC

<http://wombat.doc.ic.ac.uk/foldoc/contents/mathematics.html>

Mathematics. Related entries include: abscissa; accuracy; Active Language; additive; affine transformation; aleph 0; algebra; Algebraic ...

Mathematics, Science & Technology Education at UIUC

<http://www.mste.uiuc.edu/courses/mat764fa05/index.php>

Office of Mathematics, Science, and Technology Education for K-12.

South African Mathematics Society (SAMS)

<http://www.cam.wits.ac.za/sams/>

<http://www.education-world.com/math/>

A website with mathematics resources.

The best venue(s) for the location of computers for this subject:

A number of work stations in each classroom and a computer lab.

Name of curriculum planner with responsibility in the Western Cape for this subject: **Raymond Smith**

Telephone: 021 467 2551

Email: crsmith@pgwc.gov.za

**MECHANICAL TECHNOLOGY
ICT INTEGRATION FOR GRADES 10-12**

Learners must use a computer to achieve these learning outcomes & assessment standards:

Grade 10 Learning Outcome 3 Assessment Standard 4

Grade 11 Learning Outcome 3 Assessment Standard 4

Grade 12 Learning Outcome 3 Assessment Standard 4

When working with a lathe the learner must be able to use the Computer Numeric Control (CNC) programmable lathe to perform a task.

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Possibility is to get a simulation program and use it on the computer so that the class can participate in programming skills.

The aspect of this subject which is most appropriate to the use of computers is

CNC: When working with a lathe or a milling machine.

Suggested computer time per learner per week: **30 minutes in computer laboratory plus ongoing workshop time**

Planning for computer use should happen within

work schedule: **YES**

A clear indication on the work schedule showing when the activity is going to take place and what hard and software will be required.

lesson plan: **YES**

It must be spelled out what activities on the programme will lead to achievement of the Learning Outcomes

programme of assessment: **YES**

If the programme has not got a built in assessment task, the educator must draw up an assessment instrument relevant to the activities and this must be given up to the learners up front.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

A print out of readings, data, when using CNC

Drawing of the final project.

Suggested software for use in this subject:

Simulation programme: CAM/CAD Design, Sangari SA

Newton

The best venue(s) for the location of computers for this subject:

In the computer lab of a Technology Centre

Name of curriculum planner with responsibility in the Western Cape for this subject:

A.E. LATEGAN

Telephone:021 467 2564

Email: alategan@pgwc.gov.za

MUSIC
ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

LO 1 Music Performance and Presentation

AS: Selecting, identifying, working and using available technology ,e.g. necessity placing and using microphones for amplification of sound)

LO 2 Composition and Arrangement

AS: Use of available technology

LO 3 Musical Literacies

LO 4 Critical Reflection

Use of available music programs on Internet and other software

The aspect of this subject which is most appropriate to the use of computers is

Musical performance, Composition, Arrangement and Theory of Music, Research in General Musical Knowledge

Suggested computer time per learner per week: **30 minutes**

Planning for computer use should happen within

the subject framework: **Depending on the availability of appropriate hardware and software, plan for music notation, sequencing and sound recording**

work schedule: **Time allocation for activities**

lesson plan: **Teacher and learner activities**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Own compositions and arrangements

Research tasks

Suggested software for use in this subject:

Music notation:

Finale

Sibelius

Sequencing:

Cake walk
Cue-base

Recording:

Audacity free download from <http://audacity.sourceforge.net/>

Pro Tools free download from <http://www.digidesign.com/ptfree/>

Suggested peripherals for use in this subject, eg sensors, whiteboards, data projectors, etc

Interactive whiteboard with electronic keyboard with midi

Suggested URLs for websites for use in this subject:

Music subsite of the Curriculum Development website

<http://curriculum.wcape.school.za/site/48/page/view>

Search engine

<http://www.google.co.za/>

International Library of African Music

<http://ilam.ru.ac.za/>

Associated Board of the Royal Schools of Music

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

Indiana University Jacobs School of Music

<http://www.music.indiana.edu/>

Trinity College, London

<http://www.trinitycollege.co.uk/>

Rockschool (UK)

<http://www.rockschool.co.uk/>

University of South Africa Department of Music

<http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=2021>

African Music

<http://www.dancedrummer.com/>

Music Theory

<http://www.musictheory.net/>

Rhythmic Dictation

<http://www.teoria.com/>

Musical Reference

<http://www.design-bysarah.co.uk/oulinks/courses/a214/a214notes.htm>

Music for schools and churches

<http://www.duckmusic.free-online.co.uk/>

Sky Music Studio

<http://www.skysun.co.za/s/index.htm>

Name of curriculum planner with responsibility in the Western Cape for this subject: **FRANKLIN LEWIS**

Telephone: **021-467 2504**

Email: **flewis@pgwc.gov.za**

PHYSICAL SCIENCES

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer to achieve these learning outcomes & assessment standards:

Yes, but learners must have access to appropriate subject specific software and the Internet. The Internet has the potential to impart the greatest knowledge gain immediately to learners.

The aspect of this subject which is most appropriate to the use of computers is

- **Data handling and interpretation**
- **Solving problems**
- **Communicating and presenting information**
- **The acquisition and construction of science knowledge**
- **Subject related research**
- **Demonstrations of phenomena, experiments, tests and content**

Suggested computer time per learner per week: **45 minutes**

Planning for computer use should happen within

the subject framework: **Yes – include computers under resources that support teaching and learning**

work schedule: **Yes– include computers under resources that support teaching and learning**

lesson plan: **Yes– include computers under resources that support teaching and learning**

In each science subject framework, work schedule and lesson plan, provision must be made for LTSM. Computers, computer programmes and software will form an integral part of this LTSM.

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

- **Spread sheets**
- **Worksheets**
- **Drawings and graphics**
- **Assessment tasks: both instruments and tools, including instructions and learners answers / responses**

Suggested software for use in this subject:

1. **Data Harvest equipment and software** for recording and analysing measurements
2. **Crocodile Clips** for interactive experimental work
3. **Physics** by Riverdeep Interactive learning: For virtual teaching and learning online using Physics Explorer3.04
4. **Physics** by Wolwendrift Trust: For step by step guidance to learning concepts
5. **FET CD** by MULTICHOICE: For mediating and addressing misconceptions in the key areas of science such as energy
6. **GET Ahead MSE**: For Grade 6 and 7 Math, Science and English
7. **Corel Draw**: For drawing any object in a professional way.
8. **Fun with Polymers**: FET content by Jaco de Kock - Cape University of Technology.

Suggested peripherals for use in this subject, eg sensors, whiteboards, data projectors, etc

TV for Mindset materials; interactive white boards; data projectors; laptops; Flash drives; laser pointers; CD-writers; scanners; sensors; data logging devices.

Suggested URLs for websites for use in this subject:

Site for NSW online:

<http://hsc.csu.edu.au/chemistry/core/monitoring/chem943/943net.html>

Weblinks for Science

<http://www.sheffcol.ac.uk/links/Science/>

Dictionary of units of measurement

<http://www.unc.edu/~rowlett/units/index.html>

National Institute of Standards and Technology (NIST)

<http://physics.nist.gov/cuu/units/>

For constants, units and uncertainty

Plastic polymers

<http://www.psrc.usm.edu/>

Physical Sciences web site with search options

<http://www.psigate.ac.uk>

Suggested websites/facilities for teacher training:

We need to create venues within reasonable proximities of schools where learners will have unhindered access to computers – something like the Internet Cafés that have mushroomed around us.

The best venue(s) for the location of computers for this subject:

Science laboratory

Other suggestions, issues, ideas, points of view:

The issue for me remains access to computers and software on demand and the costs involved.

We only have achieved some degree of access but this is not enough to achieve the desired equity.

Name of curriculum planner with responsibility in the Western Cape for this subject: Telephone: 021 467-2581

Email: dfrancis@pgwc.gov.za

Donald Francis

RELIGION STUDIES ICT INTEGRATION FOR GRADES 10-12

The aspect of this subject which is most appropriate to the use of computers is
Research tasks

Suggested computer time per learner per week: **Occasional use as needed for research**

Planning for computer use should happen within

the subject framework: **Yes**

work schedule: **Yes**

lesson plan: **Yes**

programme of assessment: **No**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Research tasks

Suggested software for use in this subject:

Electronic encyclopaedias

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Data projector, interactive whiteboard

Suggested URLs for websites for use in this subject:

Teaching about Religion

<http://www.teachingaboutreligion.org>

Directory of online resources for Religious studies

<http://www.academicinfo.net/Religion.html>

Religions in Brief

<http://www.hinduism.co.za/religion.htm>

The best venue(s) for the location of computers for this subject:

Computer lab; occasional use only

Other suggestions, issues, ideas, points of view:

The Subject Statement for Religion Studies has not yet been printed and distributed to schools. Training will only be done in 2006, although implementation must begin at the start of 2006.

Name of curriculum planner with responsibility in the Western Cape for this subject: **Daleen Christiaans**

Telephone: 021 467 2589

Email: dchristi@pgwc.gov.za

TOURISM

ICT INTEGRATION FOR GRADES 10-12

Learners would benefit significantly by using a computer when engaging in a wide range of learning activities in Tourism, but they must use computers to achieve these learning outcomes & assessment standards:

LO 3 AS 1, 2 and 4 in Grade 10; AS 1, 2, 3, and 5 in Grade 11; and AS 1, 2, 3, 4, 5, 6 in Grade 12: Use of the Internet, a GIS and/or electronic atlas would greatly enhance the learners' skills and understanding required to meet these assessment standards of this outcome.

LO 4 AS 1 and 4 in Grade 10; AS 3 and 5 in Grade 11; AS 5 in Grade 12.

The aspects of this subject which are most appropriate to the use of computers is

- **Finding and handling relevant local, national and international information from geographical, cultural, heritage and commercial sources on the Internet**
- **Using online travel and accommodation websites to source information.**
- **Using a GIS to access information useful in planning for travel and tourism.**
- **Using mind-mapping software for planning and organising**

Suggested computer time per learner per week: **40 minutes**

Planning for computer use should happen within

the subject framework: **yes**

work schedule: **yes**

lesson plan: **yes**

programme of assessment: **yes**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject:

Schedules, maps, research tasks

Suggested software for use in this subject:

Inspiration

Smart Ideas

ESDRI (GIS)

Geomatica (GIS software)

Suggested peripherals for use in this subject, e.g. sensors, whiteboards, data projectors, etc

Interactive whiteboard, data projector

Suggested URLs for websites for use in this subject:

South African Tourism

www.southafrica.net

World Tourism Organisation

www.world-tourism.org

SATOUR

www.satour.info/

South Africa Accommodation and Destination Guide

South African Tourism Services

<http://www.satsa.com/pages/>

Department of Environmental Affairs and Tourism

www.environment.gov.za

Tourism Grading Council of South Africa

www.tourismgrading.co.za

Global Travel and Tourism Programs

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

Getaway - Online

www.getawaytoafrika.com

Weg-tydskrif – elektroniese weergawe

www.weg.co.za

UNESCO

www.unesco.org

For information about World Heritage Sites

Cape Town & Western Cape

www.capetourism.org

Official visitor, events & business website

SETA for Tourism in South Africa

www.theta.org.za

Google Earth

<http://www.earth.google.com/>

EQUIP

<http://nbi.melange.co.za/welcome.php?pg=60>

Management of the Travel & Tourism Programme (TTP)

Comprehensive guide to South Africa: Travel and Tourism

http://www.esouthafrica.com/Travel_and_Tourism/

The best venue(s) for the location of computers for this subject:

One or two in the classroom

Name of curriculum planner with responsibility in the Western Cape for this subject:

Andrew Isaacs

Telephone: 021 467-2200

Email: anisaacs@pgwc.gov.za

VISUAL ARTS

ICT INTEGRATION FOR GRADES 10-12

The acquisition of IT skills in the Visual Arts is optional but should be considered to be part of the broader development of Visual Arts SKAVs but **MUST NEVER BE ALLOWED** to replace visual arts manual skills e.g.

LO1 Conceptualising: AS 1 i, ii

LO2 Making: AS I: i, iii, iv

LO4 Visual Culture Studies: ii, iii

Aspects of this subject which are most appropriate to the use of computers:

- **Skills & content knowledge development, ethics (plagiarism and intellectual copyright issues) and global enrichment**
- **Ability to use IT software in the conceptualising (LO1) making (LO2); and research in visual culture studies (LO 4) access to URLS design sites & research**

Suggested computer time per learner per week: **Not required on a weekly basis, but learners need a total of about 1 hour 30 minutes per 6-8 week cycle for research and to engage in multimedia processes**

Planning for computer use should happen within

- the subject framework: ✓ **allocate contact time (how: +- 3 - 4 hours per term)**
- work schedule: ✓ **(integrate with tasks and consider why, when, what, how, and assessment)**
- lesson plan: ✓
- programme of assessment: ✓ **(purpose, method, evidence required)**

The following computer generated items are acceptable in a learner's portfolio of school-based assessment in this subject (depending on visual arts practical option selected for study):

Sub-task(s) in visual arts workbook: e.g.

- **Computer generated items may contribute to Visual Arts processes but they should not constitute the whole process or the final product(s)**
- **Exploration and experimentation with manipulation of images**
- **Ethics and intellectual copyright**
- **Issues concerning the manipulation of images to support ideology, beliefs, propaganda etc**
- **Presentation of on- going research and content knowledge e.g. as a PPT presentation**
- **Exploration and experimentation**

Suggested software for use in this subject: there are many applications e.g.

Adobe Creative Suite

CorelDraw

GIMP

Suggested peripherals for use in this subject, e.g.

Interactive whiteboards, data projectors, laptops, school intranet system, school web sites, Internet access, etc

Suggested URLs for websites for use in this subject:

There are many design and gallery sites. A suggested start is to focus on WCED curriculum development web site where there are further links:

<http://curriculum.wcape.school.za/site/103/page/view/444>

National Department of Education

<http://www.education.gov.za/>

<http://www.education.gov.za/Curriculum/Curriculum.asp>

HEIs in South Africa

http://africa.msu.edu/s_afr_un.htm

Universities and Universities of Technology in South Africa

http://africa.msu.edu/s_afr_un.htm

Department of Arts and Culture

<http://www.dac.gov.za/>

Iziko Museums of Cape Town

<http://www.museums.org.za/iziko/>

Cape Peninsula University of Technology

<http://info.cput.ac.za/prospectus/cluster.php?d=5>

Cape Gateway

<http://www.capegateway.gov.za/>

Google Search engine:

<http://www.google.co.za/>

Look for international government education authority sites (secondary school design; design & technology education sites - UK, US, Australia, New Zealand, Canada, Japan, Korea etc)

Intel Education

<http://www97.intel.com/education/>

The best venue(s) for the location of computers for this subject:

- **In the Art Room as a dedicated workstation. This gives the teacher and learners greater flexibility in terms of access and planning – learners can work in small groups or individually but under supervision**

Name of curriculum planner with responsibility in the Western Cape for this subject:

Gill Cowan

Telephone:021 467 2556

Email: gcowan@pgwc.gov.za

Appendix A

**SOFTWARE PROFILE FOR NCS SUBJECTS
(FET)**

Evaluator:		Date:				
Title:		Publisher:				
Cost (where known):		Language(s):				
Subject(s):		Grades:				
Purpose of software						
<i>Please tick as appropriate</i>	Information transfer	Drill & Practice		Simulation / case studies		
	Problem solving, calculation	Creative thinking / writing / graphics		Logic / critical thinking		
For use by						
Individuals		Small Groups		Whole class / whiteboard		
System Requirements:						
Windows		Linux				
Content						
		Poor	—————→			Excellent
Relevant to NCS subject(s) above	1	2	3	4	N/A	
Compatible with OBE methodologies	1	2	3	4	N/A	
Information is accurate	1	2	3	4	N/A	
Logical progression in conceptual development and content	1	2	3	4	N/A	
Likely to arouse and maintain interest of learners	1	2	3	4	N/A	
Interactive learner participation	1	2	3	4	N/A	
Sufficient, relevant practice in appropriate skills	1	2	3	4	N/A	
Language of instruction suitable for learners	1	2	3	4	N/A	
Variation in activities, with increasing complexity	1	2	3	4	N/A	
Freedom from cultural, racial, gender and language bias	1	2	3	4	N/A	
Appropriate / adaptable for the South African context	1	2	3	3	N/A	
Presentation						
Learning outcomes clearly stated	1	2	3	4	N/A	
Easy-to-use screen instructions	1	2	3	4	N/A	
Appropriate presentation format	1	2	3	4	N/A	
Appropriate use of colour, sound and graphics	1	2	3	4	N/A	
Appropriate learner control	1	2	3	4	N/A	
Free of technical flaws	1	2	3	4	N/A	
Questions and Responses						
Questions / required responses appropriate to learning outcomes	1	2	3	4	N/A	
Appropriate evaluation of learner responses	1	2	3	4	N/A	
Appropriate feedback to learner responses	1	2	3	4	N/A	
Feedback to learner response provides remedial assistance where necessary	1	2	3	4	N/A	

Management					
Allows customisation for individual learning needs	1	2	3	4	N/A
Allows learners to exit and resume at a later stage	1	2	3	4	N/A
Keeps learner performance record	1	2	3	4	N/A
Allows educator control	1	2	3	4	N/A
Provides testing for prior learning	1	2	3	4	N/A
Allows addition of own learning material	1	2	3	4	N/A
Software meets the intended purpose relevant to the NCS					
	1	2	3	4	
Software is useful for teachers' own professional development in this subject	1	2	3	4	N/A
NCS subject learning outcomes / assessment standards addressed by the software:					
Please list the content of the software (e.g. as indicated on the content page / menu):					
General recommendation / Comments:					
[If software is recommended, please describe briefly how it could be used to support the subject.]					
Signature:					

Appendix B TECHNICAL ASPECTS OF SOFTWARE FOR SCHOOLS

This checklist has been adapted from that used by the Centre for e-Innovation to help you to decide whether the software you are considering purchasing is appropriate from a technical point of view. It could alternately be used to help you identify the problems involved in installing it on your school network or stand-alone computers, so that you can ask for assistance from the vendor or developer or helpdesk. You should check each of these points with the software vendor.

Support

1. Does the developer or vendor provide support if needed?

Licensing

2. Does the software license cost cover the whole school (site license) with or without teachers' home computers; or does it cover each venue, or each workstation or each user? Check on the server: some software might be licensed per CPU in the server?

Operating system

3. Operating system compatibility: On what operating systems does the software run? (E.g. Windows 95 or Windows XP, Linux, thin client technology, other) Is it the same as your operating system or compatible with it?
4. If your school has a Linux platform and the software is Windows: Has this software been tested on a Windows emulator in Linux and does it function in the emulator after installation?

Installation

5. On what media did you receive the software? (For example DVD, CD, floppy, or FTP)
6. Did you receive the latest version of the software?
7. Did the software have the relevant network and/or stand-alone installation documentation packaged with it?
8. If not, did you receive installation documentation separately or is it available on the vendor's/developer's web site?
9. If you received installation documentation and proceeded to install the software, did the installation procedures/setup work (i.e. without any tweaking)?
10. Is the software network able – can it function on a network without any security risks? That means that files do not need full access rights or write rights on the server to function, as this could compromise network security.
11. If the software is network able, is a network installation on the workstations possible? That means you can deploy the software from the server, even via AD (MSI technology), rather than installing it separately on each workstation.
12. After the installation of network software can you run the application from the workstation directly off the server, or is workstation installation also necessary (like client software or installing the full package on each work station)?

13. How would you rate the software installation - was it easy or difficult to install?
14. Once installed on the network does the software make use of LDAP Integration? Is separate registration of users necessary or does it get all user information from AD/NDS/Open LDAP?
15. When an installation has been completed (standalone or network), is tweaking necessary to make the software function correctly? For example, do you have to change some files or paths manually to a specific location to get the software functioning?
16. Are fixed drive mappings required to get the software functioning or does it make use of UNC paths? (Preferably, software should use UNC paths and automatically detect the server name)
17. Are specific scripts required/recommended to make it usable?
18. Are special policies required to make the software usable?
19. Are special profiles required to make the software usable?
20. Does the software allow for the use of mandatory user profiles.
21. Is it necessary to set up special rights on certain files to make the software usable? Do you need to set rights on the workstation like write rights in the Windows directory on specific files?
22. What are the security requirements for the software to function correctly on a server?
Good - Only requires Read access to function;
Medium - Requires mapped drives / Some files require full access to function;
Bad - All files require full access to function correctly.
23. What are the security requirements for the software to function correctly on a workstation?
Good - Only requires Read access to function;
Medium - Requires mapped drives / Some files require full access to function, or some files are needed on the workstation for application to function correctly;
Bad - All files need full access or need to be installed on the workstation.
24. Are the software installation and application free of technical flaws?
25. Do you think the developer should make the software installation and operation more user-friendly?
26. Would you recommend this software for use, notwithstanding technical flaws (e.g. software does not function correctly) or installation problems (e.g. setup is difficult or does not function correctly)?
27. What are the minimum system installation requirements on a workstation to allow the software to function on the system? (E.g. PII 266Mhz with 32MB of RAM and 60MB of HDD space)
28. What are the minimum system installation requirements on a server to allow the software to function on the system? (E.g. PII 266Mhz with 32MB of RAM and 60MB of HDD space)
29. Is the software dependent on the installation of specific service packs or components like DirectX, Flash (and specific versions), database engines like MySQL, SQL etc.

30. Does the software require audio in order for it to be fully optimized?
31. Does the software have printing support? (E.g. If something has to be printed, does it print on the default printer only or can different printers be selected?)

Language

32. In what languages is the software available? Are there support facilities such as spelling and grammar checkers and a Thesaurus? If it is available in more than one language, is each language similarly supported?

Adapted from the Centre for e-Innovation document **Software Criteria Information Form; Doc Ver:1.2; Date:20/07/2005**

SOME FURTHER READING

White Paper on e-Education: Transforming Learning and Teaching through Information and Communication Technologies

Department of Education, 2004

Enquiries and/or copies:

Department of Education: Telephone (012) 312-5911; Fax (012) 321-6770

(Published in the Government Gazette 2 September 2004; No 26762)

Managing ICTs in South African Schools – A Guide for School Principals

Maryla Bialobrzeska and Susan Cohen, South Africa Institute for Distance Education, 2005

Downloadable free from <http://www.saide.org.za/frontend/> and

Obtainable on CD-ROM from Edumedia, 3 Station Road, Mowbray, or

http://edumedia.wcape.school.za/catalog/welcome_s.html at R25 plus postage.

Western Cape Education Department e-Education Policy Framework

February 2004

Western Cape Education Department Policies and Guidelines for Learning and Teaching Support Materials:

Volume 1: Selection: General Guidelines

Volume 2: Selection: Learning Area / Subject Guidelines

Volume 3: Photocopying and Copyright Guidelines