Foreword

The White Paper on e-Education calls for the development of national standards for Information and Communication Technologies (ICT) in Education.

Guidelines for Schools ICT Hardware Specifications have been compiled to provide provincial education departments and schools with systematic mechanisms for dealing with hardware donations and acquisitions. These guidelines aim to assist education administrators, managers and teachers to cope with the rapid development and change in the technologies that are available to support teaching and learning.

ICT is fundamental to the implementation of e-Education and offers opportunities to access learning, redress inequalities and improve the quality of teaching and learning. These guidelines are intended to ensure that quality standards in ICT technologies are maintained in our efforts to improve access to quality education.

I trust that the Guidelines for Schools ICT Hardware Specifications will contribute towards meaningful decision-making processes, in the use of ICT in education.

DIRECTOR-GENERAL
January 2008

2. Strategic issues

Given that South Africa has approximately 25,570 schools in 9 provinces (Education Statistics; 2005), it is clear that policies, methodologies, standards and accountability structures will vary. Issues such as funding, asset management and standardisation are dealt with at national level.

It is expected that, over time, the Department of Education will provide further guidelines on matters covered in this section. Until then, provincial departments of education should take responsibility by setting provincial guidelines.

This section gives a short overview of several strategic issues, as well as some recommendations.

2.1 Schools funding for ICT

The extent to which the provincial departments of education currently have control over ICT in schools differs depending on several factors, most notably, the method of acquisition.

Schools acquire ICT equipment in different ways. These include:

a) Equipment procured using provincial funds.

b) Equipment procured directly by schools and controlled by school governing bodies.

c) Equipment donated to schools by other government departments (generally, older systems that have been written off).

d) Private donations.

Each of these methods has different implications regarding ownership, and hence asset management for schools and provincial education departments. Typically, school governing bodies will take responsibility for equipment bought via school funds or via private sector donations. However, the provincial education departments are responsible for setting asset management guidelines for equipment transferred from other government departments, as well as for the use of provincial funding.

For the purpose of this document, the focus will be on establishing ICT hardware configuration standards.

3.1 Functional profiles

3.1.1 Classroom / Computer laboratory requirements

PCs are required to teach IT and CAT subjects at FET level (Grades 10, 11 and 12). Provincial education departments currently aim to provide at least one computer laboratory to each school and, where applicable, make it available from Grades R through 12. However, even if this is achieved, it will not be sufficient to address the available computer requirements for CAT and IT together with curriculum integration, given the available computer time to be shared amongst many learners.

Curriculum integration can, however, take place with computers based in a computer laboratory, in the classroom or in a school library.

3.1.2 School administration/Management requirements

PCs used for school administration and/or management must support several functions, including liaison/communication at school and district level through e-mail, to maintain statistics as well as the day-to-day management of the school (e.g. report cards, SA SAMS, finances, attendance, EMIS), etc.

Teachers use computers to prepare lessons, write reports, create projects, write letters, plan work throughout the year, compile class lists, manage absenteeism, research their subject/learning area, communicate with other teachers, manage assessment and record their work.

3.1.3 Printing requirements

Schools generally have a basic requirement to print black and white documents. Colour printing is a higher-cost option, and should therefore be managed.

3.1.4 Presentation requirements

A data projector is necessary for group presentations. This necessitates a darkened venue or as an alternative, an interactive whiteboard can be used in the classroom, school library or computer laboratory.

3.2 ICT requirements analysis

Based on the functional profiles described in Figure 1, school requirements can be categorised as follows:

3.2.1 Hardware

Based on the current schools ICT environment, the following hardware devices are typically required:

a) PCs: Mostly “fat-client” configurations that have stand-alone workstations and are currently deployed in schools. Some provinces are considering “thin-client” configurations, such as server and dumb terminals, due to cost constraints.

b) Printers: Mostly monochrome use with colour as an option.

c) Servers: Mostly “fat-client” PCs that are being used as servers to share resources (e.g. optical drives). Most provinces deploy uninterrupted power supply (UPS) backup power for servers.

d) Peripherals:

   i. Printers

   ii. Data projectors/interactive whiteboards (IWB).

3.2.2 Software

A complete list of software currently being used in schools is still in process of being compiled. The following software, however, has been confirmed to be in use in schools.

a) Software used in schools:

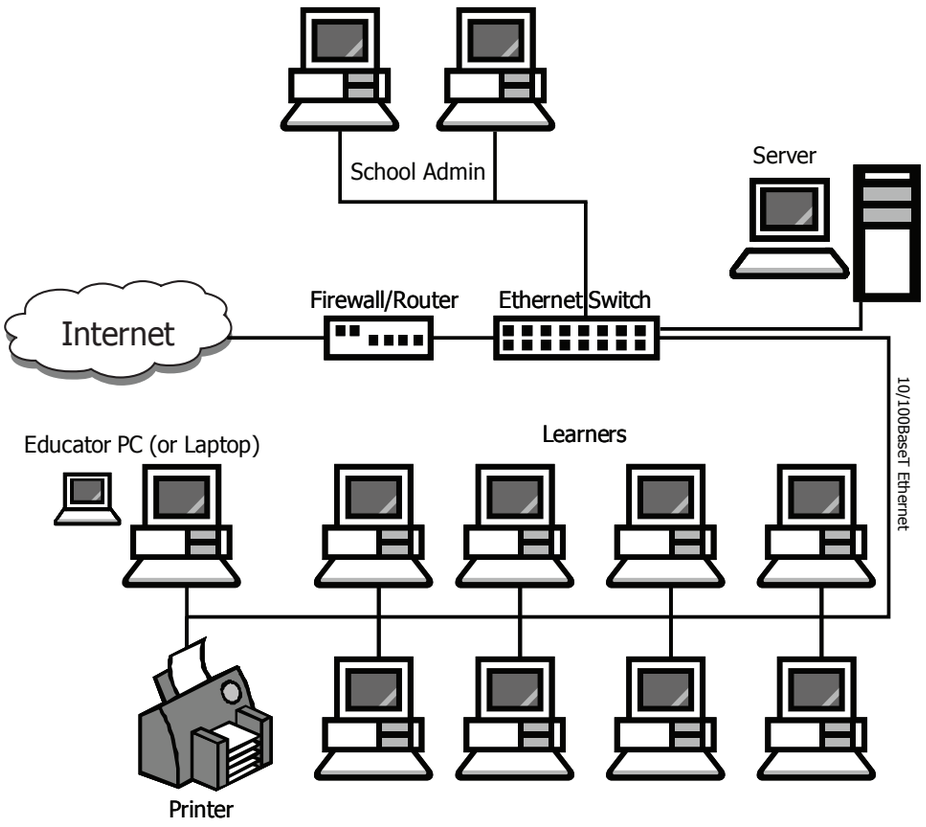
   i. Operating systems.

   ii. Utility programs.

   iii. A word processor application.

   iv. A spreadsheet application.

Figure 2: Typical school ICT laboratory



3.4 Donated and refurbished equipment

A typical problem experienced by provincial departments of education is that schools receive donations of outdated equipment that do not address educational requirements. This document provides specifications for donated equipment to ensure that schools are able to accept and utilise such equipment effectively.

In addition, the Department of Education requires that existing regulations be followed for all donations. There are based on best practices as specified by National Treasury.

The following list is a minimum specification for refurbished equipment that will fulfil the average computer needs in a school. Older equipment than this standard will typically be more expensive to maintain and perform below required standards. The guidelines below represent the entry-level standard of around 2004.

a) 2.4GHz Netburst (Celeron and Pentium 4) CPU.

b) 256MB RAM.

c) 40GB hard disk.

d) 16MB graphics controller (integrated is acceptable).

e) 15” CRT monitor.

f) 10/100BaseTX Ethernet card.

Ideally, a maintenance and support agreement (a 2-3 year on-site warranty) should accompany donations to ensure the availability of the system.

4.4 Donated equipment

It is recommended that any donated equipment should adhere to the minimum guidelines stated in sections 4.1 and 4.3.