



## **Schools Guide**

# Introduction

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Dear Teacher,

I would like to welcome you to the Malaptop project. Malaptop was set up in October 2011 as a way to make the most out of the laptops that are frequently replaced in Scotland. A lot of these laptops can be saved from the rubbish bin using free software that allows them to be used for many years after they would have normally been discarded. The laptop that was used to set Malaptop up was due to be thrown away two years ago but was salvaged using the same programs that we use for Malaptop.

My name is Simon Cleary, in 2009 I taught for three months in Nankhwali CDSS near Mangochi. The school could have really benefited from laptops and on my return I noticed how I could use Linux to salvage laptops to send out. Two years later I started getting the idea moving by setting up a website and looking for volunteers. That generated a lot of interest and Clare Ridler joined to help push things forward. Now we are glad to have the first batch in your school and our hard work has paid off.

We sincerely hope that all laptops have arrived in working order. The details on how to acquire the password can be found in the section entitled "Caring for the Laptops". More details on the syllabus can be found in this document along with further information about the systems and programs used.

May the laptops be a true benefit to your school and the pupils who use them.

Yours faithfully,

Simon Cleary  
[simon@malaptop.org](mailto:simon@malaptop.org)

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## \Who we are – Meet Malaptop

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***Simon Cleary***

I have just graduated with a first class degree in Economics and Maths from the University of Aberdeen and now work for a small economics company in Edinburgh as a researcher.

I came up with the idea for Malaptop when helping friends fix laptops at University. I was surprised how much I could do with the Ubuntu operating system. I had worked in Malawi in 2009 and realised that all the computers we could save in Scotland using Ubuntu could really help schools in Malawi.

**\*\*simon@malaptop.org\*\***



***Clare Ridler***

I am currently studying in my last year at Glasgow University, for a joint degree in Business Management and French.

I am a keen traveller and volunteer having worked as a volunteer teacher in Thailand. Volunteered working with an NGO in Senegal in 2008.

I am very excited about Malaptop and what we can achieve by working together with schools in Malawi.

**\*\*clare@malaptop.org\*\***

## \Project Aims

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Malaptop was set up to promote education in Malawi through the use of information technology. On the way to do this Malaptop aims to:

- introduce the benefits of computing to pupils who have had no contact with I.T;
- reach out to as many of these pupils as possible;
- allow these pupils to obtain practical skills and confidence in the use of computers; and
- improve the educational experience of the pupils.

These aims can only be achieved through the effective use of the laptops by the staff at the schools that we support. As a teacher, please note that these are the reasons that the laptops have been sent out and therefore when using them in the classroom:

- give the pupils as much contact hours as possible using the laptops;
- aim for smaller groups that increase individual contact hour; and
- set small practical tasks that each pupil can achieve to boost confidence.

When giving feedback on the project, please tell us what we can do to make achieving these goals easier.

MALAWI

Senior Secondary School Syllabus

Computing Studies Syllabus

Forms 3 – 4

Ministry of Education, Science and Technology

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**MALAWI**

## **Rationale:**

Computers are increasingly becoming an essential part of our life. Their use cover a wide range of activities such as study, computation, data analysis and many other applications.

Computer technology is new, exiting and faster in output. Computers are therefore becoming widely accepted as general purpose tools for many different applications and problem solving. For these reasons computer literacy is becoming important in an individuals life. It deals with basic understanding of computer concepts and an appreciation of software and its potential to problem solving. Students need to have the skills to use computers so that they can be of benefit in the present social economic environment, Computer studies will therefore help learners identify different educational and job opportunities available in computing and other related fields. It will also enable learners to a acquire a firm foundation for further education and training.

## **Objectives**

By the end of the course students should be able to:

- appreciate the impact of information technology on society
  - identify the different components of a computer system
  - know the different uses of a computer system
  - develop a clear understanding of different types of application packages
  - acquire knowledge, skills and attitudes in the use of computers
  - apply the knowledge and skills in organising, interpreting and presenting information and data in a variety of forms
  - develop skills in the safe use and care of computers and their peripheral devices
  - acquire a firm foundation for further education and training
  - realise different educational and occupational opportunities available in the computing and related fields
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## SCOPE AND SEQUENCE FOR COMPUTER STUDIES FOR FORM 3 AND 4

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TOPIC	FORM 3	FORM 4
<b>Introduction to computers</b>	<ul style="list-style-type: none"> <li>● Definition of a computer</li> <li>● Definition of information technology</li> <li>● History of computers</li> <li>● Types of computers</li> <li>● Classification of computers</li> <li>● Computer terminology</li> </ul>	
<b>Areas in which computers are used</b>	<ul style="list-style-type: none"> <li>● Advantages of computers</li> <li>● Disadvantages of computers</li> <li>● Fields in which computers are used</li> </ul>	
<b>Computer components</b>	<ul style="list-style-type: none"> <li>● Hardware and software</li> <li>● Hardware devices                             <ul style="list-style-type: none"> <li>○ input devices</li> <li>○ output devices</li> <li>○ storage devices</li> <li>○ CPU</li> <li>○ communications devices</li> <li>○ types of software</li> <li>○ systems software</li> <li>○ application software</li> </ul> </li> <li>● Types of software</li> </ul>	
<b>Safe use and management of computers</b>	<ul style="list-style-type: none"> <li>● Management of computer laboratory</li> <li>● Safety precautions and practices</li> <li>● Causes of loss of software and data</li> <li>● Safety measures against loss of software and data</li> </ul>	
<b>Mastering the keyboard and mouse</b>	<ul style="list-style-type: none"> <li>● Keyboard layout</li> <li>● Typing</li> <li>● Keyboard posture</li> <li>● Mouse functions</li> </ul>	
<b>Operating Systems</b>	<ul style="list-style-type: none"> <li>● Operating systems</li> <li>● Types of operating systems</li> <li>● Content of Operating systems</li> <li>● Functions of the operating system</li> <li>● Information organisation</li> <li>● DOS commands</li> <li>● Windows</li> <li>● Advantages of windows</li> </ul>	
<b>Word processing</b>	<ul style="list-style-type: none"> <li>● Definition of word processing</li> <li>● Contents of a word processor</li> <li>● Working with a word processor</li> </ul>	<ul style="list-style-type: none"> <li>● Working with a word processor</li> <li>● Graphics</li> <li>● Printing</li> </ul>
<b>Spreadsheets</b>	<ul style="list-style-type: none"> <li>● Definition of Spreadsheets</li> <li>● Uses of Spreadsheets</li> <li>● Worksheet layout</li> <li>● Creation of traditional worksheet</li> <li>● Creation of electronic worksheet</li> </ul>	<ul style="list-style-type: none"> <li>● Cell entries</li> <li>● Moving around a spreadsheet</li> <li>● Chart wizard</li> <li>● Graphs</li> </ul>

	<ul style="list-style-type: none"> <li>• Cell entries</li> </ul>	<ul style="list-style-type: none"> <li>• Functions</li> <li>• Formulae</li> <li>• Printing</li> </ul>
<b>Databases</b>		<ul style="list-style-type: none"> <li>• Definition of a database</li> <li>• Contents of database</li> <li>• File management methods</li> <li>• Database models</li> <li>• Database design</li> <li>• Types of fields</li> <li>• Working with databases</li> <li>• Database structure</li> <li>• Data entry</li> </ul>
<b>Communication and networks</b>		<ul style="list-style-type: none"> <li>• Communications and networks</li> <li>• Network</li> <li>• Basics of communication and networks</li> <li>• Importance of communication</li> <li>• Networks software</li> <li>• Types of networks</li> <li>• Network equipment</li> </ul>
<b>Career opportunities</b>		<ul style="list-style-type: none"> <li>• Education opportunities</li> <li>• Job opportunities</li> </ul>

## \Example lesson plan

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**St Peters CDSS  
Science Department**

<i>Topic</i>	Advantages and Disadvantages of Computers
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<i>Learning Objectives</i>	<p>To know:</p> <ul style="list-style-type: none"><li>• Computers can store a lot of information and can allow many people to access this information</li><li>• They can connect people across the world and allow people to create professional documents</li><li>• However computers are also expensive, they need electricity and new skills need to be learned before they can be used.</li></ul> <p>To practice the skill of:</p> <ul style="list-style-type: none"><li>• Typing and use of tables in a word processor</li></ul>
<i>Learning Intentions</i>	<p>Create:</p> <ul style="list-style-type: none"><li>• A Writer document with a table containing the a list of the advantages and disadvantages of computers</li></ul>
<i>Lesson Structure</i>	<ul style="list-style-type: none"><li>• Discussion with class of the increasing role that computers are playing for life in Malawi</li><li>• Split the class into groups, so there is one group per computer.</li><li>• Giving examples of one advantage and one disadvantage of computers and then getting the groups to discuss and write down other advantages and disadvantages.</li><li>• Once the groups all have their own ideas, collect them on the board as a class</li></ul>
<i>Practical Activity</i>	<p><i>The laptops will be used here, as this will give the students hands on experience of the computers. The program that will be used is LibreOffice Writer and the pupils will input their ideas into a table.</i></p> <p>After the pupils have written down in their groups some of the advantages and disadvantages of computers they will show you their lists. Then they will go onto the laptops and open the LibreOffice Writer.</p> <ul style="list-style-type: none"><li>• Click on 'Insert'</li><li>• Click on 'Table'</li><li>• Change the title to 'Computers'</li><li>• Rows = 2 and Columns = 2</li><li>• In the top row of type 'Advantages' in one column and 'Disadvantages' in the other</li><li>• Type group ideas under each heading</li></ul>

	Encourage each pupil to take a turn to type in one idea each.
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<i>Assessment</i>	<ul style="list-style-type: none"><li>• Do all the groups have a document that looks similar.</li><li>• Can the groups spot what is different between each others work?</li></ul>
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<i>Reflection (Success)</i>	
<i>Review (development)</i>	



## \Your Feedback

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As you will be the first school who will receive laptops from Malaptop, we really value your thoughts on the project and we will rely on your feedback and constant communication. It is vitally important for us to get your feedback so we can support your school after receiving the laptops and also work to improve how things are done.

We do not want to wave goodbye to the laptops as soon as we send them, we want to work with your school in order to deal with any problem you have and

Feedback allows us to

- Resolve any problems you have with the laptops
- Support your school through using, maintaining and using the laptops to teach
- Learn and make vital improvements for future work and ensure the longevity of Malaptop

As this is the first school we will be working with, we are prepared for the fact that there may be initial problems and although we hope everything we go smoothly, we want to hear from you with both negative and positive feedback. Please don't be afraid to get in touch, without your opinions we cannot work to improve things for the future.

After 2 weeks – We would like to know your initial thoughts, your primary observations, what worked and what didn't work.

After 2 months (once started teaching)

- Photos
- Detailed reports



## \Using Linux

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You may have noticed that the laptops look slightly different to any machine that you have used in the past that was running the Windows operating system (95, XP, Vista or 7). This is because instead of Windows, we are using a Linux operating system called Lubuntu.

Linux is the most diverse type of computing operating system in the world. This is because, unlike Windows or Apple, the Linux system is *open-source*. This means that anybody can legally change the operating system to suit their needs, for free. There have also been versions designed for use in schools, security companies and government and Linux is what runs most of the Internet. The Lubuntu operating system that is on the Malaptop computers has been designed to take the most popular version of Linux, called *Ubuntu*, and make it easier to use for people who are accustomed to the Windows operating system. We decided that this would be the best system to use after speaking with other charities that had sent computers to Malawi.

At Malaptop, we believe that Malawi could benefit greatly from using open source software like Lubuntu for two reasons.

1. It is free! All the programs and distributions of Linux are free which means that old computers can be recycled for free, rather than paying US\$200 for the programmes. Using free software would make it easier for ordinary Malawians to gain access to computers.
2. It is exciting! Linux is the most dynamic of the operating systems because there are so many different people working on it. Nothing is out of bounds on Linux and therefore it is used by millions of computer scientists and enthusiasts around the world. By using Linux, Malawians will be able to gain a greater understanding of computing that will increase their ability to use computing in the development of the Malawi.

One of the countries where Linux is most popular is Brazil. Brazil has a large young population and large areas of the country are affected by poverty and poor infrastructure. However, in 2008, the Government announced that it was going to be using Linux in all public schools to encourage I.T skills for development. Brazil now holds annual conferences on Linux computing that attract visitors from all over the world.

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## \Caring for the laptops

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The laptops that are now in your care should be able to last for many years if they are cared for well. If they are not cared for well then there is the risk that there could be problems with the hardware that will stop them working. Any problems with the hardware will be difficult to overcome because the school will be responsible for replacing any parts that are required. This can be very expensive and therefore it will be best to avoid these issues.

### **Power (on,off, surges)**

Power surges are a problem for the Malawian electrical system. The laptops will have chargers that have adaptors in them and so the power surges should not affect the computers themselves. However any power surge will have the potential to damage the chargers. It is therefore highly recommended that you purchase surge protectors to plug the laptops into.

### **Security**

Laptops are very attractive items for thieves. It is therefore important to ensure that they are stored securely when they are not being used. Malaptop will not be able to replace those laptops that have been stolen from school premises.

You will notice that the laptops are all password protected and that they need this to log on. When the laptops are being sent out to you we shall also send you the number you will need to call to get the passwords.

### **Heat**

The laptops are not designed to be used in direct sunlight for long periods of time. Using them in direct sunlight may make it difficult to see the screen. Also the heat of the Malawian sun has the potential to damage the casing, screen and the internal electronics if the laptops are exposed to the sunlight or strong heat for a long period of time. It is therefore important to ensure that when the laptops are being stored they are out of direct sunlight and covered up.

The Laptops will also heat up as they are used. Particularly the battery packs and the underside of the computers themselves. To ensure that this doesn't become a major problem do not leave the laptops on for hours at an end and try to allow some airflow under the bottom of the computers.

### **Sand**

Sand has the potential to get in between the keys that may cause them to become stuck and make typing difficult. This hazard can be avoided if the laptops are covered up when in storage and only used indoors.

### **Water**

Any water getting into the laptops will seriously damage the electronics. Therefore ensure that there are no exposed liquids near the laptops when they are being used and the laptops are not stored beneath liquids, unless they are stored in a waterproof container. If water is spilt on a laptop then follow the below procedure as quickly as possible

1. Switch of the laptop immediately
2. Remove the power cable and then the battery
3. With a towel dry the laptop as much as possible
4. Turn the laptop upside down



5. Dry naturally. Prop the machine up, away from surfaces, so that air can circulate in and around the entire unit. Leave the machine to dry for 24 to 48 hours. While it is drying, place the laptop battery in a bowl of uncooked rice

## General Use

Laptops are very durable and the machines have been designed so they can be used on buses, trains or outside. However this does not mean that they can be abused when they are being used. The machines can break due to misuse like any other piece of electronic equipment. It is therefore important to ensure that the laptops are cared for when being used. One issue that has happened in the past is that pupils are very enthusiastic when typing and they have struck the keys too hard. This can break some individual keys, which means that they no longer work. To ensure that does not happen encourage the pupils to type lightly.

## \Troubleshooting

Dealing with problems with computers is called troubleshooting. There are two different types of problems that can occur, hardware problems and software problems

### \hardware problems

Hardware problems are the physical problems with the laptop. These can normally be avoided by taking care of the laptops but the most common problems are:

- Twisted cables in the power supply.
- Broken keys on the keyboard
- Cracked screen
- Unresponsive track pad

Unfortunately, it is difficult to replace any of the parts for the laptops and therefore a hardware problem can prove fatal.

### \software problems

Software problems are any issues with the programmes that are being run on the laptop. These can vary from just a screen freeze (when the screen does not respond to the mouse or keyboard) to glitches with the operating systems that render them unusable.

In the event of a software problem, the first thing to try is turning the laptop off for 5 minutes and then turn it back on again. Often the programmes can get caught in loops that cause it to freeze. By restarting the laptop, you will reset all the systems that are caught in a loop.

If this does not solve the problem, make a record of exactly what is said on the computer and record in in the computer log. Send an email to [simon@malaptop.org](mailto:simon@malaptop.org) and explain what the problem is and we shall try to rectify it remotely. In the package that contains the computers there shall be a USB flash drive. Keep this flash drive safe because it will contain all the tools we will need to completely reset the computer back to its original position.