***Self-Directed Activities: Raspberry Pi***

The purpose of these activities is to introduce you to the Raspberry Pi hardware and ensure you are familiar with basic commands.

**Key terms:**

*HDMI (High Definition Multimedia Interface) – used to transfer video and audio data from a source device (Raspberry Pi) to a monitor.*

*SD Card – Secure Digital Memory card – stores data, just like a hard disk.*

**Activity 1*.*** Hook Up the Hardware – the monitor, mouse and keyboard.

* Insert the SD Card with the Raspbian operating system already installed
* Login to Raspberry Pi – default user is called pi, default password is raspberry
* Type startx into the command box – this starts the desktop environment (GUI)

*Like other operating systems, Raspbian has a Graphical User Interface (GUI) – you simply click the icons to access the software programs.*

*As an alternative to the GUI, you can communicate with the Raspberry Pi using text-based instructions (commands). This form of communication is called a command-line interface, and the window into which you type commands is called a terminal.*

*The LXTerminal is the screen window that gives you access to the command-line interface.*

*CTRL and ALT and one of the function keys between F1 and F7, you can switch between six different virtual terminals.*

*When LXTerminal is loaded, you will see a blank screen with the linke pi@raspberrypi - $*

*Pi refers to your username*

*Raspberrypi is the hostname of your device; this name identifies it on a network*

*The $ symbol is a prompt for you to enter a text command*

*One of the most important tasks of an OS is to organise files and folders. These are organised into a tree-like structure, which are represented graphically by The File Manager.*

**Activity 2.** Go to the LXTerminal and type the following commands, observing what happens after you type each command:

pwd

ls

sudo raspi-config

sudo shutdown –h 0

The **pwd** command asks the Raspberry Pi to print the working directory, or show which directory you are currently working in.

The **ls** (list sorted) command tells the Raspberry Pi to output a list of the files in the current directory.

You can revisit the Configuration Menu at any time from a command prompt by issuing the command **sudo raspi-config**.

The **sudo shutdown –h 0** command tells the system to shut down immediately. The h command stands for halted. When the system is halted, it is safe to remove the power.

Can you now adapt this command to shut down the Raspberry Pi after a 10 second delay?

**Activity 3.** For this task you will install a screen capture application. To do this, type the following command into the LXTerminal:

**sudo apt-get install scrot**

Take a screenshot by typing **scrot** into the LXTerminal window. You will be able to find the image in the File Managager.

Now, experiement with different variations of the scrot command:

**scrot –cd 10**

**scrot –s**

What differences do these variations make to your ability to take screenshots of what you are viewing on your computer monitior? Can you think of any ways that making screenshots might be useful to you in the future?