

Generally when you purchase a computer it comes with a standard mouse and keyboard. For many people these devices pose difficulties. This factsheet is written to outline some of the options that are available. We cannot comment on every single piece of equipment. If you would like further information please do not hesitate to call us.

KEYBOARD ALTERNATIVES

The standard PC keyboard is designed to be used with two hands, it favours right handed people (the numeric keypad is on the right), and can be “over sensitive” so that it is easy to get a string of letters if a key is held down for slightly too long.

Modifying the keyboard response

The way the keyboard behaves can be changed. This can be done on Windows and Apple computers. These things are generally built in. The types of thing that can be changed are:

Sticky keys: this allows one finger users to operate shift, control and alt keys. The modifier key is held down until the next key is pressed. So to type “The” the keystrokes would be: shift t h e .

Key response rate: this allows you to alter the length of time a key needs to be held down before it initially appears or repeats on the screen.

Mouse keys: to allow the mouse pointer to be moved around using the numeric keypad keys.

We have detailed information sheets available on these – just ask.

Keyguards



Keyboard with Keyguard

These are rigid plates with holes designed to work with specific keyboards. The holes are positioned over each key and they make it impossible to press two keys at once. As a further benefit it is possible to rest hands and arms on the guard without pressing keys. They can be removed and fitted for use only when required.

It can often be easier to purchase a keyboard and guard together rather than get one to fit a specific keyboard.

Product	Supplier
Keyboard/guard combinations, standard and small computers	Maxess Products Inclusive Technology
Customised keyguards	Dave Williams Design Engineering

Different sizes and shapes

There is a wide choice of keyboards to replace the standard keyboard. We have chosen examples of keyboards here to illustrate the ideas described.

Small keyboards



Cherry G84

Small keyboards can be more easily positioned and are often suited to single handed users. They can fit between the arms of a standard wheelchair.

The actual key sizes are fairly similar to a standard keyboard. Space is generally saved by removing the numeric keys and reducing the gaps around the editing and function keys.

If the numberpad is essential, then it is possible to buy numberpads which can be positioned to the left or right as needed.

Product	Supplier
Cherry G84, and separate numeric pads	Inclusive Technology, Granada Learning
WinMini (small membrane keyboard)	QED

Keyboards with larger keys



Big Keys



Intellikeys

Keyboards with larger keys can help in situations where it is difficult to accurately locate a standard sized keytop. The larger size gives more area to aim at.

Some have a built in guard as the letters are slightly sunk beneath the surface of the keyboard.

“Intellikeys” is a flat keyboard which is pressure sensitive. It comes with a number of “overlays” which define the action of areas on the surface of the board. You can change layouts “on the fly”. In addition you can design your own layouts. This can be useful if you only want to work with a small number of keys.

Product	Supplier
WinKing	QED
Intellikeys	Inclusive Technology, Keytools
BigKeys	Keytools, Granada Learning

Ergonomic



Ergonomic keyboards are aimed at those wanting to touch type using both hands. Generally they incorporate a split between keys operated by each hand with the aim of reducing strain in wrists and arms.

A number of variations on this design are available.

Goldtouch

Many ergonomic keyboards have a fixed split. However some ergonomic keyboards, like the one pictured above, are hinged to allow the angle and height to be adjusted.

In addition to the two handed design PCD Maltron supply an ergonomic keyboard aimed at single handed users wishing to use all fingers to touch type.

Product	Supplier
Fujitsu Siemens ergo keyboard	Advance Seating Designs, NE Computing
Maltron Ergonomic Keyboards	PCD Maltron
Goldtouch Ergonomic Keyboard	Keytools
Microsoft Natural keyboard.	General PC suppliers and mail order eg Misco

Numeric keypad use



Cherry number pad

Because the standard keyboard has a fixed numberpad it presents difficulties for some people. A left handed user wishing to use the numberpad will have to reach across their body. A right handed user who makes little use of the numeric pad has to reach unnecessarily in order to use their mouse. Separate numeric pads used with smaller keyboards provide a more flexible solution.

Product	Supplier
Cherry numeric pads	Inclusive Technology, Keyboard Company
Electrone Minikb numpad	Intolct Ltd

Headpointer and mouthStick

Some of the smaller keyboards mentioned earlier may be suitable for use with headpointer and mouth stick. In addition a more specialised layout is available from PCD Maltron.

Product	Supplier
Headpointer, Mouthstick	Aremco
Headpointer keyboard	PCD Maltron

Other specialised keyboards



Cykey

Chord keyboards have only a few keys and rely on keys being pressed in combination to generate letters. They therefore work well for single handed users with independent movement in each of their fingers.

Product	Supplier
CyKey	Bellaire Electronics, Keytools

Position

It is very important when using keyboards and pointing devices to be comfortable. Some of the following ideas may be helpful:

Keyboard tray

This bolts under the desk and provides a retractable tray which holds the keyboard. It allows a lower typing position which may be more comfortable. A "lap tray" can achieve the same effect. It is basically a small bean bag attached to a tray, the beans mould to the shape of your legs and the tray gives a flat surface. A Laptop is similar but without the tray and is intended for use with laptops.

Product	Supplier
Keyboard Tray	Advance Seating Designs
Lap Tray	QED, Homecraft Abilityone
Laptop	Laptop Ltd

Fixing equipment



Mighty Mount

Keyboards, switches and pointers can be fixed in specific locations using modular systems like the one illustrated. Home made devices can also be helpful e.g. to raise up or tilt a keyboard.

Product	Supplier
Mighty Mount, Universal Mount	QED, Inclusive Technology

Arm and wrist supports

Foam or pads placed in front of the keyboard can be helpful when resting from typing. These are widely available from most office suppliers and PC outlets. Where there are difficulties supporting the weight of arms, articulating wrist supports which clamp to the table top are useful.

Product	Supplier
Articulating arm supports	Posturite, Datasound
Foam or gel supports	Many office suppliers, Datasound, Misco,

Monitor arms

These allow monitors to be easily moved and positioned. Generally they are designed for standard monitor sizes, heavy duty arms are also available.

Product	Supplier
Monitor arms	standard office suppliers, also from Datasound, Posturite, SIS Jensen

Workstation redesign



Togl Organiser

Many people especially those with neck and upper back problems may find alternative positioning of items more comfortable

Product	Supplier
Togl Organiser	Osmond Group

Protection

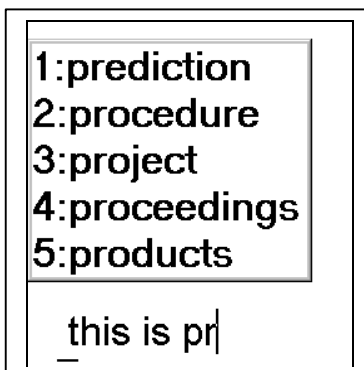
Anti-dirt, anti-moisture keyboard covers can be used to protect the keyboard.

Product	Supplier
Kidglove	Keytools
Keyboard covers	Inmac, Misco, Inpace

Speeding up keyboarding

The following techniques can increase keyboarding speed:

Prediction



After typing the first few letters of a word predictive software gives a number of words starting with those letters. To complete the word the user simply selects one of the words offered. For longer words this can offer speed improvements.

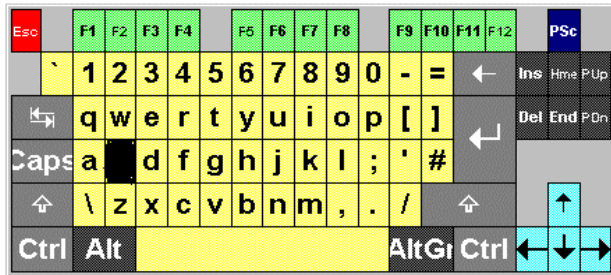
Product	Supplier
Prophet	Ace Centre
Co-Writer	Don Johnston
TextHelp Read & Write	Iansyst
Penfriend	Inclusive Technologies

Typing without a keyboard

It is not necessary to be able to use a keyboard to get ideas and text into a computer.

On Screen Keyboard

I can type by selecting letter



Wivik on-screen keyboard

Here letters are selected from an on screen keyboard. A mouse or trackball can be used to make the selection.

This same idea can also work with switches, where the user needs to select first the line then the column. Even if someone can only use a single switch they can operate a computer!

Windows On screen keyboard	Accessibility Option in Windows ME, XP, 2000
Wivik	Prentke Romich, Liberator
EZKeys	Possum
The Grid	Sensory Software
Penfriend	Inclusive Technology

Switches

If the user is physically or cognitively unable to use any keyboard or pointing device, then a basic starting point may be to use switch input. A switch is simply a button which, when activated, sends a signal to the computer. This signal can then be used to drive various software packages.

Switches come in a variety of shapes and sizes and can be operated by any controlled movement of the body.

Switches work well with cause and effect software and programs that require simple choices. A small switch interface box is needed to connect a switch to a computer.



Buddy Buttons

Product	Supplier
Switches and switch interfaces	Granada Learning/SEMERC, Don Johnston, Inclusive Technology, Keytools, QED

Voice recognition

This is a realistic option for those who have good speaking voices. The systems take time to “train” to recognise the speaker, but with practice it is possible to work at the speed of a good typist. We have factsheets available on voice recognition software.

MOUSE ALTERNATIVES

Standard computer mice come in all shapes and sizes, but are similar in needing to be rolled around a portion of desk. They need to be held in one position while the button is pressed. As a result they pose many problems for people with disabilities.

Making use of the keyboard

In Windows the keyboard can be used to perform most of the functions of a mouse. For example menus can be activated and text selected by simple keystrokes like alt-f and shift-right arrow. For further details please request our factsheet "Keyboard shortcuts in Windows".

Adjusting the way the mouse behaves

Just as it is possible to modify the keyboard response it is also possible to change the way the mouse behaves. In Windows "Control Panel" there is a mouse icon. Here you will be able to change the speed of the mouse; adjust the amount of time needed for "double clicking"; and swap the buttons over for left handed use. Depending on the type of mouse you have you may also have other things you can experiment with e.g.:

- Changing the acceleration of the mouse
- Forcing it to only move horizontally and vertically
- Putting different functions onto the available buttons.

Drag lock

Many programs require you to "drag and drop" pictures or text from one place to another. When doing this you need to move over the item, press and hold the mouse button down, move to the new location and release the button. We often find that this is difficult for people with disabilities. A useful feature to get around this problem is "drag lock". Here you simply move over the item, click (i.e. press and release a button), move to the new location, and click the same button again to release the item.

The drag lock feature is available on many pointing devices. It can be an additional button on the device which always works as a drag lock, or it can be a button which you can set-up to be a drag-lock using the control panel settings.

Different kinds of mouse

It is often worth trying a few different mice as they have different sizes and shapes; and require varying amounts of pressure on buttons. We have not illustrated every possible device here



Contour Mouse



Anir Mouse

Product	Supplier
Microsoft Mouse	PC, office and mail order suppliers
Logitech Mice	“ “
Kensington Mice	“ “
Contour mice	Contour Design (Europe) Ltd, Posturite
Anir Mouse	Osmond, Keytools

Trackballs

A trackball is basically an upturned mouse. Rather than rolling the mouse on the table top it is a static device and the ball on the top is moved using fingers, thumbs and palms. Larger trackballs are often suitable for use by feet.



PC Track



Logitech marble mouse



Kensington Expert Pro

Product	Supplier
PC Track,	Intolcet Ltd, Computerware, Keytools
Kensington trackballs	Misco
Logitech, Microsoft	Many PC, Office and mail order suppliers
Traxsys Roller	Granada Learning Ltd/SEMERC, Traxsys, Inclusive Technologies

Joysticks



These type of devices work in a similar manner to joystick controls on a wheelchair. The mouse pointer moves fastest when the joystick is pushed fully forward. The joystick illustrated has a built in guard and has a drag lock button and a button which sends a double click.

Traxsys Joystick Plus

Product	Supplier
Joystick Plus range	Traxsys, Granada Learning, Inclusive Technology

Touch pads



These devices are often found on laptops. They are stationary pads which are operated by sliding your finger across the surface. Clicking can be done with buttons or by "tapping" lightly on surface. They can be held in the hand or placed on a desk.

Cruise Cat

Product	Supplier
Cirque Touch Pads	Keytools, Touchstone Resources Ltd

Pen devices

These are held in the hand like a pen and come in two basic forms:

- a device that acts in a similar manner to a mouse, you move it and a small ball rotates moving your pointer in that direction (relative movement)
- a device which you move on a tablet, the tablet represents the screen area, if you touch the centre of the tablet you will always be in the centre of the screen. These tend to be called graphics tablets. They are widely used for drawing - larger sized tablets are used for more detailed work.

Supplier	Product
Mouse pen	Granada Learning Ltd/SEMERC
Various graphics tablets eg Wacom, Micrograf	Micrograf, major Mail order suppliers eg Action Computer Supplies

Screen based ideas: touch screens, light pens

Here selections and movements are made by pointing at the screen surface. Touch screens act in the same way as a standard screen but have sensitive surfaces. It is also possible to put a "Touch Window" over the front of a standard monitor to give the same function. A lightpen is a similar idea, requiring you to hold a pen and point it at the screen.

Product	Supplier
Touch Screens	Granada Learning, Inclusive Technology, Tyco Electronics, 3M Touch Systems, Keytools
Touch Window	Granada Learning
Lightpen	Computerware

Using head movement

Here the pointer is moved across the screen simply by moving your head slightly. They work well with on screen keyboards. Usually a switch is used to do the equivalent of a mouse click.

Product	Supplier
Smart Nav	Keytools, Sensory Software
Tracker 2000	Don Johnston
HeadMouse	Don Johnston, Techcess
Headway	Keytools
VisualMouse	www.mousevision.com

Foot controlled devices



BIGtrack

Some of the larger trackballs can be used with the feet

Product	Supplier
BIGtrack	Keytools

Other ways of clicking

We often see people who can use a pointing device to move the pointer around the screen but have difficulty clicking. Here it is worth remembering that the click does not have to be on the pointing device itself. You could turn on mousekeys and use a button on the keyboard to click and drag. A number of switch boxes are also available to make it possible to use an external switch to click,

Automated clicks

There are a number of software utilities which will detect when your mouse has stopped moving and then send a click. These utilities work well with pointing devices which can be accurately controlled.

Product	Supplier
Quill Nib	www.quillmouse.com
Point N Click	www.polital.com/pnc
Dragger	Don Johnston

August 2004