

Using Assistive Technology with Pre-school Children

Children with disabilities have a huge reliance on technology for learning, communication, recording, independent living and leisure. Yet their exposure to suitably adapted technology for play and learning is limited when they are very young.

This factsheet provides you with ideas on the kinds of equipment and software you can introduce to a child to provide them with access to play and help them to begin to use and understand the equipment and software that they will use in later life to learn and record.

Switch Access



Using switches with young children with physical and learning difficulties makes it easier for them to use either a battery operated toy or a computer. A switch can be operated using any part of the body allowing access to a computer even for those who have severe physical difficulties. There are various types of switches available to choose from to meet the needs of the child including big and small switches, pressure adapted switches, touchpad switches and soft switches.

Product	Suppliers
Various Switches	TechReady, Inclusive Technology, Maxess Products, Keytools, QED, AbilityNet.

Connecting switches to battery operated toys



A positive way to introduce young children to understand what a switch does is to connect it to a toy, so when they press the switch the reward is that the toy responds. You can buy toys that have already been adapted to use with a switch and allows you to plug in the switch and play away. However you can also adapt any battery operated toy or device to work with a switch by using a **Battery Switch Adaptor**.

Product	Suppliers
Battery Adapted Toys	DreamTechnology, Inclusive Technology, QED, AbilityNet.
Battery Adaptors	Inclusive Technology, QED, AbilityNet

Connecting switches to a computer

When you are using switches with a computer, the switches will usually work as though they are sending keyboard inputs (usually 'Space' or 'Enter') or sometimes mouse clicks. Most switch software will allow you to use the standard keyboard or mouse to operate it, as well as switches. This can be very useful if you want to try out the software without connecting switches – or sometimes to work alongside a child.

Mouse switch interface

There are interfaces that connect through the mouse port, such as the Mouser, or a special mouse or roller that has switch sockets built in (such as the Inclusive KidTrac). You should note that not all switch-accessible software will allow mouse clicks for the switch action, so this solution will not work for all switch access.



Mouse-switches can be especially useful in the situation where a carer/peer moves the mouse pointer and the child presses the switch to select. Alternatively you may have a child who can manage to move the pointer, but needs to hit a bigger target than a mouse button (i.e. the switch).

Product	Suppliers
Inclusive KidTrac roller device with Switch Sockets	Maxess Products, TechReady, Inclusive Technology, Keytools, AbilityNet.
BigTrack roller Device with Switch Sockets	Maxess Products, TechReady, Inclusive Technology, Keytools, AbilityNet.

Switch Interface



To connect a switch directly to the computer you will need a **switch interface connector**. There are various interfaces available. For example, the **Sensory Joystick** is very easy to set up and use and is supported by most switch accessible software. It also allows you the option to attach 2 switches. It also comes with Sensory switch driver software to allow it to be used with programs that do not directly support switch access. The adaptor comes with an instruction manual with clear guidance on setting it up.

Product	Suppliers
Sensory Switch USB Interface Joystick	Sensory Software, TechReady, Inclusive Technology, Keytools, AbilityNet.
Crick USB Switch Box	Crick Software, Inclusive Technology, Keytools, AbilityNet.
Wireless Switch Box	TechReady,
SwitchHopper USB Interface	TechReady

Positioning Equipment

To ensure that the child is using the switch effectively, positioning is important.

It should allow the pupil to concentrate on the activity when they are using the switch. If the switch is tilted or keeps moving when pressed, it will distract the child and they will become frustrated.



We would recommend either using **Dycem** material or **Switch Mount Trays** if you want to place the switch on a flat surface. There are a range of **Switch Mounts** available for those children who may use a switch more effectively if it is positioned at an angle. We would advise that a child with physical disabilities has their Occupational Therapist or Physiotherapist involved in identifying seating and positioning of switches.

Product	Suppliers
Dycem, Switch Trays and Switch Mounts	QED, Inclusive Technology, Maxess Products.

Touch Monitors

Touch Monitors can be really beneficial for children who have difficulty understanding the relationship between the movement of a mouse and the placement of the cursor on the screen. Some children struggle with using a switch as it may be too indirect. Pointing at something is a natural way to communicate and pointing on the touch monitor creates an immediate response on the screen.

Positioning the Touch Monitor

Ensure that the touch monitor is placed and positioned where the screen can be physically and visually accessed. If a child is in a wheelchair you need to ensure that the wheelchair can fit under the table. The important thing is to ensure the child is sitting in a comfortable position where they can easily access the monitor.

Adjusting the On-Screen Image

1. Check that lighting levels suit – in particular watch out for windows situated behind the monitor or glare from lighting.
2. Check the screen is clean
3. Adjust the brightness and contrast if required

Using Alternative Mice

Someone with a physical impairment can find them difficult to control a standard mouse, you can get alternative pointing devices that replace the standard mouse that are easy to control and to understand.



A trackball is one of these devices and it is basically an upturned mouse. This means it becomes a static device and you can move the ball using fingers, thumbs, or palms, they can even be operated by feet.

In our experience we have found that children who have been using switches could progress to using a mouse device, have greater success with trackball devices, in particular the **BIGtrack** and the **KidTrac** devices.



For children with muscular weakness we have found that a touchpad called **Cirque Smart touch pad** device works really well. It is similar to a touchpad on a laptop, but can be used with a standard computer.

For further information on Keyboard access please refer to the following factsheet available on our website:

“Keyboard and Mouse Alternatives”

Product	Suppliers
Range of alternative mice	Keytools, TechReady, Inclusive Technology, Maxess, Abilitynet.

Using Lowercase keyboards

Large key keyboards with lowercase letter square keys can help early year's children to find the letters on the keyboard and to press the keys more easily.

You can also obtain keyboards that have coloured coded keys. For example some keyboards, numbers are red; vowels are purple; consonants are green; punctuation is yellow and everything else is blue. This can really make a difference when learning the layout of a keyboard much easier and the colours also make it very appealing to young children being faced with a keyboard for the first time.

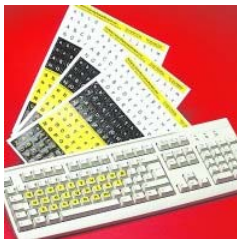
Using Compact Keyboards

Compact keyboards can also be easier to use for early year's children as they

Keyguards

Keyboards can also come with a keyguard that can be placed over the keys. This will allow the user to rest and drag their hands across the keyboard to then press the key letter they are looking for. A Keyguard is really useful for someone who has a physical difficulty controlling and moving their hands.

Lower Case high visibility stickers



Keyboard stickers are a cheap, simple way to convert a standard layout keyboard into a lower case and high visibility keyboard. Lower case letters on a keyboard can really help early learners to find the letters they are looking for and the high visibility colour contrasts can help individuals with sight problems.

For further information on Keyboard access please refer to the following factsheets available on our website

“Keyboarding and Touch Typing for Children”

“Keyboard and Mouse Alternatives”

Early Learning Software

Choosing software that is appropriate and fun is very important as it will motivate the child to engage with the computer and to build their skills. It is important to choose software that can be used with a touch monitor, switch, mouse or keyboard key so that you have a range of access methods to choose from.

The first software option involves the development of understanding that an action can cause a response, this is commonly known as “Cause and Effect”. Once a child has understood this action you can then move onto software that gets them involved in making choices allowing them to use their imagination and taking control of the story by making their own decisions.

Product	Suppliers
Range of Early Years software including cause and effect software.	Inclusive Technology, AbilityNet, Semerc

Listed below are website addresses where you can obtain free software that is appropriate for children using a range of equipment to access the computer. Some of the websites we have listed have free games and activities that are switch accessible.

www.inclusive.co.uk/downloads/downloads.shtml	Music Games, Talking Faces and SEN Switcher
http://priorywoods.middlesbrough.sch.uk	Fun switch games designed by pupils with SEN. Also includes a Big Book Template to create your own talking books.
www.camgoo.com/content/uk/home.php	Download free demo software to use with a webcam.
www.symbolworld.org	SymbolWorld is a website created by Widgit Software, dedicated to people who use symbols. It has material for all ages and includes personal contributions, stories and learning materials.
www.playkidsgames.com	Free games to build mouse skills. Some games are particularly aimed at learning the alphabet.
www.starfall.com	Free learning games to build mouse skills. Would be great to use them in an inclusive setting where the teacher is playing the games with the children.
www.bbc.co.uk/cbeebies/drilldown/fun/3/1/1/	Switch games and mouse & keyboard games to build skills.
www.allkids.co.uk/kids_pages/childrens_free_fun_sites.shtml	A site packed with lots of information surrounding children and PLAY including links to online stories and games.
http://rjcooper.com	A site that has a range of switch, mouse and keyboard activities that allows you to download and use FREE up to 7 times.

List of Suppliers

<p>Inclusive Technology Gatehead Business Park, Delph New Road, Delph, Oldham OL3 5BX Tel: 01457 819790 Web: www.inclusive.co.uk</p>	<p>Supplier of hardware equipment and software that helps people with special educational needs to use a computer, communicate and learn. Also supply adjustable trolleys.</p>
<p>Widgit Software 124 Cambridge Science Park, Milton Rd, Cambridge CB4 0ZS Tel: 01223 425558 Web: www.widgit.com</p>	<p>Suppliers of educational and literacy software for pre-school, primary, special needs students and adults with learning difficulties.</p>
<p>Sensory Software 26 Abbey Road, Malvern, Worcestershire WR14 3HD Tel: 01684 578868 Web: www.sensorysoftware.com</p>	<p>Sensory Software Ltd produces several ranges of software. These include:</p> <ul style="list-style-type: none"> • Software for profoundly disabled individuals • Software for Visually Impaired People • Software for People with Specific Learning Difficulties (including Dyslexia). • A range of AT equipment
<p>Traxsys 1 Embankment Way, Castleman Crossing Industrial Estate, Ringwood, Hampshire BH24 1EU Tel: 01425 463100 Web: http://assistive.traxsys.com/index.asp</p>	<p>Manufacture a range of communication aids and alternative assistive devices, e.g. alternative mice.</p>
<p>REM Great Western House, Langport, Somerset TA10 9YU Tel: 01458 254700 Web: www.r-e-m.co.uk</p>	<p>Suppliers of educational and literacy software for pre-school, primary, special needs students and adults with learning difficulties.</p>
<p>Maxess Products The Chinestone, Dancers Hill, Charlbury, Oxfordshire OX7 3RZ Tel: 01608 811909 Web: www.maxessproducts.co.uk</p>	<p>Supplies a range of alternative keyboards and mice, keyguards, switches, switch trays, and keyboard mounting products.</p>
<p>Keytools PO Box 700, Southampton SO17 1LQ Tel: 023 8058 4314 Web: www.keytools.com</p>	<p>Supplies a range of alternative keyboards and mice, keyguards, switches, switch trays, and keyboard mounting products.</p>

<p>TechReady 43 Thames Road, Barking, Essex, IG11 0HQ Tel: 0 20 8532 6138 Web: www.techready.co.uk</p>	<p>Supplies a range of alternative keyboards and mice, keyguards, switches, switch trays, and keyboard mounting products.</p>
<p>Keyboard Crazy Ltd 124 Imperial Court, Exchange Street East, Liverpool L2 3AB Tel: 0151 482 5546 Web: www.keyboardcrazy.co.uk</p>	<p>Keyboard Crazy is a typing game that helps children to learn the layout of a computer keyboard and other functions encountered in everyday use of a computer, using both the mouse and the keyboard, while partaking in 19 different literacy games.</p>
<p>SEMERC Granada Learning The Chiswick Centre 414 Chiswick High Road London W4 5TF Tel: 01666 843295 Web: http://www.semerc.com/</p>	<p>Suppliers of educational and literacy software for pre-school, primary, special needs students and adults with learning difficulties.</p>

Supplier details are for information purposes only. No endorsement or approval on the part of AbilityNet should be inferred.