

# Providing Special Access

Chris Drage looks at the particular problems of hardware and software for special needs

I have always believed that children with disabilities are handicapped only by their environment, and the more we can help adapt the environment to accommodate their needs the better for all concerned. One of the most problematical areas for any child or adult with disabilities is that of communication - all learners need to communicate! It is here that the computer can play a leading role. However, how do you provide access to a complex computer system to enable the computer to support students learning? By the very nature of the complexities and uniqueness of each individual's case it is not possible to be specific but only to outline general solutions which should be of interest, both to teachers and to concerned parents or relatives who might be prepared to fund a computer system for use at home.

Unlike many other computer systems targeted as educational tools, Acorn's A-series has enjoyed a veritable flowering of related software and hardware designed to give S.E.N. pupils of all ages access to information that was previously beyond their capabilities. Northwest SEMERC has capitalised on this to



NW SEMERC's Micros for Special Needs Exhibition

provide the award winning A4000S (£899 ex. VAT) version of the popular A4000 computer. With an 80Mb hard disc, colour monitor, mouse and Cumana's versatile EMU (Expandable Multi Use) interface installed, the A4000S not only provides access to established input devices but also allows for further expansions (e.g. SCSI devices). Designed as a ready-to-go system, the A4000S comes with a plethora of tailored software, including items from leading SEN software publishers Brilliant Computing and Widgit. For existing owners of A4000 systems, an upgrade kit is available (£119 ex. VAT). The A4000S is extremely neat and cost effective, and provides an impressive system for special educational needs.

Unfortunately for users with special needs, even an A4000S is often only the base platform, as in many cases access to the computer's usual input devices (keyboard and mouse) may be

impossible. Membrane (overlay or concept) keyboards have been the mainstay of alternative input devices for years now. The reason is quite clear: the principal component of the overlay keyboard is extremely versatile - it's a piece of paper! They are also very easy to use; for example, whole word or sentence input can be used for transforming pictures to words, or English to French. They can also help to provide children operating at different levels with access to the same piece of software, and to encourage spatial exploration.

Most existing overlay keyboards are about to be eclipsed by the new Infomatrix high resolution keyboard which offers a new dimension to an already versatile device. Developed jointly by Northwest SEMERC and the Concept Keyboard Company, the A3-sized Infomatrix (£169.00) has 4096 individual areas making it ideal for irregular overlays, map work and full picture overlays. Defining an

area couldn't be simpler, using a stylus to trace it out on the keyboard. It also offers backwards compatibility with all existing overlay keyboard software, which means there's already an enormous range of software available for it.

Alternatives to the standard keyboard include keyguards, expanded keyboards, trackballs and switches. The metal keyguard (£40.00) fastens onto the keyboard and has holes to permit hands to rest on the guard whilst fingers can access individual key holes. It provides a solution for those who can just manage the standard keyboard. As an enhancement of this idea, the Expanded Keyboard (£475.00) is of value to those who are restricted to using a toe, mouthstick, headpointer or a single finger. With the Expanded Keyboard users can perform multiple keypresses as a single operation; four programmable delays and timers cope with uncertain or over-long key presses. Furthermore bright LEDs and/or programmable sounds can help those with sensory disabilities to know when a key has been pressed, and the status of keys such as CAPS LOCK.

The evolution of touch screens has contributed considerably in helping children who lack fine motor coordination to gain access to the computer by eliminating the need to use the standard keyboard at all. Children simply touch the screen. Autistic children, for example, respond well to a touch screen as it is a friendly and natural means of interacting with the computer, and their speed of response at the computer can be dramatically improved. There are two Touchwindow systems available for

the A-series (from Keyboard Technology and Linguinity at £244 and £235 respectively), and both can be thoroughly recommended as they comprise the same hardware, differing only in the software drivers. They are



Full Phase - SEMERC's talking word processor

accurate, responsive and can be adapted to fit almost any monitor. Their high resolution coupled with the

devices which are their nearest rivals. The relationship between cause and effect is heightened through the use of such screens.

For some learners the mouse can prove just as problematical, especially with operations such as dragging objects around the screen. Two relatively low cost solutions to this problem are offered by the SEMERC Roller (£89.00) and SEMERC Mouser (£47.00) respectively. The Roller is a trackball (essentially an upside down mouse) but has the added feature of having a latching drag. To perform a drag-and-drop operation all you need to do is point to an object and hold down the Select

button for about 2 seconds; an audible beep confirms that Select is held down. Dragging is simply a



The Infomatrix high resolution overlay keyboard

ability to be used away from the monitor as a tracing window make these devices particularly versatile. As alternative input devices, touch screens score heavily over switched

matter of positioning the pointer and clicking once to drop the object. The Adjust button works similarly, making this a truly useful device even for the able bodied, especially when space

is at a premium.

The Mouser is an interface which connects between the mouse and the computer and allows unwanted mouse buttons to be turned off, thus avoiding confusing menus etc. An added bonus is the ability to plug in standard switches to replace any or all of the mouse buttons. I have found this device very useful for very young children in mainstream education.

Computers can open up new worlds and opportunities for learners with special needs, providing them among other things with a means of communicating, and overcoming problems with writing. Hardware is only part of the answer, however. All the items mentioned here are no use unless you have the right software. Again, Northwest SEMERC publishes a huge range of software, suitable for both classroom or home

use, and is always willing to guide and assist, frequently directing you to a publisher whose software is more appropriate to your requirements.

For follow-up (light) reading try NCET's Access To Words and Images (£5.00) and Parent's Guide To Computers (£3.00), and SEMERC's own The Acorn Companion (£9.00); all are available from Northwest SEMERC. Lastly, if you are involved in special education in any way, shape or form, your first port of call should be Northwest SEMERC's premises at Oldham, a veritable fountain of information, help and advice. It is heavily engaged in hardware/software research and development. It regularly publishes a 20+ page magazine entitled Special Needs IT which is full of interesting case studies and reviews of how people are coping with the

Archimedes and other machines. All the above hardware will be on demonstration at the Northwest SEMERC's seventh Micros For Special Needs Exhibition at Oldham this October.

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# Using Acorn software in

Mark Sealey presents a round-up of the issues and some of the better resources for humanities.

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Several sources of research in recent years have shown that Information Technology is not

used particularly well in humanities teaching. Whatever the reasons, there is in fact much excellent, imaginative and accessible software available for the ACORN platform to enrich your work in these areas.

Some of the principles that apply to all IT work with kids are very relevant here; no resource, however

good, should just be placed in front of a pupil, group or class simply because it is good. Make sure that your scheme of work (derived, necessarily, from the history, geography or integrated humanities components of the National Curriculum) justifies and supports the use of the program. In other

words, make sure pupils understand why they are working with it and, ideally, what they are expected to achieve!

Steer clear of drill and practice suites; even if you believe in this approach, the chances are that your objectives could be better achieved using pen and paper.

Remember too, that we learn best by working with and understanding the significance of concrete objects and by internalising first hand experience - in this case from and of the past or the world around us. Aim to work with the grain: you are usually on solid ground by choosing packages that have been conceived with these principles in mind - the idea of taking part in an archaeological dig as in Sherston's ArcVentures, for instance.

Much of the work your pupils do should be collaborative - joint decisions and end products arrived at co-operatively. This is especially true in the case of both historical and geographical simulations. Here situations are presented by the software. The users have to work through and evaluate the consequences of the choices that they make. It is vital that classroom management facilitates and encourages free and productive discussion. Almost invariably, this will also mean intervening to ensure all pupils get their fair share - both of the keyboard and the talking.

Make sure that you are making full use of the backup and supplementary resources which should be supplied with the package(s) you have chosen. All of Sherston's material is exemplary in this respect. If you haven't seen any, look at one of their A4 packs - the one accompanying Aztecs, for example, even if it's not suitable for your age range - to see how it's done.

## GENERIC PACKAGES

The bulk of this article will look at products designed to be used in specific areas of the humanities curricula. It is important to remember, however, that pupils should be using such general purpose packages as word processors, databases and DTP software (e.g. PrimeWord, EasiWriter, Style, Ovation, Wordz, Recordz, Pinpoint) to handle information.

You may prefer Anglia TV's Key suites, which present something of an all in solution, positively encouraging the use of maps as data types and integrating with many of their other resources. At key stage 4 you may require a statistics package - Serious Statistical Software's 1st and 1stJr are excellent, if expensive.

Nor should multimedia be forgotten: Longman Logotron's Magpie or Oak's Genesis Project would be good starting points.

Investigate, too, the many superb collections of clip art - especially for history (Matt Black's Images of Yesteryear, Anglia TV's excellent sets), plus Longman Logotron's Landscapes PhotoBase CD-ROM as well as Anglia's Counties of Britain and Countries of the World packs.

There are several almost essential dedicated databases for those exploring the world from a geographical point of view. ESM produces World Map Study, and WorldAware has a superb, comprehensive and accurate resource in its World Development Database (both Grass and Key Plus versions). Similarly, Soft Teach has Time Lines, a series of historical databases.

## GEOGRAPHY

Geographical simulations abound: some of the best are Sand Harvest (WorldAware), New Road

(Norfolk Educational Press) and Wheat Farmer (Jacaranda).

Some of the ftechnical\* geographical skills are used in Soft Teach's Globe Maker and Geomapping as well as the open ended Worldmaker from ESM; Sherston has recently released Around the World in 80 Days to cover general mapping, gridding and similar skills. Claes Topographer allows users to convert maps (which they can construct themselves) into 3D views; and anyone working with maps should be aware of Minerva's new and exciting relationship with the Ordnance Survey, which is set to produce some interesting software. Recording the weather is the purpose of packages from AVP (Weather Station) and Soft Teach (Weather Watch).

Langdale (Creative Curriculum Software) is one of a new breed of excellent area studies which has a much broader appeal than its title would suggest; conversely Computer Tutorial Services Mapper in fact concentrates on the Isle of Wight.

Topologika's Navigator allows exploration of maps in a variety of ways that follow another essential educational principle: the more ways in which you look at a concept or skill, the better it is assimilated.

ITAL has an excellent series of cheap and well produced packs designed to place IT capability firmly in the context of other curriculum areas: Limestone Scenery and River Study set some interesting trends.

Storm has Round the World Yacht Race and Search and Rescue to place life afloat in an enjoyable and exciting game context, while Sherston's Viewpoints allows relatively content free exploration of a number of geographical environments.

There are several packages designed to develop awareness and care of the environment. Notable among these is Sherston's award winning Crystal Rain Forest.



## EDUCATION

Anglia's Antarctica and Energy, Longman Logotron's Rainforest (Landmarks series) and Topologika's Whale Facts and Whale Adventure are all worth looking at. IIP has the overpriced Water CD ROM.

### HISTORY

Three suppliers are noted for their outstanding range of products to meet the needs of those exploring the past: Anglia Television, Appian Way and Sherston.

Most titles in the Anglia catalogue can be safely recommended; there are few areas of the curriculum not catered for. Their recent and continuing series of CD ROMs includes the excellent Castles. Many other titles consist of fascinating data files for use with one or other of their Key titles.

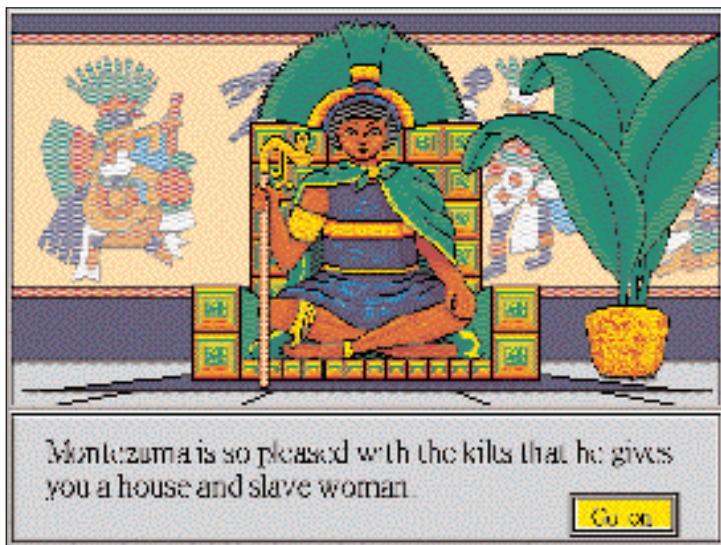
Appian Way produces well priced interactive packages on the Norman Conquest, pirates and the French Revolution as well as the admirably comprehensive DATA 100 topic discs - over two dozen resources for almost all areas of this curriculum.

The quality of programming and presentation make Sherston's titles essential for key stage 2 and 3 (Aztecs and ArcVentures have already been mentioned). They now have Time Detectives - Victorians as well. Each pack is not only very attractively priced but contains such a wealth of activities and original, pupil centred ideas that they cannot be overlooked.

AVP also has an excavation simulation, Dig Out, which is easily adaptable to most periods, while CSH has an award-winning package which explores life in the Carlisle region over two millennia.

SCET's Bowbridge pack, designed to encourage logical and methodical research, ranges from the very general to the very specific.

Oak has a number of titles



Sherston Software's 'Aztecs'

Contact numbers:	0443 841790
Anglia TV	Matt Black
0603 615151	0733 315439
Appian Way	Minerva
091 373 1389	0392 437756
AVP	Norfolk Educational Press
0291 625439	0603 33276
CSH	Oak Solutions
0480 467945	0532 326992
Clares	SCET
0606 48511	041 334 9314
Computer Tutorial Services	Serious Statistical Software
0983 294333	051 327 4268
Creative Curriculum Software	Sherston Software
0626 873866	0666 840433
Data Design	Soft Teach
0226 249590	0985 40329
ESM	Storm
0223 65445	0935 817699
IIP	Topologika
091 261 1255	0733 244682
ITAL	WorldAware
0422 357832	071 831 3844
Longman Logotron	Soft Teach
0223 425558	0985 40329
MEU Cymru	

looking at specific areas, too: life in a Cistercian Abbey, the Somme, Ancient Egypt and Saxon Life as well as their expensive Investigating Local History.

Designer Castles and Mediaeval Villages (Data Design) both respect the real life principle described earlier: children can actually design these environments for themselves and then build models from the resulting printouts.

There are a number of simulations which illuminate a specific area, but whose application extends to some of the essential process skills in any area of history (for example, hypothesis formation, inference drawing, careful observation and transference of conclusions reached to new situations). These include MEU Cymru's Drovers, the ever popular Mary Rose (CSH), Spearpoint's Napoleon and Appian Way's Making Choices - on Hitler's Germany.

Finally, ESM produces Time Traveller in less ambitious vein to encourage factual exploration of British



## REVIEW

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history.

## CONCLUSION

Too many titles have been mentioned this month to recommend anything other than the most basic (and necessarily subjective) portfolio for the humanities. Some of the suppliers mentioned operate an approval scheme: use it - not least to see whether a particular package or series suits your way of working, or can adapt to the principles of good practice outlined at the start of this article. Strange to say, it's often these products that carry the highest recommendation!