

THE MICRO USER

Volume 7
Number 11
January 1990
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Archimedes series and A3000

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Santa's Revenge*

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the handicapped*

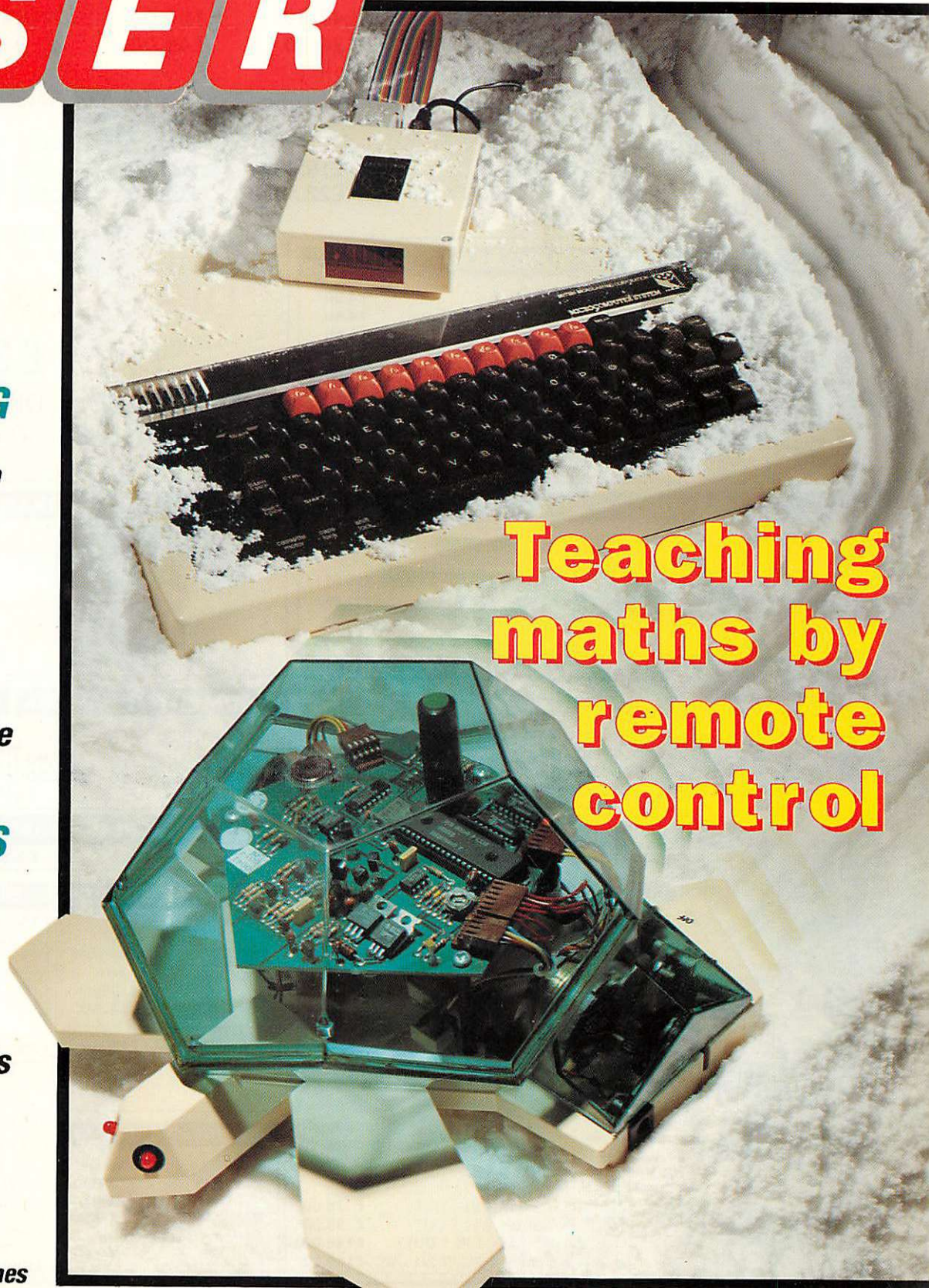
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maths by
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THE MICRO USER

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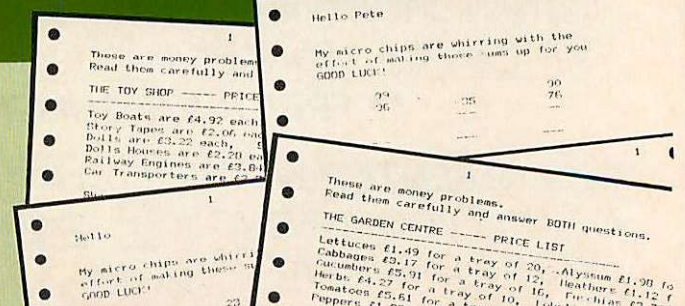
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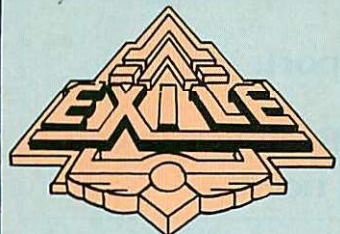
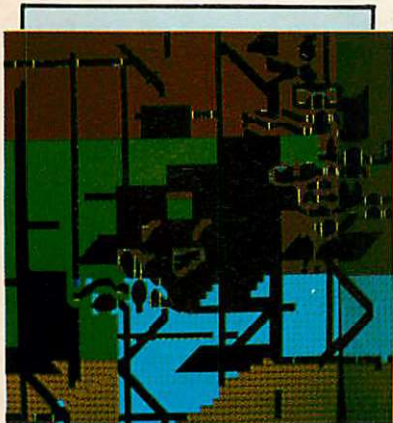
Make transferring your word processed documents much easier.

Some sums

Practice makes perfect so we present a useful routine to let you print lots of sums to keep your child occupied for hours.

— See Page 30





If you're stuck in this block-busting game you'll find lot's of useful hints, and a map on Page 79.

Just use the decoding program to unravel the clues and you'll be well on your way to the complete solution.



Mock Turtle

As more turtles invade the classroom we take a look at whether they are useful educational tools or just toys. Turn to Page 18.

Amazing offer!

For the price of a single year's subscription you get 15 issues of *The Micro User* plus the disc or tape for each.

In addition you will get the disc from the month you take out your subscription: That's a grand total of 15 magazines and 16 discs or tapes for a standard 12 month subscription.



On this months subscription disc:

- All the listings from this issue.
 - Jingles: Extra merry tunes and last month's listing repeated.
 - Worksheets: More programs to create thousands of different problems.
 - Stunning Archimedes sound samples (3.5in only).
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Create worksheets for arithmetic practice quickly and easily.

MICRO USER CLASSIFIEDS

The best bargains in the world of the BBC Micro come from fellow readers of *The Micro User*. Turn to **Page 124** to find just what you're looking for – from cheap modems to complete computer systems.

 For full details of how to use the Checksums, see the article on Page 48 of the February 1989 issue of *The Micro User*.

 The Type-it-in symbol indicates that the feature contains at least one full length listing for you to key in on your micro.

Next month in **THE MICRO USER**

| | |
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| AUTOMATA <i>Single cell patterns</i> | GET IT RIGHT! <i>Checksums revisited</i> |
| IN PRINT <i>How to write articles</i> | MOGUL <i>Superb animation</i> |

New version C compiler

RELEASE 3 of Acorn's Ansi C compiler for Risc OS and the Archimedes range of micros is now available.

New features include a library of routines which puts the power of Risc OS at the disposal of C programmers plus support for developing desktop applications, relocatable modules and programs using overlays.

Enhanced development tools include ASD, a source level debugger now with low level capability, AMU, an upgrade of the Acorn make utility and Squeeze, a utility for compacting executable programs.

Release 3 comes with a 500 page manual and four reference cards. Full price is £171, but existing owners of Release 1 can upgrade for £70 and Release 2 for £50. An additional charge of £5.20 is made for postage and packing.

Payment must be sent with the original disc to Vector Services, 13 Dennington Road, Wellingborough, Northants NN8 2RL.

Games for handicapped

ALAN Weatherill of Scarborough (0723 361409) has produced nine BBC micro games specifically designed for mentally or multiply handicapped adults.

The programs have been designed to repeat themselves and to adapt to the user's skills but the main aim is to provide fun.

"I believe handicapped people could benefit much more from computers, not just through education but also from sheer enjoyment", said Alan, who produced the games using the Arcade Game Creator featured in *The Micro User* and *Electron User* magazines. "These games were produced for one man I know who was only able to carry out limited shape matching activities with wooden pieces until he began using a computer.

He now has a battery of converted software including my programs which encourage concentration, directional control skills, planning ability

Last Ninja milestone

SUPERIOR Software (0652 58585) has chosen a new version of an all-time favourite to mark a milestone in its six year history. For its hundredth release, Superior has chosen Last Ninja II based on the company's best-selling game of 1988, *The Last Ninja*.

"The Last Ninja is now up to 20,000 sales", said Superior's Steve Hanson. "The great popularity of the original games is one of the main reasons why we have decided to bring out this new version".

With Last Ninja II, the action moves from Japan to the streets of downtown Manhattan. There are more baddies to fight and Peter



Last Ninja in Manhattan

Scott's new scenario allows for more colour and better graphics than the original Ninja. Price £11.95 for 5.25in disc, £14.95 for Master Compact 3.5in disc and £9.95 for tape.

Latest news on the Play It Again Sam front is that number 12 will include boxing simulation *By Fair Means or Foul* and a prize winning game from the Repton Infinity competition.

and differentiation skills.

"I am willing to give the games to anyone who is interested and has special needs".

Painter produces lines of colour on the screen with direction and colour being changed by simple switch instructions.

Gates requires the player to guide a wheelchair user towards a key and pick it up.

Maze features a wheelchair user being guided towards a house and avoiding red squares with increasingly difficult screens.

Fill is similar to Maze but each square passed over turns red.

Bomber centres on a plane bombing skyscrapers and Snap provides sound rewards when pictures are matched using the space bar or switch.

Match is a more involved version of Snap featuring shape recognition with two options and Memory is a further advancement with four options shown on screen after

the initial shape. Hunter fills the screen with pigs and frogs. Switch presses move a man around so he can collect them.

When the screen is clear there is a visual and audible reward. Recently added to the collection is a seasonal game called Santa.

Gold-plated deal

WHEN dealer Jim Golightly sold 500 A3000s to Durham Local Education Authority he won himself an Acorn Gold Plate Award for the largest single order of the new machine. Managing director of Newcastle-based HCCS, Jim was one of three men to receive awards at the latest of Acorn's Premier Dealer League dinners held at London's Kensington Park Hotel. Scooping a prize for the most innovative applica-

tion of an Archimedes computer was Barry Copeland, whose company B&S Computing developed a program for a customer who supplies seat embroidery to the Ford Motor Company

The design, and any necessary adjustments to seat covers are made on screen and then the Archimedes computer is linked to the loom which weaves the fabric.

Third award for the best promotional effort went to Chris Carne of Surrey-based Calan Craft. Presentations were made by Acorn's commercial director Sam Wauchope.

Archie help for Andy

VIEWERS who tune into children's programmes on BBC 1 are being treated to new animations and music courtesy of an Archimedes 440/1 and software from Cheshire-based Clares Micro Supplies.

Dave Clare was called in when BBC producers decided to beef up links for the children's slot which is introduced by TV personality Andy Crane. He went to London to show them the capabilities of Pro Artisan, Render Bender and Armadeus.

Impressed, they used Pro Artisan to produce the graphics, animated them with the Delta Animator then added the sound with Clare's sound

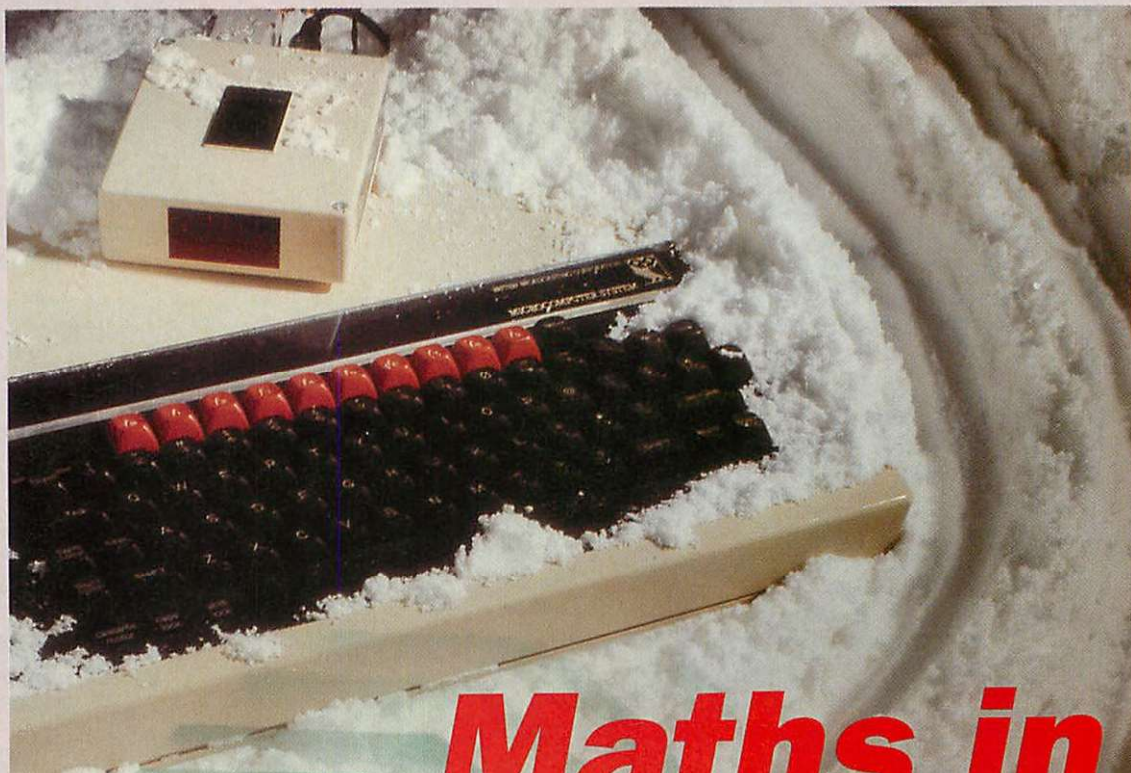
Simulations to cost more

RBRC Software (01-946 8641) is to put up the price of its business simulation software from this month.

"This is our first ever price increase but all orders received before January 1 will be invoiced at the current lower prices", said Professor Ronald Brech of RBRC. "All packages sold at the new higher prices will contain a 10 per cent discount voucher on the next purchase of any RBRC software".

Beat the Boss, The Cement Business Game, Handling Time and Buy 'em Down will each cost £46 plus £3 postage and packing from January 1. Crisis Management will become £65 plus £5 and Don't Panic will cost £32.77 plus £2.50.

B B+ m



Maths in motion

Michael Noels discovers what an inspiration visible graphics can be

THE excited little seven year old had a point. "Maths is a lot easier when you can see the pictures, isn't it?", she told me, and I had to agree with her. In fact I was pretty excited myself. I'd just finished a session in which I'd let loose a pack of top infants on the Valiant Turtle and the results were astounding. Not only had the children begun to pick up the rudiments of Logo but they'd actually started to think mathematically as well. And the proof was there for all to see...

But first things first, this enthusiastic start wouldn't have been possible if it weren't for Logo. Logo is a full programming language and

as such supports variables, repetitions, conditional statements and so on. In fact it's not too far outside the mainstream of languages and is fairly easy to pick up if you already know how to program.

However Logo is best known for its visual *front end*: Turtle graphics. You steer a cursor – or turtle – about the screen using a series of easily assimilated commands. As you tell it to go forward, back, left and right it trails a line behind it. From these simple elements complex geometric structures can be built up allowing you, as my young friend put it, to see mathematics in action.

Now I'd used turtle graphics with children before, but never found it to be the mathematical nirvana described by Logo's more fervent adherents. Interesting and useful certainly, but not worth more than a paragraph if you're writing home. However the turtle graphics screen is one level of abstraction away from a more practical and exciting application – that of controlling an actual robot, or turtle, designed to crawl around the floor in response to the usual graphics commands.

As often is the case with basic mathematics teaching, getting down to the concrete is the quickest way to the abstract. In this instance the concrete lies on the floor. The turtle I used was the little beast from Valiant – and a very friendly creature it is. Despite being made mostly of pentagonal pieces of plastic, it really does resemble a turtle, albeit a high-tech one.

Occupying an overall area of around 25 x 25 cm, it scampers round on two stepper motors buried in its rear legs, a third point of balance being a spherical bearing under its nose. The turtle also has a fibre tip pen buried in its navel. Lowered and raised by PENDING and PENUP respectively, the pen can trace the route the turtle follows – giving a graphic record of the journeys you've programmed.

The turtle is powered by on-board rechargeable batteries – the power unit supplied lets you top them up in situ. Control from your BBC Micro is via an infra-red communicator, a flat plastic box with a transparent red window for infra-red signals. Using the same power supply as for battery charging, it connects with the BBC Micro via both the user and serial ports.

In the classroom I was using Logotron Logo – my LEA's preferred brand – but the system can be configured for other versions, including LSL Logo. The only really user-critical operation is plugging everything in initially. After that, bringing the turtle to life is simply a matter of entering Logo with:

```
*LOGO
```

and, after inserting the interface software disc, typing:

```
USE "VALIANT
```

or whatever the relevant filename is for your Logo. This adds some extra commands to Logo: Basically you can choose whether to have the

screen and/or floor turtles moving in response to FORWARD, and also alter the size of the turtle's steps.

Alternatively you can use the Mover program supplied on disc. This bypasses Logo: You just boot it up and it converts input such as FORWARD (FD), BACK (BK), RIGHT (RT), LEFT (LT), PENUP (PU) and PENDOWN (PD) commands into turtle speak. It incorporates an editor even its mother would have to admit is rather primitive.

Eventually I preferred to go through Logo – as the full scope of the language is then available. Whichever software route you choose, you can make the floor turtle respond to commands in the same way the screen turtle does. Put like that it doesn't sound much. Wait until you see it literally animate a maths lesson, though.

Training the trainers

Giving the children Terry – as the turtle was soon christened – seemed to take their whole problem-solving stratagems up a gear. They were hypothesising, experimenting, re-evaluating and theorising away enough to please even the most ardent logophile. More importantly, the turtle trainers themselves were learning ... and liking it.

Terry soon became the focus of myriad learning activities from simple shapes to shortest routes, from patterns to puzzles, from mazes to areas. Turtles are very mathematical beasts.

To sum up, Logo definitely has value in the classroom. However, to see it at its full potential in the younger age groups it really helps to have a turtle. Even when children have graduated from floor turtle to screen turtle they like to come back to it to check things out in reality.

Valiant's turtle makes all this simplicity itself. Straightforward to set up it's reliable and user-friendly. While not cheap, it's certainly worthwhile. If you can, get hold of one for your classroom.

The system

Turtle (special price for schools)
£249.00
Valiant Technology,
Gulf House, 370 Old
York Road,
Wandsworth, London
SW18 1SP.
Tel: 01-874 8747

Logo
£44 (BBC), £60
(Archimedes)
Logotron, Dales
Brewery, Gwydir
Street, Cambridge CB1
2LJ
Tel: 0223 323656

Turtle troubles

OCCASIONALLY when we tried to get going nothing happened – the turtle failed to sync. Sometimes this was because the batteries needed a topping up – though one charge gives a continuous three hours of running, plenty for a normal school day. More often than not it was our infra-red link on the blink.

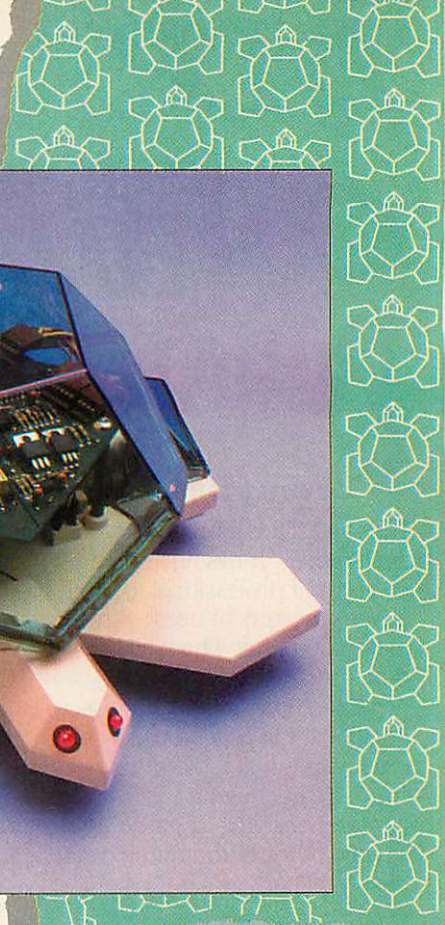
Normally it was simple problem of range – we tended to get the turtle too close to the communicator rather than too distant – though sometimes strong sunlight can scramble communications.

Overall, though, the system was reliable and resilient and performed to well within the accuracy range we needed. There's no need for technical wizardry here – if you can put a plug on you can use the Valiant Turtle.

In fact, apart from actually connecting the communicator to the micro I found that my charges could easily handle the start-up procedure themselves and soon had the turtle trundling around the floor.



VALIANT

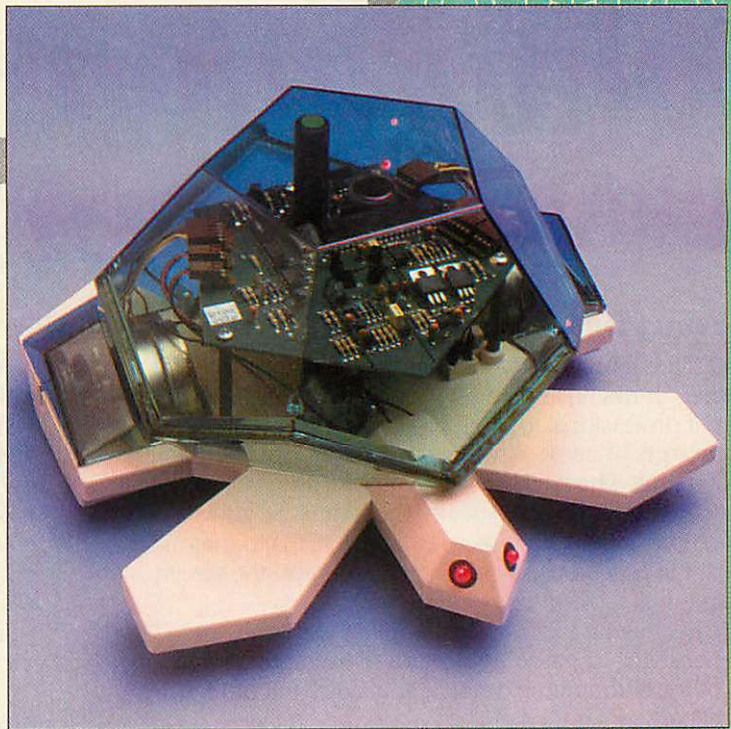


THE VALIANT TURTLE

Designed in 1983 to be accurate and safe, the remote-controlled VALIANT TURTLE has passed brilliantly the test of time. Approved and purchased in large numbers by most UK LEAs, Turtles are the key to mathematics, computing, problem-solving and programming in primary and secondary schools. They unlock understanding of abstract ideas through the computer language which controls them, Logo.

The Valiant is known for its distinctive, turtle-like shape and precise performance. As this Turtle glides around the classroom floor in response to children's commands, geometry becomes an unforgettable, exciting experience.

Valiant Turtles run from Acorn, Apple, Commodore, IBM, Research Machines and ZX Spectrum computers. Their discounted UK education price is £259 (+£5 P&P + VAT). Like all Valiant products they come with a 12-month warranty.



THE VALIANT CONTROL CONSOLE

The newest Valiant product will appeal especially to secondary level pupils. Developed to replace the use of a computer and buffer box in Design and Technology, Mathematics and Science, the VALIANT CONTROL CONSOLE provides power at low cost. Technology is a vital skill in contemporary life and building working models has become a fundamental school exercise. Driving them from the Control Console is effective and economic.

The discounted UK education price of the Valiant Control Console is £150 (+ £5 P&P + VAT).

NEW PRODUCTS FOR THE 1990's

THE VALIANT ROAMER

Originally inspired by the toy Big Trak, the VALIANT ROAMER creates its own learning environment. In its basic form it is a "pre-Turtle" programmable device, free of the computer and particularly suitable for young children and those with learning difficulties. Roamer is controlled from its own keyboard using Logo-like instructions. It will move, turn and make sounds.

Adding Accessories transforms Roamer into a new, powerful tool for Design and Technology. Designing, building and operating their own robotic creations from the Roamer keypad presents students with a goal and the means to achieve it, an important part of today's syllabus.

The discounted UK education price of the Valiant Roamer is £69.95 (+ £5 P&P + VAT). Roamer Accessory Packs start at £14.95 (+ P&P + VAT).

For more details please contact:

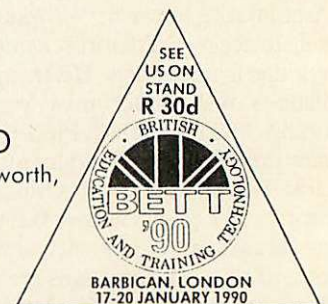
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The 5000 package includes a 16-channel stereo synthesiser, software on ROM and disc (including many example pieces) and a 162-page illustrated User Guide, requiring only a 5-pin DIN lead to connect to your existing hi-fi. £140

ALSO AVAILABLE

AMPLE Nucleus Programmer Guide, music albums (15 titles), speakers, headphones, accessories.

MUSIC 4000 KEYBOARD

Together with the 5000, the 4000 gives you a complete desktop music studio. Perform with any of the 100 supplied sounds or design your own, record with multi-tracking, edit and print-out in musical notation, and much more. £146.96

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NEW!

The 3000 provides another 16 sound channels, expanding your system to a colossal 32. Use more instrument layers, more musical parts, more voices per part, more echo/reverb effects and more outputs – stereo or quad. £100

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The 2000 links-in any synthesisers and drum machines equipped with MIDI, automatically slaving their sounds to your music. You may also write programs with 'common MIDI' or any manufacturers' own dialect. £140

MUSIC 1000 AMPLIFIER

An alternative to your hi-fi, the 1000 turns your system into a self-contained workstation, ideal for the study or classroom. Use it with speakers and up to three headphones, mixing-in the computer's own sound. £140

Compatible with BBC Models B, B+, B+128K and Master 128, with DFS and 40/80-track disc drive. All prices exclude VAT.

HYBRID

Hybrid Technology Ltd, 273, The Science Park, Cambridge CB4 4WE
Tel. (0223) 420360

NEW SOFTWARE RELEASES

AMPLE Toolbox – full text editor, program compiler, graphics image designer, Master sideways RAM module store, and more. £34

Music albums – 'Shivering Again' by Michael Harbour, 'Electricity' by Russell Fray. £4.30 each

Please send me:

- full details and a FREE 20-minute audio demonstration cassette.
- Music 5000 Synthesiser package, UK cheque for £161 inc VAT enclosed (please allow 28 days for despatch).

J73

Name _____

Address _____

Post code _____

Hi tech hope for the disabled

THREE days in Oldham recently provided a heartening example of how new technology can enhance the lives of thousands of disabled and disadvantaged people.

The venue was the town's Queen Elizabeth Hall. The event, the 89 Micros for Special Needs Exhibition organised by Northwest SEMERC (Special Education Micro Electronic Resource Centre) and sponsored by distributors John Simnett.

More than 50 exhibitors including 10 local authorities filled 70 stands to show how lives can be enriched by using micros. On display were a host software programs, peripherals and devices all designed for ease of use by the disabled.

But top honours for the three days went to the hundreds of pupils from 50 special schools in England, Wales and Northern Ireland who were bussed in each day to demonstrate how they make use of such aids.

Stand walls were plastered with school newspapers, newsletters and myriad other examples of work resulting from the combination of determined youngsters and microcomputers.

Typical were the pupils of Ysgol Belmont in Clwyd, former winners of the Daily Telegraph Schools Newspaper Competition. Making light of their disabilities, they toured the exhibition hall interviewing exhibitors and visitors then back at their stand they produced news sheets on the show using Prompt Writer word processor software and DTP package Stop Press from AMX.

"While they have been out doing interviews they have also been talking to the other children", said teacher Alan Nevitt. "It is that kind of contact and exchange of views which is very important in an event like this".

The exhibition mainly revolved around peripheral devices which allow people who do not have full use of their hands to access information without having to use traditional keyboards.

For the severely disabled there were the simplest of single switches like the Toucan Learning Tray from Toucan Communication Aids of Crewe. Connected to the user port of the BBC Micro, it was developed for use by children who cannot reach out to press keys and is a scanning equivalent of the Concept Keyboard. With one or two simple switches, the user controls a light beam which scans a grid of various choices.

At the other end of the scale were devices which compensated for the lack of control in various people wanting to use normal qwerty keyboards. On the Northern Ace Centre stand there were expanded keyboards which can fit

over the normal keyboard to cut out the possibility of people with motor difficulties pressing the wrong key. They were also displaying tiny keyboards for users with conditions such as muscular dystrophy which causes restricted movement.

One of the most dramatic products came from MARDIS, the Microprocessor Assistance for the Disabled project of the University of Lancaster. It was Orac, a 128 key portable speech system which can be used to respond in synthesised speech for those who cannot speak themselves.

Costing £650 it can also be used with a number of other switches and keyboards including those used on the BBC Micro.

But not unexpectedly, it was the Concept Keyboard from Star Microterminals which pervaded most sections of the show.

"There are 23,000 Concept Keyboards out in education at present but when you are talking about 27,000 primary schools, that is not many", said exhibition director and manager of the North West SEMERC Martin Littler.

"At present by far the largest percentage are for use with BBC Micros but other machines also support Concept Keyboards and their use is growing all the time. The wonderful thing about them is that they allow you to cover the whole of the curriculum at every ability level".

When it was first held last year, the exhibition was a one day event, but the decision to make it three days this year paid off. Among the thousands of visitors were education advisors, representatives of the DES, a representative of HMI, large numbers of teachers and social workers.

In addition to touring the stands, they had the chance to sit in on hardware seminars delivered by Acorn and other manufacturers.

"We see this event as a celebration of what is going on with the SEMERCS", added Martin Littler. This feeling pervaded from start to finish. Opening the event in glamorous style was actress Sandra Dickinson, the star of Hitchhikers Guide and Superman who is a patron of the Downs Syndrome Association.



Pupils of Broughton Park School, using Manchester their BBC Master for a project on a healthy eating