

MICROSCOPE

► Issue 38

► Spring 1993



- Safety and your computer
- A day in the life of a school computer
- Making the most of your concept keyboard
- Laptops – the perfect writing tool?
- 'Mastering' the BBC Master Compact

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Editor Chris Robson
Illustrations Jenny Russell

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Correspondence to the Editor: *MICRO-SCOPE*, 99 Foxcote, Wokingham, Berkshire RG11 3PG

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MICRO-SCOPE 38

MICRO-SCOPE matters

Chris Robson

As I write this at noon on New Year's Eve, I'm full of good resolutions: some may stand the test of time but I suspect that most of them will be dim and distant memories by the time you read this! Apart from my annual determination to go on a post-Christmas diet, there's the usual resolve to improve my time management skills. This means *not* leaving the next issue of *MICRO-SCOPE* to the last minute, *not* working for several hours each evening when I get home, spending more time with my husband and dogs (no, I have *no* ambitions to be a Cabinet minister!) and at least opening the manual for a new piece of software *before* I use it, to save me wasting time finding out all the things I need to know by trial and error!

However, the one resolution which I know I *shall* keep is to fill in the application form for the MAPE Conference as soon as it arrives with this issue of *MICRO-SCOPE* and post it immediately. If you've never been to a MAPE Conference, why not make this the year to treat yourself? There will be workshops, themes and presentations to suit all tastes and all levels of IT capability and most of all, plenty of like-minded people to talk to into the early hours of the morning.

A resolution *you* could make is to contribute to *MICRO-SCOPE*. Perhaps one of the articles prompts you to agree – or to disagree! Why not write and let us know what you think? As you will see from the articles in this issue, we try to cover as wide a range of IT activities as possible, including both the old and the new technologies. Opinions and accounts of classroom practice using Acorn, Research Machines, Apple, Commodore, IBM and any other machines are always welcome, but we are also interested in hearing about people's experiences with two newer aspects of information technology: laptops and CD-ROM.

NCET's recently published booklet entitled '*Portables: Choosing and using portable computers*'

begins 'It is only a matter of time before every learner and teacher who wants a portable computer will have one.' Barry Smith's article on page 22 begins similarly but then raises some interesting questions about the technology versus the quality of writing. I know that the debate is just beginning and I am sure that MAPE members can make a valuable contribution to it. At the end of January, Roger Keeling and I will be attending a Conference organised by NCET and NAACE (National Association of Advisers for Computers in Education) where portable computers will be discussed and hope to include both a report of this and a review of the NCET booklet in the next issue. Do please let me know of any other booklets, research or experiences of using portable computers in schools.

The other area of increasing interest in primary schools is CD-ROM. Although the technology has been with us for several years now, materials suitable for use with primary aged children are only just becoming available. A pilot project in one special and five primary schools is beginning in Berkshire and there will be an interim report about this in the next issue. Do please ring me or drop me a line if you know of any similar projects happening anywhere else.

The prospects for my 1993 resolutions are looking good; I've finished this editorial early enough to be able to spend time (and money!) at the New Year's Eve sales in Reading with my husband! A Happy New Year to you all!

MAPE AGM

The MAPE Annual General Meeting will be held during the annual Conference at the University of York, at 5.35 pm on Saturday 3rd April 1993. Details of proposed changes to the constitution are given in the Chairperson's news on page 30.

looking forward looking forward looking forward looking forward looking forward looking forward looking forward looking forward looking forward

10 years on . . .

MAPE members will soon receive details of a cassette of programs for use on BBC or 480Z machines – free to members! Join now!

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Safety and your computer

Chris Taylor

St Luke's College, Exeter

Is your computer safe? To put matters somewhat bluntly, it isn't. That isn't to say that you or your pupils are likely to die of computers overnight (unless someone drops one on you in frustration), but there are a number of issues you need to know about, and to cater for in your teaching in order to minimise risks to your pupils.

On the whole, a computer system is relatively safe electrically. Currents and voltages used are low, although as with all electrical devices it is wise to use a circuit breaker between the mains supply and the computer, in case of electrical faults. Indeed, some LEAs require this. The real dangers are more subtle and long term. They can be broadly classified as emission related, visual disturbance or physical in nature. A computer, particularly the monitor, gives off a range of emissions, ranging from x-rays to heat and light. Fortunately, the x-rays and other ionising radiation are contained within the monitor or dissipate very near to the front of the screen; they are considered to be lower in intensity than similar kinds of background radiation.

The emissions that are considered to be particularly suspect are pulsed electro-magnetic fields (EMF). Those fields causing greatest concern are the extremely low frequencies (ELF) and very low frequencies (VLF). These are given off by all monitors and televisions and are the same fields as are emitted by high voltage electric cables. As yet, the exact levels of risk and mechanisms by which problems may be caused are uncertain, but the volume of evidence pointing to a problem surrounding VDUs is growing. With computer monitors, one is working in relatively close proximity to the screen, whereas one normally sits well back from a television. The magnetic fields rapidly decay with distance from the monitor, but certain models give off sufficiently intense fields to be of concern. The problems quoted range from cancers such as leukaemia to miscarriages, foetal abnormalities and neuro-muscular damage.

I have recently measured monitors (supplied in or before 1990) commonly used with A3000, RM, Apple and BBC computers and have found fields sufficient to cause concern. The Health and Safety Executive in Britain denies the

existence of such a problem, but other authorities set maximum levels of exposure to minimise the risk. Indeed the EEC directive on VDU use by employees stipulates that all emissions should be so small as to be negligible. The levels I have used as maximum safe levels are quoted by the Swedish Government, and are among the most stringent in Europe. The emissions given off are not constant from monitor to monitor. I have found some (RM, Microvitec and A3000) that give over twice the levels of others of the same make, and the level of emission varies according to the position relative to the monitor, ie emissions may well be much higher from the sides or back than the front. I sampled a range of monitors at a range of distances, varying from 10cm to 50cm, and averaged the emissions for each particular model. It was found that average emissions of the types of monitors commonly used in schools were above the recommended maximum levels at 50cm (a normal working distance) and levels were considerably higher closer to the screen.

In view of this, it is recommended that all users are positioned well back from the screen (further than 50cm) and that no one sits nearer than 120cm from the sides or back of the monitor – the fields pass through desks, walls, metal cases and bodies! This is particularly important for partially-sighted children, who often need to work very close to the screen. In these cases low emission monitors should be purchased. On the whole, children will be using computers for relatively short periods of time, thus reducing the risk, but even so, in view of the reported risk to foetuses, it must be assumed that children may be more at risk than adults (even though the problems reported have involved adult VDU users). Laptop computers using liquid crystal screens are quite safe in the sense that they give off no measurable emissions, although their power supplies can.

Physical problems can be caused to the spine and hands from computer use, although such problems tend to be with workers who have relatively long periods of computer contact. Part of the problem is postural and ergonomic but the difficulties can be eased by changing working practices (lots of breaks from the computer) and

providing appropriate furniture. This is a matter schools need to consider from the point of view that computer workstations require suitable furniture, ie desks and chairs of the correct height and size for the children who are going to work at them. Children should not be permitted to work at the computer for long periods – perhaps half an hour at a time is enough. Stools and cupboard tops are not suitable to use for computers, since ample legroom and back support is essential. Likewise, the work-top should be wide enough for the computer to be placed comfortably with the monitor at arm's length and directly behind the keyboard. In too many schools the monitor is placed to one side of the keyboard because no-one has bothered to make a simple stand.

Workspace will be needed for a mouse (and mouse mat), a concept keyboard and books or papers. The printer should be housed so that paper can be easily fed in and doesn't get jammed. Cables should be securely clipped or tied out of the way. Many trolleys (such as those made by Klick) have suitable features, but tend to be too shallow to allow for the user to be at arm's length from the screen. This is because they have to pass through doorways, an unsatisfactory compromise. The addition of a sliding shelf for the keyboard would solve this.

Another problem with adult workers is repetitive strain injury, particularly to hands, wrists and fingers. This has been observed to develop in typists when moved from typewriters to computers, the problem lying with the computer rather than the means of use. It has been surmised that the electro-magnetic fields could contribute to the development of this debilitating problem, hence the need to work well back from the monitor.

Eyestrain is another real problem. Workers with computers will soon be entitled to free eye tests and spectacles if needed.* The main visual difficulties are caused by flicker, glare and reflections. Many school monitors flicker unacceptably. It is estimated that one in ten of the population is photosensitive, as are four per cent of epileptics. This means they are sensitive to flickering lights (such as monitors, televisions and fluorescent lighting). People who are not just don't see the flicker. It can cause headaches, eyestrain, migraines and other problems. We have found this problem to be particularly bad

with Acorn RGB monitors supplied with A3000 computers, following comments from students. The EC demands that monitors used by employees should be flicker free; this is also essential in schools.

Reflections are caused by the screen facing sources of direct light and can usually be helped by turning the computer round or by the use of curtains. Some computer screens have a matt surface, which is to be preferred. Glare is caused by a wrong balance or contrast between foreground and background on the screen. Adjustment of the brightness and contrast controls should cure this. Both can be helped considerably by use of a screen filter, which may also offer protection from static electrical fields which build up in front of the computer screen. The combination of static fields and dust (such as produced by laser printers or photocopiers) ionise the atmosphere and can lead to skin complaints – irritation, itching or rashes. Such problems are likely to be more common in the school office than in the classroom.

Most of these problems have only become apparent with the widespread use of computers in business, and are leading to lawsuits, claims for compensation and early retirement on health grounds. We must not ignore the possibility of such problems starting in childhood and should take all steps possible to ensure our children are not exposed to any potential risk from the use of modern technology.

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Notes

*From the beginning of 1993, EC directives will set standards for new equipment. The regulations will apply to all who 'habitually' use computer terminals. We shall be giving fuller information about these in *MICRO-SCOPE 39*. If in the meantime, you have any queries, contact your local authority health and safety officer, or HSE Information Centre, Broad Lane, Sheffield, S3 7HQ Tel: 0742 892345.

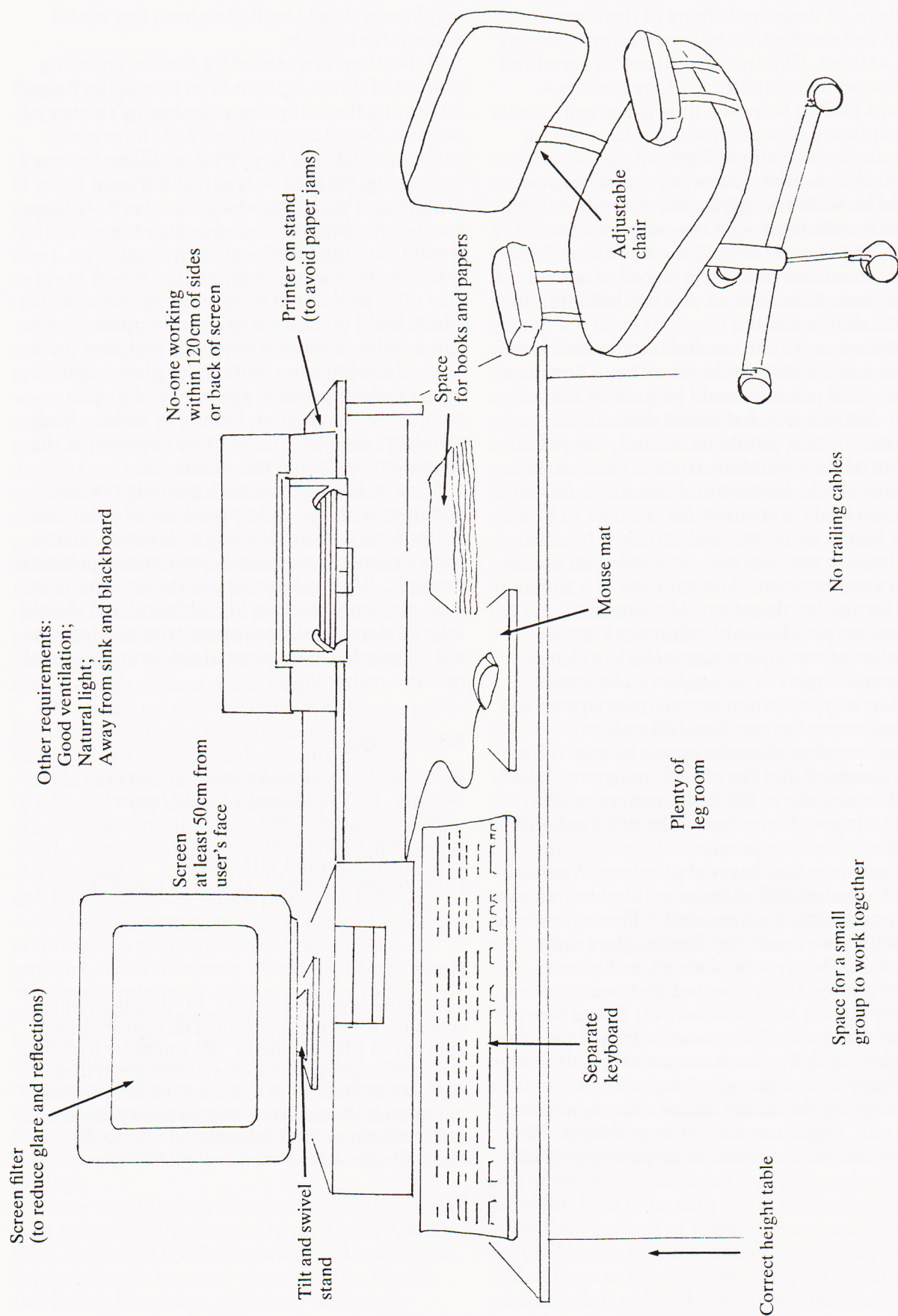


Figure 1 *Organising your computer safely*

Logo? I'm getting round to it!

Trevor Wright

Grove County Primary School, Melton Mowbray, Leics

We all like to think that the best IT practice is going on in our classrooms, and so it might be, but then we make the assumption that it is the same for all children. Unfortunately this is not so. Good practice does not mean common practice. We may have had computers in our schools for the last nine or ten years and in some schools even longer than that, but we are all at different stages of using IT in our classrooms. There are still many teachers in schools who lack the confidence or training or time to come to terms with all the facets of IT and Logo in particular. As Chris Robinson says in *MICRO-SCOPE* 32, our 10th Anniversary edition, '... many teachers have yet to make the leap into this exciting world of discovery.'

So what's the problem? I think attempting Logo is on a par with trying one's hand at drama. They are both 'empty areas' of the curriculum. Now on the one hand this makes them very powerful and flexible but it also makes them very threatening. You don't seem to be in control; there is no apparent structure. So, what's the answer? I feel it must be like Logo itself; we must get into it in 'mind-size chunks' and not try to become a Logophile after we have read the manual in one evening. Chris Robinson implies in the last paragraph of his article that we must use a full implementation of Logo rather than these '... "Logo-like" turtle graphics programs. . .'. All I can say is that if you want to put a class teacher off Logo for life then give them a full implementation together with the manual. I tried that and was completely baffled by the myriad commands, variables and primitives.

Let's get a mind-size chunk and begin by using a turtle graphics program rather than a full implementation of Logo. Now, it's very easy to be scathing about turtle graphic programs and to say, 'Well, that's not really Logo.' Agreed, it isn't, but it is one of the best and easiest ways into Logo.

In Leicestershire we use a program called *Turtle* written by Dave Charman, an adviser in the authority. Now there are things I would like to see changed in this turtle graphics program and perhaps Dave would as well, but you only begin to think about these once you have begun to outgrow the program. Then, perhaps, you can

get your head to spend some money on Logotron Logo or RM Logo or whatever version you need. I certainly found this to be true. We started with Leicestershire's *Turtle* program but it wasn't long before the children had outgrown this and wanted something more challenging. So on to RM Logo.

Now, what are my credentials for giving this advice? I'm no Logo expert, but I like to think of myself as an ordinary classroom teacher with an interest and responsibility for IT. My colleagues tend to look upon me as the 'computer expert', which I'm not. I know there are people out there with more expertise than I have, especially where Logo is concerned. But there are certain areas of IT which appeal to me more than others, DTP or wordprocessing for example, and so I have more expertise in these areas. Logo unfortunately was not one of my favourite ways of using the computer.

I say 'was' rather than 'is' because during the Spring term of 1991 I was seconded to work with a team of teachers to put floor turtles into schools and to provide the staff with some INSET. This required some quick revision about Logo, as it wasn't one of my areas of expertise. I had dabbled with Big Trak, played with a Roamer and introduced the children to the screen turtle, but really I was still 'getting round to it'!

Even though the main idea of the turtle project was to provide INSET for teachers about how to introduce floor turtles and the *Turtle* program into their schools, I found I was working with teachers *and* children for the vast majority of the time in their classrooms. We not only used the floor turtle but the screen turtle as well. It was amazing how quickly the children began to take charge of the turtle and of their learning, à la Seymour Papert! The joy and satisfaction on the children's faces when they had achieved their objective was a joy to behold. But it was also interesting to note the learning and cooperation that had gone on to achieve this objective. It seemed to me that the way in to Logo was through the children. Obviously you would need a little bit of knowledge and expertise to get them started but then you could learn with them.

This approach reminds me of a story about a climber who falls and is clinging to a branch for all his worth, shouting for help, when the voice of God comes to him.

'Do you believe in me?' God asks.

'Yes, yes!' says the climber.

'Do you believe I can save you?'

'Yes, yes!' repeats the climber.

'Then let go of the branch!'

That's what we must do, let go and put the

children in charge of Logo. Don't be put off by all those articles and programs you will see in *MICRO-SCOPE* and other publications written by Logophiles; you'll come back to them when you see how easy, enjoyable, rewarding and powerful Logo is.

So blow the dust off that turtle graphics program, warn the head to put some money by for a full implementation of Logo, get a couple of pages ahead of the children in the instructions and let go! Stop saying you'll 'get round to it'. You won't regret it, I promise.

A day in the life of a primary school computer

Ruth Atkinson

Why are there computers in primary schools? I know there are many answers and the literature is well supplied with different perspectives on the issue. More specifically, what is actually happening in primary classrooms? Although there are published reports of what researchers have seen as they passed by and of what teachers themselves describe (eg the ESRC research by Cox and Rhodes, 1990; the PALM papers; Ellam and Wellington, 1987), there seems to be very little in the way of intense, uninterrupted, observational data on the status quo in schools.

I decided to gather first-hand experience of the use being made of primary school computers, in a form which might include details not normally noted by busy teachers or passing observers, but which might complement these other sources of information. My aim was to observe everything that involved a particular computer over a complete school day, to be in a position to portray 'An Ordinary Day in the Life of a School Computer'. In fact the study involves three such 'Days', as I repeated the observations in three different classes.

To begin with I had qualms about how I should pinpoint 'typical' practice, but I decided to go for ease of access in the first instance. I left it to the discretion of the head teachers about which classes I should see. The two head teachers were very welcoming and I had interesting conversations with them both, in which each seemed to stress that constraints of various kinds limited the wondrousness of what I would be

able to see. They cited, for example, the level of resource provision, the moderate provision that IT could be given by staff, the proportion of statemented children in the school. I assured each of them that I was not looking for exceptional cases, but ordinary 'Days', although I appreciated that the concept of a straightforward ordinary day was fairly alien to most hard-pressed teachers!

I also stressed that I was focussing on the computer, not the teaching, and I requested that my presence in the classroom be played down as far as possible. Obviously it is ridiculous to expect to remain unnoticed in a primary classroom and much can be said about this choice of a non-participatory role. However, I felt that it was worth attempting simply to sit and watch. Two of the three classes I visited were Year 5/6 and both had male teachers; the other was a Year 3 class with a female teacher. The three teachers all duly mentioned me to their pupils as someone who had come in to watch and didn't want to be interrupted. I was subsequently approached by one or two children but mostly they took a quick look and then seemed to accept me as an uninteresting aspect of their environment.

I had set up a tape recorder and microphone near the computer keyboards in each of the three classes. My main aid to observation, however, was a series of gridsheets which I invented to cut down on my note-taking. The rows represented one-minute time-spans, while the columns each represented one person,

teacher or child, whose name could be entered at the top when they became involved. In addition there was a column for the number of people present at any particular time. Other details such as behaviour, apparent dominance or reticence, arrival, departure, whether the person appeared to be concentrating on the task, whether alone or in a group, the program used, and so on were entered using abbreviations and notes. The rows were simply a means to 'peg' down the observations; they were not meant to imply systematic one-minute sampled observations. On the contrary, my observation was continuous. The grid helped to give temporal 'landmarks' to the written information, to spread it visually as it was originally spread in time. Together with the information on tape it gave uninterrupted data.

All three classes had a BBC Master computer. Each computer was mounted on a trolley which effectively had a permanent site either in the class-base or on its periphery. All three also sported printers, monitors and disc drives. One had a concept keyboard which, however, I did not see used. In all the classes the computer was switched on before the children came to it and in the Year 3 class the program was loaded and ready to use. Although I saw a considerable amount of use being made of each of the three computers, there were also many periods during which the computers were idle. Software used during my observations included language-based, maths-based and data-presentation programs. Most computer use was initiated by the teachers. However there was a girl who asked to use the computer to edit her previous work and in one of the older classes several children chose to play games on the computer during the lunch-break.

I was able to gather detailed observations about the amounts of time that the teachers spent with the computer (which obviously does not include preparation or evaluation time) and the nature of their involvement. In the first of the older classes ('Class A') the teacher was involved with the computer for a total of approximately half an hour over the two hours in which it was in use. His advice was sought for a mixture of 'operational' and 'content-of-work' problems and he made 13 separate visits to the trolley. Most of his visits were short. However, one visit which lasted about ten minutes was to give more in-depth help with a boy's writing. This more intensive one-to-one help had much more to do with reading, spelling and writing and was akin to non-computer-based teaching of writing.

In the Year 3 class ('Class B') the teacher made more than 24 visits to the computer, spending over three-quarters of an hour there. Again her role was to advise on both 'operational' and 'content-of-work' troubles, including assistance with a seemingly inflexible and obstinate data-entry program. She spent about a third of her computer time working intermittently with one boy on a piece of writing.

In the second older class ('Class C') the teacher visited the computer seven times, spending under eight minutes there altogether, on 'operational' problems and to check that children were 'on-task'. This teacher did not get involved in the 'content' of the children's work. The children in his class seemed to need less help to operate the hardware, to change programs, etc than the children in the other two classes.

Table 1 summarises the information given so far: the three lower rows are derived from the top four, and reflect the different type of teacher involvement in Class C. The teachers all had to devote significant effort to the use of the computers in their classes.

In my observations I saw various sizes of groups of children, ranging from a single child to a group of six. Single children either used the computer by themselves or were involved in intensive one-to-one activity with the teacher. Groups of two and four were sent to the computer to work as equal partners, but this seemed easier to achieve with pairs. A group of six was observed in Class B, where two children were supposed to be showing the other four how to use a data-presentation program. Finally, in Class C, a fluctuating group size was seen during the lunch-break, with children sometimes using the computer alone, sometimes in pairs and mostly with friends around chatting to them as they did.

Amongst the groups sent to work as equals I saw some in which this was largely achieved, but in others I observed some children dominating the proceedings and controlling events, while their partners to a greater or lesser extent acquiesced. Sometimes there were phases of equal and unequal partnership. In Class C the first group included a boy who seemed to oversee the hardware and a girl who appeared more in charge of the software. There were also groups who could not do much at all without input from the teacher.

Similarly, amongst the lone users there were those who were fairly competent and independent, while others were really the 'unequal partner' to the teacher. Despite differences in 'dominance' and competence between different children, there was generally a very positive

TABLE 1	Class A	Class B	Class C
school day length	6 hours	6.5 hours	6.5 hours
computer in use	1 hour 57 minutes	3 hours 26 minutes	3 hours 6 minutes
total teacher time	30 minutes	45 minutes	7.5 minutes
number of teacher visits	13	23	7
teacher visits per hour	6.7	6.7	2.3
proportion of time teacher was there	a quarter	a quarter	less than a twentieth
proportion of day computer was used	one third	over one half	one half

Table 1

attitude to working with the computer and the children's concentration was excellent. Although it was not my intention to analyse in detail the children's spoken language, transcripts of the taped conversations show a wealth of communication within computer-using groups, a significant portion of which was concerned with 'content-of-work' discussions, some of which could be lengthy and involved.

I also looked at the peripheral activity around the computer trolley, noting every instance of a child leaving the computer or other children coming up to look or to talk. A substantial amount of coming and going related to the location of the teacher, with children arriving if the teacher was at the trolley, or leaving to find the teacher elsewhere in the room. A few children came to help those using the computer. The remainder were onlookers, hovering at the edge of the group for a shorter or longer time. Their presence might indicate that to some extent at least the computer holds 'novelty value' for pupils – or perhaps they were checking whether my presence meant something special was going on. Children rarely left the computer for reasons other than those directly connected with their work on it: to ask a question about 'content' or 'operation'; to fetch paper for printing; to get a notebook, etc.

Perhaps surprisingly, there were only a few occasions on which one child asked another for

help, unless they were using the computer together. Mostly children sought the teacher's help. There was no feeling of a pool of expertise within any of the classes.

There were few apparent gender differences in relation to computer use or interest, either amongst the children or the teachers, but there were two aspects that deserve comment. Firstly, the only optional, exploratory, 'play'-type activity seen performed with any of the computers was in Class C and the 'players' were exclusively girls. Secondly, the only two intensive teaching sessions seen at the computer, in Classes A and B, involved single boys with their respective teachers.

The data seems to support and confirm reports in the literature of the manner in which computers are used in primary schools. They offer another perspective on such reports which are thereby given added credence, supporting Govier's view that teachers' opinions should be accepted as evidence in educational research (Govier, 1988). The data also includes details of the 'flux' of children and the amount and nature of teacher involvement, not found in such detail elsewhere. They cannot be said to represent 'average' or 'typical' circumstances. The likely tendency will have been to see whatever the teachers and head teachers considered 'good practice'. In other words, my data probably reflects three 'More Impressive Days than Usual'

in the 'lives' of the computers. If this is so, then an 'average' or even 'less-impressive-than-usual' day would involve a very basic level and type of computer use, for a short time only, probably with a considerable demand for time and effort from the class teacher.

To return to my initial question, then, the computers were being used for some of the time, by some of the children, under the teachers' direction and with considerable help from the teachers, mostly for word-processing and some graph-making. My impression was that this work seemed more to do with experiencing the computer than furthering the children's writing or data-handling skills. The maths-based games were different – they were enjoyed for their own sake – presumably instilling (or reinforcing) the idea of computers as recreational devices.

So, why are they there? As the object of study, the computers I observed seem not to have been introduced to any great extent, since I saw only an elementary level of computer

expertise amongst the children. As tools to enhance other learning, they seemed to possess some drawbacks, concerning software, hardware and sheer scarcity. I feel that my question remains unanswered. However, for most teachers and many pupils these are still early days with IT.

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Making the most of your concept keyboard

Sally Smith

Nottingham Polytechnic

For most of us the concept keyboard is a potentially useful piece of equipment lying in the cupboard. We keep saying that we really must get around to using it, that we're always going to make some overlays in the holidays and then next term. . . . So life goes on, the dust gathers and we still haven't mastered the concept keyboard. A year ago this was the perfect description of the use of the concept keyboard in my classroom. I knew that, if nothing else, choosing the concept keyboard as the basis for an MEd dissertation would ensure that it was taken from the cupboard, and it would cease to be a stranger to the children (and come to think of it, doesn't the concept keyboard get a mention in the National Curriculum document?). In fact it did much more than that; after a year's research I ordered two new concept keyboards for the school, after pressure from other staff whose enthusiasm of many years ago had been renewed.

My main revelation came early on when I realised that the concept keyboard had a much wider range of uses than writing stories, which until then had been the only use made of it in the

school. With mixed age infants I found that many children were struggling in the tasks I set them; their reading skills were holding them back and they had little understanding of what they were doing, or what they had achieved when they finished. I needed something more on their level, and yet I wanted something that was still relevant to their learning. At the time among their favourite reading books was a series of 'I begin with . . .' books, each book being based on a different letter. So I took the idea and began a series of overlays based on the books (see Figure 1). I kept the by now familiar text 'I begin with' but varied the letters and pictures, so children were having to match up the letter and the initial sound from the picture. The full stop at the end automatically started a new line, and this gave an introduction to the idea of sentences. Soon children were producing their own pages of work and understanding what they were doing.

These worked well and I then began to wonder if you could use numbers on the concept keyboard with the program I was using (*Stylus*). I tried, and you can, so here was an area of even

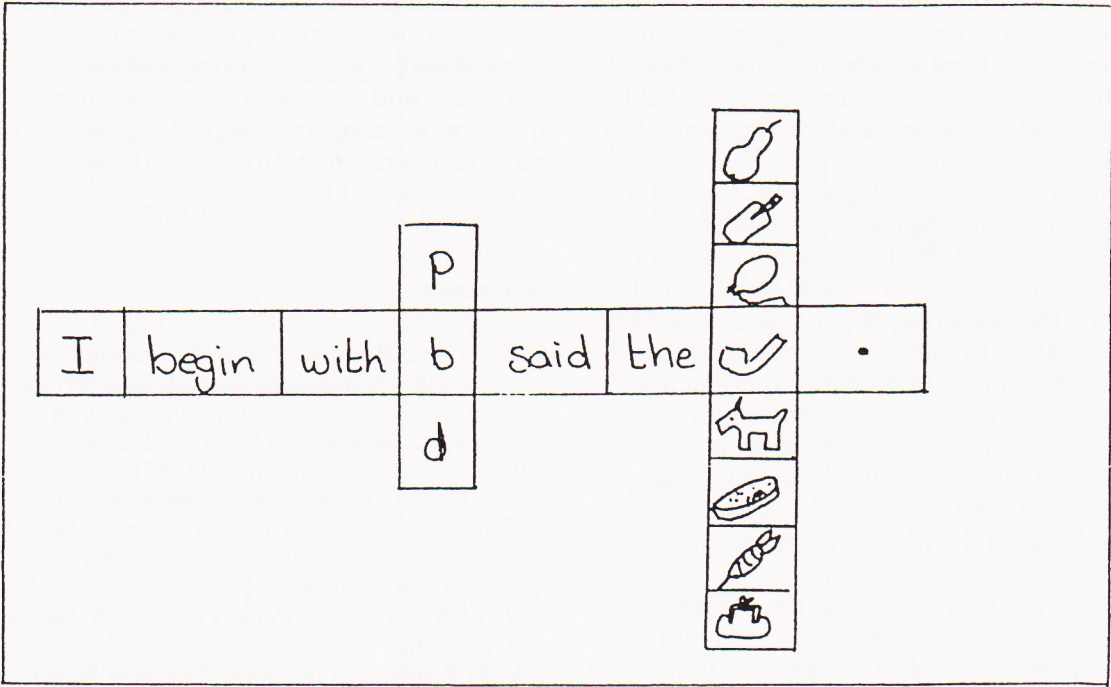


Figure 1 Overlay based on the 'I begin with . . .' books.

greater scope (after all there are only 26 letters, but infinite numbers!). We began with overlays with sums to press and numbers to press to give the answers, so that the completed sum was shown on the screen (Figure 2). The enthusiasm was enormous. Two girls, usually reluctant to do too many sums, sat down and went through every overlay I had prepared, and got them all right; others happily repeated the same sums on

the same sheet several times, eventually learning that they got the same answer each time. The overlays were graded from early addition to mixed addition and subtraction, but the basic idea could be used for any sums, and therefore for a wider age range. To see if the children were really doing better on the concept keyboard, I gave a group of children the same sums on paper and then on the computer. They did not as I had

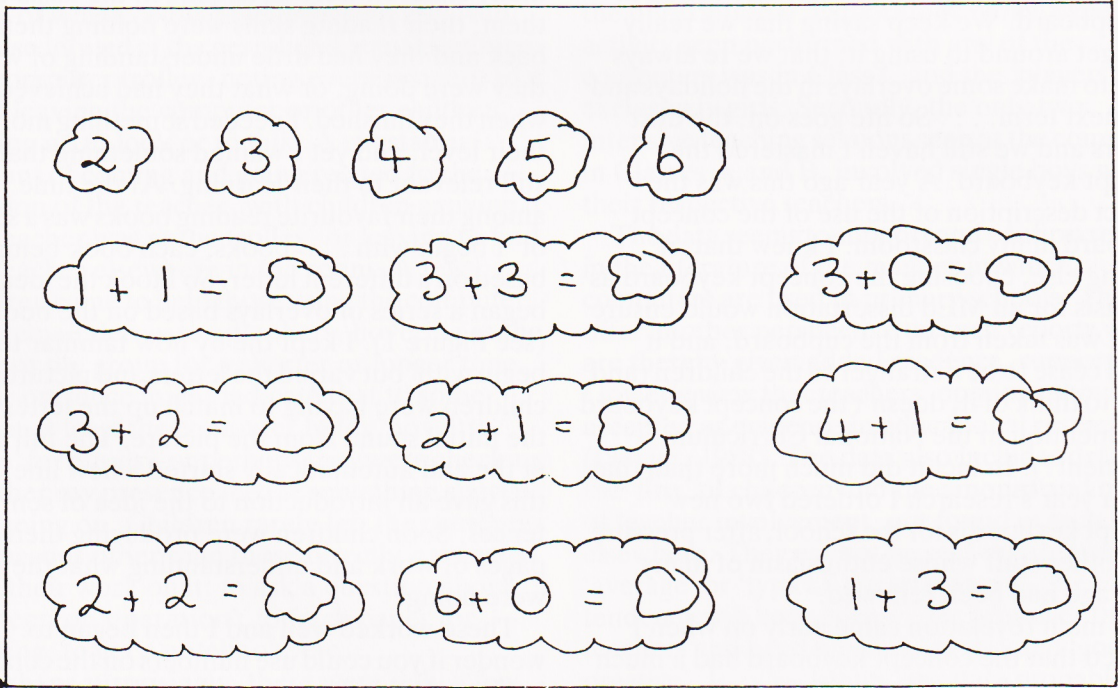


Figure 2 An overlay with sums.

hoped produce better results on the computer, though the work was neater. A colleague later borrowed the overlay to use with her class, and encouraged the children to check their answers with a calculator, which gave yet another dimension to the work they were doing.

To extend this to include some of the older children who had a good grasp of addition and subtraction I used the concept keyboard to present them with an investigation. They were given four numbers, +, -, and = and they had to make up as many sums as they could. As I was still not sure of the value of the concept keyboard I decided to ask some children to do the same problem without the computer. This time there was a definite difference. The children using the computer came up with more possibilities and I could understand their work when it was finished. Those working in their books managed fewer sums and their work was much harder for me, or them, to decipher at the end.

The number overlays were much easier to prepare than the previously-created story overlays, which demanded some artistic skills to include drawings in an effort to make them easier to use. The number-based overlays needed only writing numbers (in felt pen to make them more attractive and easier for the

children to keep track of where they were on the overlay), which meant I did actually produce a wider variety, and that they will remain relevant whatever our topic is.

After increasing the overlays available within school the next problem was what to do with them, and how to relate them to the discs. The overlays are now stored in a suitably-sized cardboard box which is kept on its side in the cupboard. There are now separate discs for each sort of overlay, maths, letters and stories, with the name of the overlay and the disc written on the back of the overlay. The children have begun to understand this system, and some can now find an overlay and set up the computer without any help.

The concept keyboard is now firmly established as a piece of equipment in my classroom, the children enjoy using it, and their work has benefitted. Seeing the work I was doing on the concept keyboard, other staff soon started to 'borrow' my overlays and ask where the concept keyboards were. So now the only problem is getting the overlays and a keyboard back into my classroom!

This paper is based on an MEd dissertation submitted to Nottingham Polytechnic in 1992.

Scottish MAPE Annual Conference 1992

150 delegates attended an extremely successful and informative conference at the Auchterderan Staff Development and Resource Centre on 28 November 1992. MAPE Scotland has over 500 members now and the number of applications shows the positive interest generated – 600 applied and 450 had to be turned away as the centre had facilities for only 150!

Mr Alex Mackay, Chief Adviser for Fife and head of ASDARC, welcomed the delegates.

Our main speaker, Peter Pearson, Head Teacher of North Muirton Primary School, Perth, gave an amusing and enlightening talk, highlighting the importance of computer-related work in 5–14 areas of the curriculum.

Chris Robson from *MICRO-SCOPE* encouraged us all to make the Scottish voice heard by contributing articles to the magazine and outlined how to go about this.

There were ten workshops:

1. *Make believe*

Based on 'The Emperor's Guards', a story from *Foundations of Writing*, this exciting storyline

encourages plenty of imagination. Children create their own reports and stories and describe dangers, using 16 overlays and three file discs for *Folio*, *Prompt Writer* and *List Explorer*. We all had great fun trying on the special Emperor's hat which suited some better than others!

2. *Nimbus for beginners*

This familiarised new users with the Windows environment and introduced the library of excellent software installed on the hard disc. Participants were soon creating calendars, greetings cards, playing games and simulations to exclamations of 'This is fantastic!'

3. *Junior Pinpoint for the Archimedes*

This is a spreadsheet and graph package with simple word processing facilities.

4. *Spreadsheets*

Three spreadsheets were on offer: *Easyspread*, *Pigeonhole* and *Grasshopper*. *Easyspread* has all instructions on screen; *Pigeonhole* is colourful and easy to use; *Grasshopper* complements these as a spreadsheet for more experienced users.

5. *Expression on the BBC*

This planning tool allows you to organise ideas in preparation for a piece of writing. It can manipulate, reorganise and edit text by linking text within frames. After planning in this way, children find it easy to set down ideas. After initial doubts, participants realised the value of such a tool.

6. *Spreadsheets in context*

A lively assortment of contextualised activities took place whilst collecting data which was entered into a *Grasshopper* spreadsheet. The emphasis was on enjoyment with tasks and worksheets designed to embody the 5–14 areas of collecting, organising, displaying and analysing information.

7. *Introduction to the Archimedes*

Again the group were very impressed by the possibilities offered by *My World* and a lively group enjoyed the puzzles, music and problem-solving activities. Some felt it was a 'pricey' package, while being good motivative material with colourful graphics and very 'user friendly'.

8. *News with sound*

Having won an Apple Mac computer, the pupils of Camden Primary School were asked to produce a school newspaper. The teacher explained how her class had enjoyed collecting

articles and jokes around the school and, using *Hypercard*, produced a high quality of work, knowing this was to be read by the 'discerning public'. Many social skills were also developed and although this took about six months it was felt to be a worthwhile project. It will soon be available from SCET.

9. *Laptops and special needs in mainstream*

Participants were able to examine a variety of laptops: Archimedes, Apple and Tandy WP2. They looked at accessibility, ease of use and cost, with hands-on experience on the WP2. A very worthwhile workshop!

10. *Into Europe '92 – Touch Explorer Plus Resource Pack*

Chris Robson and Chris Hopkins led this very interesting presentation conveying all aspects of Britain into Europe with relevance to all areas of the curriculum. Comments: Fantastic! A good giggle! Highly recommended!

Overlays can be used independently and in any order. Obtainable for Archimedes, Nimbus, BBC and IBM-PC.

Altogether this was yet another extremely successful and informative conference with many friends made and ideas exchanged. MAPE Scotland is alive and kicking!

The Tudor project

Sue Segger

Holyport Manor School – for pupils with diverse learning difficulties

I am based in the middle school of the MLD Department; primarily my responsibility is to teach science to all pupils from 11–16 years. Additionally I teach Social Links (to five class groups) and one media studies lesson per week. As IT co-ordinator, I am also responsible for the delivery of IT at the school and also within my own subjects.

In the summer term at school we generally have a special week which is co-ordinated by one teacher and where special events are organised. Classes learn about the topic, and experiences are shared. In the middle and senior teams we deliver this topic in our own subject areas, having agreed beforehand what we are going to do. Previous weeks have included Environment Week and Africa Week. Last year (summer 1990), we decided to have Tudor Week. This

was agreed by all staff because the whole school had been invited to Oakley Court Hotel, near Windsor, for the day and we were to wear Tudor costume (200+ pupils and staff – a very brave and generous move by Oakley Court!)

Nothing leapt into my mind that could be delivered through science or IT – scientific development in Tudor times was a possibility but as our science is delivered in as practical a way as possible it did not enthrall me. I was on the Advanced Concept Keyboard Users' Course in the early part of the term, so I decided that a Tudor-based *Touch Explorers Plus* project would kill several birds with one stone. Primarily it would enable me to deliver IT – as pupils could also word process ideas.

I had used *Touch Explorer Plus* and was impressed that it could be used so successfully

with as many pupils as necessary working with one computer, all working towards a similar theme but doing different things.

On the course I planned initially to produce only the banquet overlay (Figure 1). We were having a feast-type of meal at Oakley Court and I thought that it would be appropriate to compare a Tudor feast with one of today. While working on this overlay on the course I saw another colleague producing a 'going through' idea to another overlay, so I came up with the idea of 'going through' the window of the banquet to the market (Figure 2), so I could draw some comparisons of today's shops with Tudor shops. This would also cover by Social Links curriculum for Tudor Week (loosely!).

In the same way, I decided to develop the Francis Drake overlay (Figure 3), as I had seen the picture when I was collecting the market and banquet pictures from our resources area.

Parts of these overlays involve 'doing' activities – the pupils can design a Tudor plate and a stained glass window; they have to find evergreen plants from the school grounds; find out what clothes were worn by different types of people; measure the actual length of Francis Drake's ship – there are many more ideas. Again, I felt that pupils could be doing lots activities at the same time, not just drawing.

Teachers will have to gather together some resources – Tudor books, tape measures, paper plates etc.

Having put together these overlays on the course, I thought that content-free overlays would be the next logical stage of development. A teacher could tell stories of what life was really like in those times – death and misery if you were at sea, a 'grand' life as a rich person and a very hand-to-mouth existence as a poor person.

The overlays have some simple guidelines – house, ship and furniture outlines only – and



Figure 1 Banquet overlay.



Figure 2 Market overlay.

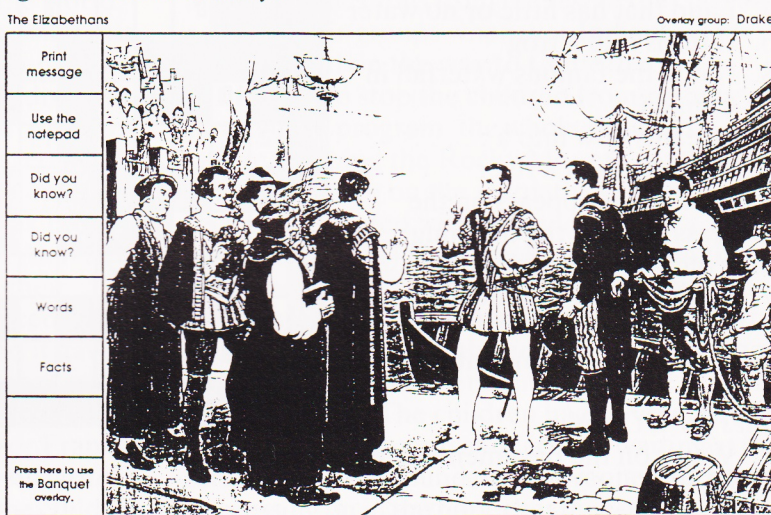


Figure 3 Francis Drake overlay.

the pupils touch the concept keyboard to find out what else is happening on the page. The overlays are very crowded with 'happenings' and I did not feel that each pupil would have to draw all the happenings. It would enable some

differentiation to take place and students with different drawing and reading abilities could do different things. The final displays of pupils' work would also not be standardised. Some lighter touches in the overlays would also enable the pupils to have fun when drawing – eg. the lady throws her chamber pot contents out of the window and it lands on a person underneath.

This program was used with eight different classes during Tudor Week. As the lessons last for an hour and I see the pupils only once a week, generally, we actually carried on using this program for the next three weeks. The pupils, therefore, had about four hours learning about the Tudors with me. Some of that time was spent in discussion and talk but most of it was spent working with the overlays. It worked very successfully. Each class group did not learn

about each theme – some explored life in towns while others explored the life of Francis Drake.

Other members of staff were shown this project, and I hope they were able to see the computer being used in a way they may not have thought of before.

Although this program was developed for MLD pupils, I think it would be very appropriate for junior school pupils.

References

The Elizabethans: a Touch Explorer Plus sampler pack for the BBC, is available from the Berkshire Computer Centre, Fairwater Drive, Woodley, Reading RG5 3JE. The cost is £7.50 including postage and packing. Cheques should be made payable to Berkshire County Council.

Water crossword puzzle

(answers on page 16)

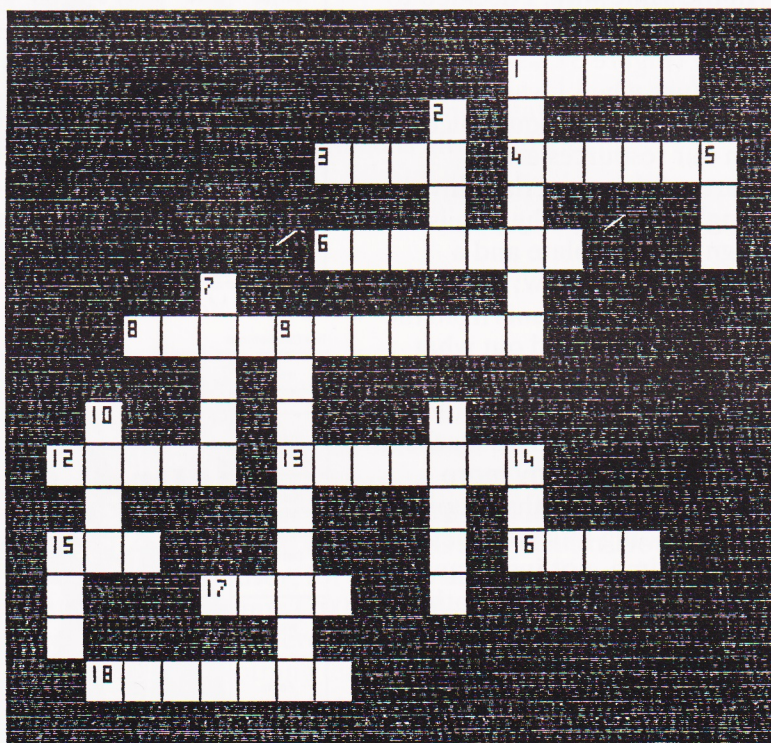
Compiled by
the children of
Spurcroft County Primary
School, near Newbury

Clues for ACROSS

1. Frogs, plants and small creatures live in them
3. A Scottish lake
4. Land that has little or no water
6. It turns into a frog
8. Name the famous waterfall in Canada
12. Streams flow into a
13. The mouth of a river
15. Water that appears on the grass early in the morning
16. You find this on a yacht
17. Frozen water that floats down in winter
18. A large floating mountain of ice

Clues for DOWN

1. Water on the pavement forms these
2. A sea faring vessel
5. Water comes out of this in the home
7. H₂O is more commonly known as
9. What is the name of the place where large quantities of water are stored?
10. The longest river in the world
11. It is used to carry cargo on a canal
14. Can water conduct electricity?
15. It's a wall to keep the water in a reservoir



California, here we come!

Simon Hill
Northaw School

Tressell's *Wagons West* is a computer assisted learning (CAL) package that has been around for some time now, but so far it has not received much attention in *MICRO-SCOPE* and as Tressell have not exhibited at MAPE conferences, this may mean that many MAPE members have not come across it. This article is an attempt to put right this situation, for *Wagons West* is an excellent software package that deserves to be more widely known. It is a 'package', not simply a disc, because with the program comes a wide variety of printed support materials, together with two superb colour posters and a readable (and very useful) Teacher's Guide.

The main aim of *Wagons West* is to help children understand the dangers and challenges of the pioneer emigrants travelling by wagon train to California in 1852. Through using the software and the support materials, a wealth of historical and geographical information is learned, in ways that are very vivid and real for children. When using it with a class of ten-year-olds, I found that the outstanding feature of this package is the way that it engaged the children's imagination, so that they looked at the world through the eyes of the 19th century emigrants.

As well as taking the names of real emigrants who made the 2000-mile trek, the children also learnt about the personal histories of 'their' characters. The 'Group Cards' that accompany the program gave the children brief biographies of the characters whose roles they took on and I supplemented this with *The Missouri Mercury*. The children enjoyed reading about their characters in this 'newspaper' (produced with *Front Page Extra Special Edition*) and it gave them some clues to the dangers that they would face on their journey. (*The Missouri Mercury* also introduced the character I played: Francis Parkman, the 19th century traveller and writer.)

Working in groups of four or five, the children first completed the 'Fitting Out' section of the program. In their roles as a group of emigrants, they went to the General Store and decided how much food to buy for the trek to California. Next they haggled over the price of oxen down at the corral. This involved some practical mathematics, as well as some predictions of what they

were likely to need on their journey. Finally each group joined a wagon train and set off for California, which is when their real adventures began.

On their long journey a number of random 'events' happened to each group of emigrants and these were anything from having a baby to hanging a murderer! The trail maps were anxiously consulted and records were made of the distances travelled. There was always the risk of an outbreak of cholera, while the danger of being trapped in the snow in the Sierra Nevada meant that it was a race against time. There were some hard decisions to be made and, not surprisingly, these led to some fierce arguments. (I had told the children beforehand that fights had sometimes broken out on the wagon trains, so I was prepared – and perhaps even rather pleased! – when tempers were a little short.) One teaching strategy that helped the children in a group to work together, and to learn from each other, was to make each child an 'expert' in one field. A child in each group researched a particular topic, such as the Indians, then our 'Officers of Indian Affairs' answered questions from the rest of the class and advised their groups whenever Indians were encountered on the way to California.

In order to stop the children from rushing through the program, the whole class had to stop before reaching the Rocky Mountains: the Cheyenne were on the warpath! A letter (elegantly printed with *Advanced Folio's* 'Longhand' font) from the President, via the Governor of Fort Laramie, warned all wagon trains that it was best to wait for an army escort. This led to a debate with another class, who took on the roles of the other members of the Wagon Train Council. The children had to vote for one of three possible courses of action: waiting at the fort, trying to go round the Cheyenne's territory or pressing on in the hope that they would not be scalped by angry Indians! The fact that two groups had earlier shot some buffalo did not make the choice any easier: our Indian experts explained that the Plains Indians relied on the buffalo for food, clothing and shelter – it was an essential part of their way of life – and that, from an estimated 60 million in 1800, buffalo numbers

declined to just 500 by the 1880s. The decision to cross the Indians' territory was therefore not taken lightly by the children. Having heard their point of view put forward very passionately in some extracts from Dee Browns' *Bury My Heart at Wounded Knee*, the class realised that the Indians might have had good reasons for not trusting the white man.

After meeting Mountain Men, crossing the desert and arriving at last in California, the children used *Advanced Folio* to write a letter to the President of the United States of America (he had, after all, taken the trouble to write to them!), and to tell him about their adventures. As *The Missouri Mercury* was the starting point for the journey, we finished with some DTP and this proved to be a good way of summing up all that we had done (see examples on the next two pages). We also went to the superb American Museum in Britain near Bath, where we saw a real covered wagon and two children dressed up as Indians. (The American Museum's Educational Department are most helpful and can

arrange film shows and slide loans.)

If I were to use this pack again, I think that a music program, such as *Compose* or *Notate* might be helpful for a camp fire sing-a-long at the end of the trail and a database of the emigrants' equipment might be useful at the start. However, there was so much material in the pack that there was plenty to keep a class of ten-year-olds busy for six weeks. I found that *Wagons West* maintained the children's interest because of the excellent graphics and the way that the journey to California was always presenting different challenges. The children found that using this package was an enjoyable and highly motivating experience.

References

Wagons West is produced by Tressell Publications, Lower Ground Floor, 70 Grand Parade, Brighton, Sussex BN2 2JA.

The American Museum in Britain is at Claverton Manor, Bath BA2 7BD.



Figure 1 Two of our children dressed as Indians by the American Museum in Britain.



Figure 2 An exhibit of pioneer life at the Museum.

Answers to Water Crossword Puzzle on page 14

Answers for ACROSS

1. PONDS
3. LOCH
4. DESERT
6. TADPOLE
8. NIAGRA FALLS
12. RIVER
13. ESTUARY

15. DEW

16. SAIL
17. SNOW
18. ICEBERG

Answers for DOWN

1. PUDDLES

2. SHIP

5. TAP
7. WATER
9. RESERVOIR
10. NILE
11. BARGE
14. YES
15. DAM

The Missouri Mercury

Monday, 4th of April

California, here we come!

Once more many emigrants are planning to leave for California. The town of Independence is crowded with new arrivals. The General Stores are very busy and the Corral is also doing good business. Francis Parkman, our reporter, says that there is a lot of hammering and banging from the blacksmiths' sheds. Francis also writes that the streets are crowded with men, horses and mules.

Not respectable?

"While I was in the town, a train of emigrant wagons from Illinois passed through, to join the camp on the prairie outside the town", writes Francis. "I saw many children's faces peeping out from under the cover of the wagons, women on horseback and respectable looking countrymen standing by their oxen." Francis also writes in his report that some of the emigrants look as though they might be outcasts or maybe even thieves.

"A better life"

Francis interviewed Peter Skinner from Brookfield, Missouri. He said, "My wife Alice is expecting another baby, so we decided to go to California for our children's sake. We want them to have a better life." Jane Chapman is from Marion, Indiana. She said to our reporter, "I've had a hard life, mister. My husband's death was a blessing from Almighty God. He was a drunkard and loved whisky, not religion. He'd come home, smelling like a saloon, and beat me. I just thank the Lord that my daughter Malinda married a decent man. Now I pray that I may start a new life in California."

When the emigrants were asked what they thought California would be like, they all replied that they were sure that it would be wonderful. Luke Slater said, "Well, I've read what the newspapers say about California and I'm sure it's going to be great. Gold's been found near Sutter's Fort, so I guess that me and my brother are going to be rich!" When Francis Parkman suggested that there might not be any gold left, as 44,000 emigrants travelled west in 1850, believing that they too would find gold, Mr Slater said, "Aw shucks! I reckon then that I might make a few dollars by trading with them Indians." The "Missouri Mercury" has reported that Indian attacks upon wagon trains have been increasing and that emigrants have been killed in these attacks.

Two Teamsters talk

Isaiah Kern and James Bingham are two men who have been hired by Miss Lavinia Hunter from Allentown, Pennsylvania. Mr Bingham said, "I've been a teamster for a wagon train before and it weren't no picnic, mister! Maybe you heard of them there Donner folk and what happened back in '46. Well, people don't know the half of it. I knew James Reed. He told me himself about how they were stranded in the Sierra Nevada. The snow and the hunger got near half of 'em." Isaiah Kern does not share Mr Bingham's views. "I am sure that it'll be a swell time and a great adventure. I'm going to get me a big farm in California and grow good crops the whole year round!"

Cholera outbreak

There have been some cases of the terrible cholera disease among the emigrants. This awful sickness has also spread to the Indians on the plains and hundreds of them have died.

An Amazing Journey

On the 15th of November a reporter came to interview Eliza Cole and the Clinton group the first question he asked was, "Did you enjoy your journey or did it give you a hard time?" "Did we enjoy it" said Eliza scornfully "it was one of the worst times in our lives!"

An Interview With The Clinton Group

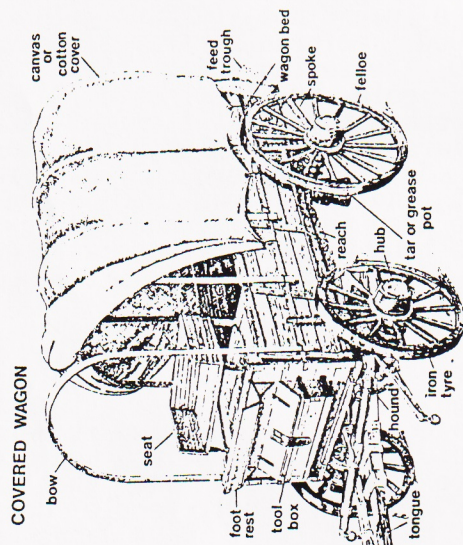
He turned to Edward Long street and said "What do you think the worst part of the journey was?" "I think the worst part of the journey was when snow fell in the Sierra Nevada and we got blocked up" said Edward "How did you feel about getting blocked off?" "Terrible" said Edward.

The Murder

"We had lots of trouble on the journey once there was a murder!" "We found the dead body and didn't know if he was dead or not". "But his heart wasn't beating". "We found out who the murderer was and tied him up but we were over ruled and we had to hang him".

50c The Missouri News

15 NOV.
1852



About The Wagons

Edward Lonstreet, an emigrant from Clinton, said, "When we lost a wagon we got really worried that we were not going to make it to California. We lost another wagon when we were about to come down the Sierra Nevada. We really thought then we were definitely not going to get there."

**WAGONS FOR
SALE
\$100 ONLY
TRAVELLED
2000 MILES.**



The Dangers And Hazards

Another problem was Indians and the reporter interviewed Francis Parkman. "How do you feel about being attacked by Indians?" asked the reporter. "Well, I think the settlers are stupid because they shoot the buffalo and that makes the Indians angry and also they overload their wagons so they get trapped in the Sierra Nevada and also they don't listen to my advice".

Blocked In The Sierra

A reporter interviewed one of the Clinton group about their journey to California from Independence in Missouri. "We began to panic when we were about to climb the Sierra Nevada. We were very late and we had heard about what had happened to the Donner group. We had gone about a quarter of the way up, when snow began to fall, so we got blocked off. I decided to try and get through. We just did it but it took a long time."

Where data handling meets Information Technology. Can new resources enable children to interpret graphs more readily?

A case study

Ceri Morgan

Dept of Science Education, University of Warwick

One of the major issues of education in the primary phase in recent years is the way in which electronic aids such as computers and calculators change the content of the curriculum. Without a doubt the use of such items has already changed something of what is taught in primary classrooms and no teacher can now claim to be teaching to the National Curriculum without a significant use of electronic aids in his or her classroom. Where there is serious and widespread disagreement is where we try to decide what exactly should be changed as a response to new technology. It is relatively easy to decide on what should be added to the primary curriculum but in what is acknowledged to be a hopelessly overcrowded timetable it is notoriously difficult to agree on what should be left out. For some time now teachers have carried the burden of 'do more on word processing' or 'more time on electronic data handling' or 'more Logo please' and so on. Indeed this has not seemed a burden at all to those teachers who recognised the potential and pleasure such activities contained. The burden has now become the continued practice of tasks that are superseded. It is becoming a common cause for concern that multiple and conflicting demands made on teaching time undermine much good progress.

What can we leave out?

Such conflict is nowhere so apparent as in the area of mathematics. For example, a discussion about the role of the calculator in primary classrooms still encourages heated debate about what is not now required in traditional mathematics, and such a debate is not just between politicians and educationalists or between parents and teachers but also amongst individuals within all of these groupings. The use of calculators is seen as desirable, and often essential, by those

concerned with the education of young children but somehow this is not translated into *belief* that their use supersedes other more familiar methods. Part of the failure to accept this knowledge is due to the well-known phenomenon that any change is threatening and therefore something to be rejected. This particular example is evident in many well-organised parents' evenings where teachers try to explain their opinions about the use of calculators and are greeted with a response along the lines of, 'We accept all that, but when are they going to do their real maths as well?'

It may be, however, that there is more to such a reluctance to accept the evidence than just a fear of the unknown. It may be that the evidence is not startling enough to convince the doubters. Perhaps what is required is something that produces such enormous leaps of evident improvement that no one could ever doubt it. But even this has happened already and not shifted the prejudice. The sensitive introduction of calculators into infant classrooms has enabled children as young as four or five years old to work confidently with negative numbers and very large numbers. This has to count as a 'significantly enormous' leap in their performance but has still met with resistance in many quarters. It is possible that the resistance in this case is because it has to do with number skills. This is the one area of primary mathematics where the fear of the unknown (spoken as 'yes, but he'll still need to do his sums') is at its strongest. The threat that 'this new method' might just not work after all, despite the evidence, is felt most urgently when it concerns the foundations of future knowledge. I have a nagging doubt that the same principle of calculator use will not arouse the same passions amongst the public when applied to the equally thorny problem of how much A-level mathematics courses should accept the use of graphical calculators.

When can I leave it out?

It seems possible then that increased strength for the argument that better technology demands a more responsive and flexible attitude will come from different areas of the mathematics curriculum. Certainly the use of Logo in areas of the mathematics curriculum that is concerned with shape and space has not aroused such opposition, although in schools the acceptance of Logo as a tool for geometry, for example, has grown more slowly than it deserves. Once again the reasons for this may have much to do with the availability of teacher training time as anything else. However the new, revamped, possibly limited edition of the Maths National Curriculum does now lay greater emphasis on data handling activities which do lend themselves more readily to the use of computer enhanced work. Apart from collecting information about cars that pass the school gate or the type of crisps the children eat, and then putting such collected wisdom into a pre-prepared database, there are ways in which significant improvements in abilities can be achieved *only* with the use of a computer and a calculator.

Does this graph tell me more than I thought?

Consider the case for the understanding of graphs. The weight of evidence is that young children are not wonderful in *interpreting* graphs. This is not to be confused with their abilities in collecting information and then drawing graphs, although these too do not always reach inspirational heights. What young children are lacking is the ability to interpret graphs sensibly other than responding to the most mundane of questions to that most mundane of graphs, the block graph. It may be that this underachievement has much to do with the appalling examples of bad graphing to be found almost daily in the national press. Colleagues at work run a competition to find the most meaningless and incomprehensible example in the newspapers and there is no shortage of entries. However, thankfully, most teachers do expect more from their children than from their newspapers and are not surprised when they get it. One expectation is that children now demonstrate a higher level of skill in handling data in all its forms than was previously required.

It is easy to demand such a higher level of skill but more difficult to develop it. One method is by involving the children in the collection of the

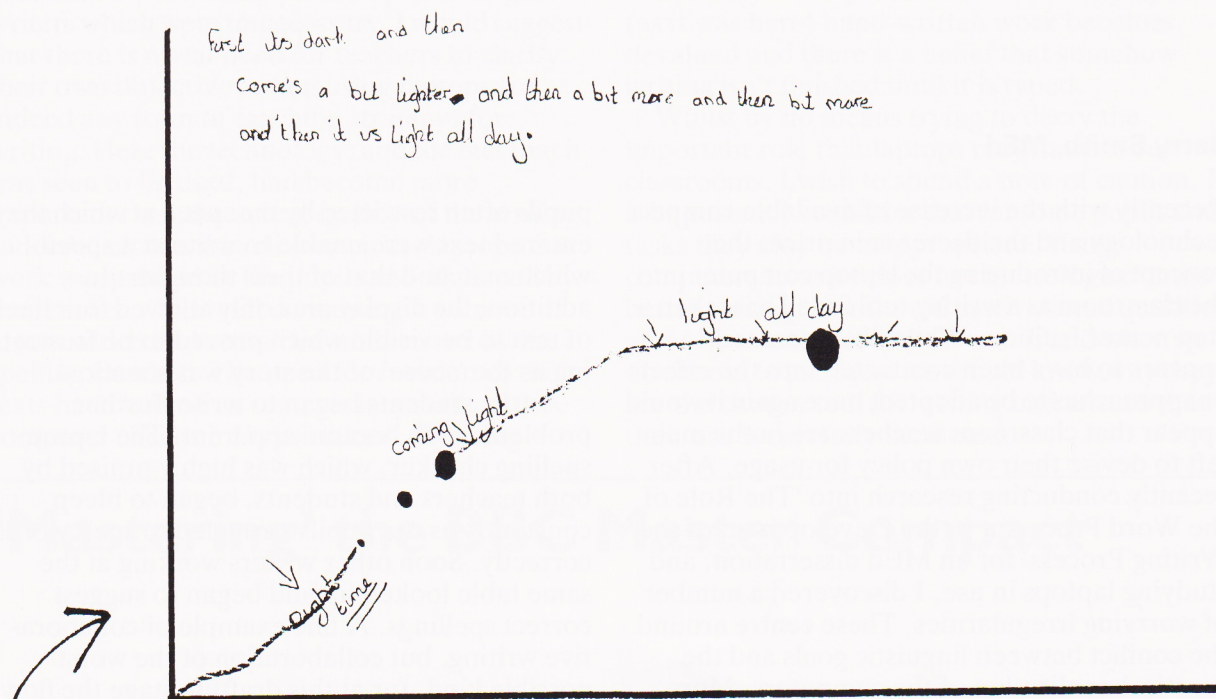
data, the processing of the collected information and then the interpretation of it in a significant way afterwards. Too often are children asked for one or at best two of these processes but not the critical third one. Many examples exist of children being asked to collect information and then graph it (usually in the form of a block graph) and there the activity stops as if the drawing of the graph was the sole aim of collecting the information in the first place. Sometimes there are a few cursory questions along the lines of 'What is the most popular flavour of crisp in our class then?' The significance of this is that the answer is something that is already known to the children who have collected the data anyway.

Problem solving means solving the unknown

What would be far more useful are questions that we (or the children) do not know the answers to but can now try to find out using the information gathered. One such activity I use with children of seven years old is the analysis of data relating to the levels of sound, light, temperature and physical activity within their own classroom using a cheap data-logging device connected to the normal class computer. The device is called The Measuring Box and can be connected to a BBC computer. It is reasonably cheap (around £55) and enables children to see data as it is being collected or to choose to collect over a given period. The important element in this process is that the pupils are actively engaged in deciding on any particular course of action. They choose what to measure, where to put the equipment, when to start the data collection and so on. They also have some control over what it is they are investigating such as 'What happens in the classroom overnight?' The sort of graph that is used to represent this kind of information is usually a line graph (see Figure 1).

When interpreting the information in this way the mathematics the pupils use convinces me that they are working well beyond their normal level of performance. In fact this seems to be a successful way in which this type of graph can be introduced to children. They treat it as any other tool. It is neither feared nor revered and as such their understanding of the concepts involved becomes much sharper. The final stage of the process, however, which is the most significant part, is when they come to interpret their collected information and graphs. This leads to all sorts of promise and achievement unavailable to the traditional 'here's how we draw these

Name VICTORIA SCHUBERT



This graph shows ... first . dark . and . then getting . lighter ..

Figure 1 An example of a line graph showing light levels in the classroom.

Copy this onto your paper:



Try to draw these things on it.

1. The light as it changes from night to day.
2. The heat as the classroom warms up in the daytime.
3. The sound of everyone getting ready to go home and then going home at the end of the day.

Draw some more of the empty graphs. Try putting these on them . . .

1. The sound in your house in the morning.
2. The bathwater getting colder and then you putting some more hot water in it.
3. Someone switching the light on in the middle of the night to get a drink of water and then going back to bed.

Figure 2 An example of an activity sheet.

graphs' kind of teaching. It also becomes a powerful weapon in convincing doubters of the versatility of some electronic equipment. Before long children are questioning the accuracy of the measurements or asking about calibration on both axes of the graph and how can they measure this or that. Their speculation and subsequent testing of various hypotheses meets bags of attainment targets in different curriculum areas but more than this, what they are really doing is learning of the highest quality. To test, to question, to measure and then conclude is more than mathematics of course, and the speed with which young children develop these skills is made possible by the use of equipment still undervalued in classrooms and even more so outside them. Of course this may eventually threaten the need for the teaching of some currently accepted part of the mathematics curriculum and therein lies the next battle, but no children have yet failed to surprise their teacher with the ability to use and understand graphs at a level that under other circumstances they should not yet be able to do.

The Measuring Box is available from Panthera, 5 Cedar Close, Nottingham, and costs approximately £55.

Laptops – the perfect writing tool?

Barry Smith, MEd

Recently with the increase of available compact technology and the decrease in price, the concept of introducing the laptop computer into the classroom as a writing tool for all has taken a step nearer fruition. Whilst little research appears to have been conducted into the effects or approaches to be adopted, once again it would appear that classroom teachers are in the main left to devise their own policy for usage. After recently conducting research into 'The Role of the Word Processor in the Development of the Writing Process' for an MEd dissertation, and studying laptops in use, I discovered a number of worrying irregularities. These centre around the conflict between linguistic goals and the practical application of the computers. More importantly the findings suggest that where such a conflict exists it is resolved in favour of the technology. Furthermore the findings suggest that the success or failure of word processing is not a hardware or software problem but in the main the result of teacher influence and the culture of the school. The use of the word processor is not a guarantee that an improvement in pupils' writing will occur.

The focus of my laptop study was a primary class engaged in the drafting stage of a process-based free writing activity. (That is one where the text will pass through a number of stages before reaching final finished copy.) Both pupils and teachers were enthusiastic about the new technology and saw it very much as 'the way forward'. Closer investigation, however, illustrated the inherent dangers in being unable to recognise the misuse of such technology.

Despite the enthusiasm of the teacher and the motivational characteristics attributed to the laptops the students found them troublesome. The LCD display was highly reflective, making it difficult to see what had been entered. In an attempt to remedy this the pupils slumped forward, shielding the display area with their left arms. This made for both an uncomfortable writing position and an almost impossible typing pose. This, together with poor typing skills, resulted in no student entering text in excess of four gross words per minute (gwpm is achieved by calculating the total number of keystrokes including errors and dividing by five). Thus

pupils often restricted by the speed at which they entered text were unable to write at a speed which matched that of their thoughts. In addition, the display area only allowed four lines of text to be visible which proved to be frustrating as the 'sense' of the story was soon lost.

As the students began to write, further problems soon became apparent. The laptop spelling checker, which was highly praised by both teachers and students, began to bleep constantly as the pupils struggled to spell words correctly. Soon other writers working at the same table looked up and began to suggest correct spellings. A fine example of collaborative writing, but collaboration of the worst possible kind, for at this drafting stage the flow of thought was constantly being interrupted. Pupils returned to their own writing after offering their suggestions, only to experience short-term memory loss, clearly evident from such expressions as 'Now, what was I going to write?'. The problem was further compounded by the fact that the spelling checker in use was an American version. The frustration experienced by one of the pupils is clearly illustrated in the following transcript.

ANNE: Why did it bleep?

ROBERT: I've spelt kerb wrongly.

SUSAN: How did you spell it?

ROBERT: K E R B.

ANNE: Put the spellword on it.

ROBERT: (*After trying the spellword*): It doesn't have it. I'll ask Miss.

Having waited at the teacher's desk for a few minutes Robert returned appearing frustrated.

I spelt it right, it just doesn't know the word!

My lasting impression was that the technology had become too powerful; it was no longer a tool with which to write but the master, guiding the students in a manner which was highly inappropriate. At this the drafting stage when creativity and free expression should have been uppermost, students were in fact proofreading their scripts, leading to further short-term memory loss and the disjointed text that is so much a feature of it.

The use of the technology as witnessed during the research seemed highly inappropriate; constraints were being placed upon emergent writers which were unnecessary. I would suggest that there is a real need for teachers to clarify their own objectives when using laptops (or indeed any form of teaching strategy) for writing. Here the technology, and the fact that it was seen to be used, had become more important than the actual quality of the writing. Indeed such was the reliance on the laptops that work was printed by the pupils and displayed by the teacher whilst still containing a number of errors which had remained undetected by the spelling checker. The need for revision of their texts had become an unnecessary skill as 'the computer checks it for mistakes'. By using

laptops in this way, there was a danger that the whole concept of writing could be changed. When only word-processed work is displayed (as it was here) hand-written work becomes devalued and there is a belief that somehow writing isn't finished until it is typed.

Whilst by no means trying to decry the important role that laptops may have in our classrooms, I wish to sound a note of caution. It is important to consider that for some pupils and tasks they may be inappropriate. Using computers to write does not in itself guarantee better writing. Nor should motivational qualities alone be an excuse for their use. If and when we do choose to use them we should know why they are the chosen tool for writing and ensure that their use is carefully mediated.

'Mastering' the BBC Master Compact

Sherard Wilson

Background

A family friend recently asked if we would like to buy his Master Compact, as he no longer had a use for it. We looked at it briefly, trying to picture the implications of using a non-standard machine in an infant classroom. Two things were clearly needed to make the task viable – a user port for a concept keyboard and a way of using 5.25" discs. The thought of transferring even a few programs onto 3.5" discs was more than the stoutest soul could contemplate! It did not take us long to decide that we did not want to attempt the conversion and we declined to buy the machine. Shortly afterwards he telephoned again to ask if we would like to take the machine away – free of charge. This was more than we could refuse, and what follows is a 'how to' guide to making the changes.

The addition of a 5.25" disc drive

We chose to add the extra drive by mounting it inside the housing which carries the power supply and the 3.5" disc drive. This is the neatest way and costs less than adding a drive externally, as one does not need a separate power supply and can use an uncased (bare) drive. However, it is a much more demanding task, involving cutting and drilling the case and, for best results,

the ability to do simple soldering, so I will only cover the addition of an external drive.

The drive should be a standard BBC 80-track drive, with power supply, such as would be used on a BBC B or a Master. If the drive is switchable between 40 and 80 tracks it should be set to 80 tracks, as the disc-filing system will automatically adjust to the size of disc you use.

We need to make up a small cable into which the ribbon cables from both disc drives will fit. The other end of the cable will then plug into the disc drive connector on the keyboard unit. There are, in fact, *two* plugs at the keyboard end of the cable. When the end plug is connected, the 3.5" (internal) drive is drive 0 and the 5.25" (external) drive is drive 1. When the other plug is connected these drive numbers are reversed, so one has the freedom to run a program with either drive defined as drive 0.

Suppliers for all the items mentioned in the article are listed at the end.

Take a strip of about 30 cm of 25-way ribbon cable and cut off about 2 cm from the end (Figure 1). From this 2 cm strip separate off a set of two strands and a set of seven strands. Counting from the red edge of the ribbon cable, cut down the first 4 cm of the ribbon between strands 2 and 3, and between strands 5 and 6. This leaves strands 3 to 5 as a set on their own. Twist the three strands so that 5 becomes 3 and 3 becomes 5, and 4 remains as 4, but happens

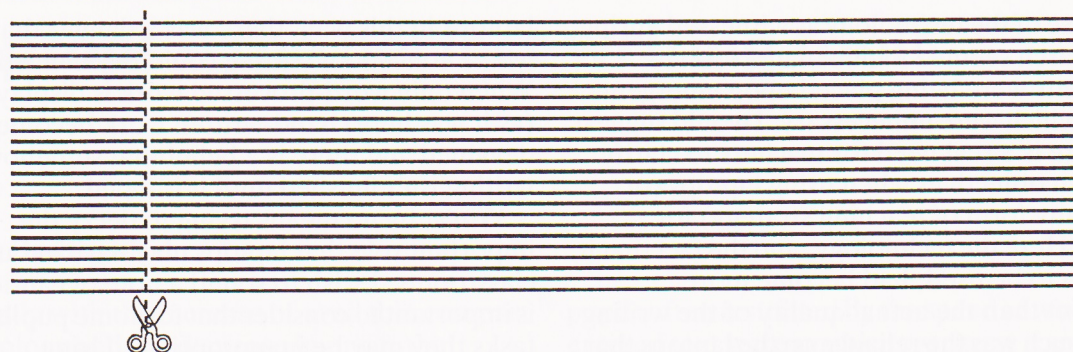


Figure 1

now to be upside down. Lay a 5 cm strip of Scotch Magic Tape (the type that is very fine and difficult to see when applied) *face up* on the table, and to this stick the set of seven strands, the rest of the ribbon and the set of two strands onto the Magic Tape thus:

Hold the assembly tight, check the orientation once more, and insert into a vice and tighten until the connector snaps together.

Use a similar technique to snap on a 25-way socket (female) and two 25-way plugs (male), noting that the end plug has lines 3 to 5 reversed

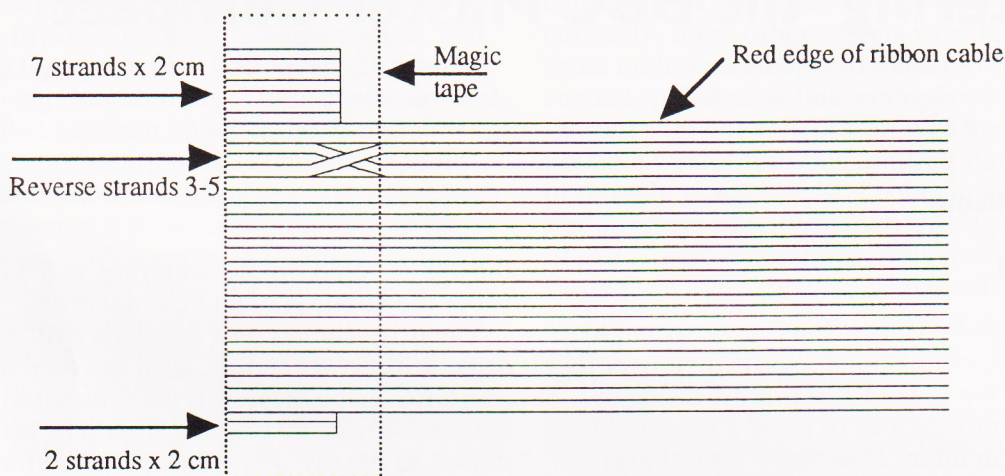


Figure 2

Make sure that all of the 34 strands now laid down are nestling snugly against each other. Lay another piece of Magic Tape across the top of the assembly to hold it in position for the next stage. Trim the edges of the tape. Partially assemble a 34-way IDC plug, and thread in the 34-strand-wide assembly you have produced:

as in the first connector. Do take note of the orientation of each connector. It is important! Remember the Magic Tape for this last connector. (See Figure 4 on next page.)

Remember what was said earlier about the two plugs which can fit into the keyboard unit – when the end plug is connected, the 3.5"



Figure 3

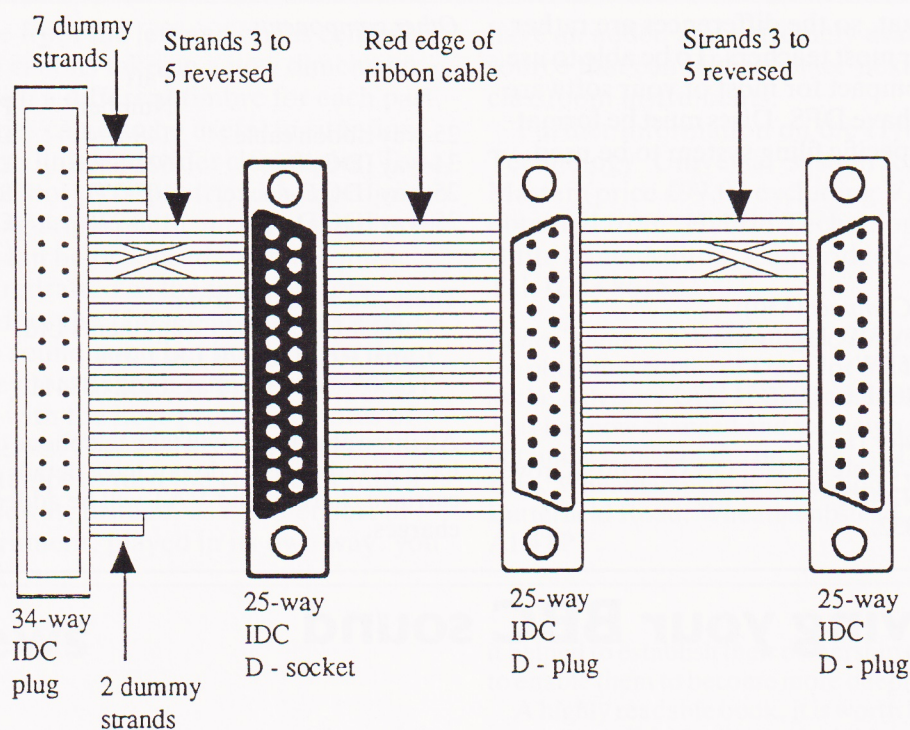


Figure 4

(internal) drive is drive 0 and the 5.25" (external) drive is drive 1. When the other plug is connected these drive numbers are reversed.

This is the hardware side dealt with, but the Compact only has the ADFS (Advanced Disc Filing System), not the simple DFS found on the BBC B and the Master. Software specifically supplied for the Compact will therefore use the ADFS filing system. However, nearly all 5.25" software is supplied to run on the old DFS, so you need to install a Compact-compatible DFS into one of the sideways ROM sockets. Acorn have written to me to say that there is a DFS on the Welcome Disc that came with this particular Compact. I bought the DFS for mine from PRES, whose address is at the end of this article.

The addition of a User Port

The easiest way to do this is to buy a User Port Emulator from RESOURCE. This device plugs into both the Joystick port and the edge connector on the right of the keyboard unit. To make the device function correctly one also needs to run a piece of software which is supplied with the device. This could provide a slight irritation, as the software is on 3.5" disc, and you probably want to run a program that is supplied on a 5.25" disc. To get round this, put the RESOURCE disc in the internal drive, plug in the drives so that the external 5.25" disc is drive 0 and the internal drive is drive 1.

Then type the following commands:

```
*ADFS <RETURN>
  (to change to ADFS)
*DRIVE 1 <RETURN>
  (to change to the internal drive)
*EXEC !BOOT <RETURN>
  (to run the install program on the
  RESOURCE disc)
*DISC <RETURN>
  (to return to the old DFS)
```

Notes

1. When the User Port software is installed, the cursor keys which are used in the menu of the Welcome Disc do not work. However, a concept keyboard works successfully using the Resource User Port Emulator, and you are unlikely to want to use the cursor keys while using a concept keyboard. If you need to switch between you can switch off the machine between uses or use the *ROMS, *UNPLUG and *INSTALL commands (see manual).
2. Some may not be clear about the implications of the differences between DFS and ADFS. DFS can only be used with 5.25" discs, ADFS with either. ADFS is a more efficient and flexible filing system and allows the storage of more data and more individual files on a disc. However, most programs are only provided

in DFS format, so the differences are rather academic for most teachers. To be able to use a Master Compact for most of your software you need to have DFS. Discs must be formatted for the specific filing system to be used.

Suppliers

DFS for Master Compact (£30):
PRES Ltd, Box 319, Lightwater,
Surrey GU18 5PW;
Tel: 0276 72046; Fax: 0276 51427.

User Port Emulator (£23):
RESOURCE, Exeter Road, Off Coventry Grove,
Doncaster DN2 4PY;
Tel: 0302 430332.

Other components:

	Part Number	Price
25-way ribbon cable	148-294	£0.49 per ft
34-way IDC plug	622-3406	£5.83
25-way IDC D-socket	105-277	£3.53
25-way IDC D-plugs	105-276	£3.14 each (2 needed)

These are available from:
Farnell Electronic Components Ltd,
Canal Road, Leeds LS12 2TU;
Tel: 0532 636311; Fax: 0532 633411.

All three companies will take telephone orders if you have a credit card. I do not have details of their carriage charges, and VAT will be added to all charges.

Improving your BBC sound

Colin Borrill
Hertfordshire LEA

MICRO-SCOPE 37 featured an article by Simon Hill about music software for Acorn computers. When talking about the *LogoSounds* program for the BBC, he pointed out that the tiny speaker did not really do justice to the program, and it's because of this that I would like to describe the Hybrid 'Universal' which I have used to improve the sound of my BBC Master.

Compose, *Opus*, *Compose Play* and *Micro Musician* are four programs I particularly like and use frequently. The first two were described in the Autumn article. Of the other two, *Compose Play* is a much extended version of *Compose* and *Micro Musician* is a staff-notation program. The Universal has enabled my BBC to produce high quality sound for these programs, turning it into a real stand-alone music workstation.

The Universal consists of a box that looks much the same as a single disc-drive, and a chip which needs to be installed in the computer. The box, which is responsible for creating the sounds, is connected to the '1 MHz bus' socket under the front of the computer and to a stereo amplifier by means of a standard din-type lead. I normally use a stereo cassette radio which travels on the computer trolley.

A disc provided with the Universal is loaded before any other music software is used. After this has been used the computer prompts the user to remove it from the disc drive and replace

it with whatever other music program you want to use. This will then operate normally, except that it will now produce high-quality stereo sound. Sixteen different tunable sounds are available operating over a six octave range including four percussion sounds. 'Ensemble' and 'sustain' effects are also provided.

In the classroom I have found that the Universal immediately increases the musical appeal of the BBC, with pupils deliberately choosing it rather than a keyboard. In my particular teaching situations I am not always able to put the computer into a quiet spot for pupils to use it, so perhaps the most immediate benefit for me was finally to be able to hear clearly a program playing some music rather than struggling to hear a tiny bleep amidst the usual sound levels of a composing activity! Sounds and effects can be altered while a program is running, allowing orchestration of a piece while it is playing. With programs like *Compose*, sounds can be chosen which suit the pictures. For example, soft, sustained sounds can be used with a tune-file such as *Midnight World*. The computer can also be used as part of instrumental ensembles in which it can provide, for example, ostinato/ground-bass parts. Programs like *Compose Play*, *Opus* and *Micro Musician*, which play up to three notes at once, can be orchestrated with a different timbre in each voice. The three voices are set so that one emerges from the right

speaker, one from the left and one is central. Rounds and canons take on a new dimension especially with a different timbre for each part. These facilities can also be useful in situations where music is linked to wider class topics. Tape recordings of stories or poetry with appropriate accompanying atmospheric music played by the BBC Micro can be produced, with the music revised and redrafted as the text develops.

Not only does the Universal enable music programs to sound good but it also turns the computer keyboard into a piano-like musical instrument, with the keys producing notes of different pitches. If you can avoid thinking of this as an attempt to turn the computer into a piano and view it, instead, as another sort of musical instrument, played in its own way, you

have an added and extremely usable sound source that can take its place next to other classroom instruments.

Further information on the Hybrid Technology 'Universal' system for the BBC Master (price £99.00 excluding VAT) can be obtained from: Hybrid Technology Ltd, 88 Butts Lane, Milton, Cambridge CB4 6DG. Tel: 0223 861522

Editor's note: In *MICRO-SCOPE 37*, the address for obtaining copies of *Opus* for the BBC was given as the Advisory Unit at Endymion Road, Hatfield. This has now changed and the new address for obtaining copies of the program is: The Advisory Unit, Wheathampstead Education Centre, Butterfield Road, Wheathampstead, Herts AL4 8PY.

Reviews

Title: Primary Projects and Word Processing Key Stages 1 and 2
Author: Sue Senior
Series: 'Using IT across the Curriculum'
Publisher: Owlet Books, Ballochintuy, Tunstall Road, Sittingbourne, Kent ME10 1YQ
Price: £9.95 and £12.50

After several years of dedicated work, Sue Senior has now completed her series of books on the integration of the micro into primary teaching. She combines long- and well-established primary theory and practice which aims to encourage children's natural sense of enquiry and develop self-motivation with the requirements of the Statutory Orders and the content of the latest DFE discussion papers.

Primary Projects takes Homes, Funfairs, Directions, Electricity and The Romans as themes, sometimes building the topic around a specific piece of software and sometimes using a range of programs to fit a theme, thereby showing how they could be adapted to a range of other work.

The topics are aimed at different age-groups in key stage 1 and key stage 2 and are well-balanced in terms of the subject-specific demands of the National Curriculum. For each one Sue suggests an outline, starting points and then IT and other subject-specific activities.

Sue favours and provides webs of concepts and activities and suggests that children be involved in the construction of these from the outset. Year by year they should build up their experience and increase their ability to take part in class brain-storming sessions. Having tried this, colleagues found it a useful technique for identifying an appropriate starting point for a particular group. As Sue suggests,

it helped to establish their ownership of a project and to enable them to become more deeply involved in it.

A highly readable book, it is worth buying in order to see Sue's lengthy lists of activities related to the various levels of the attainment targets in English, maths, science, technology, history and geography. These could save a busy teacher a fair amount of time. Each paragraph is filled with practical suggestions. All in all it would be invaluable to anyone embarking on planning any of these topics.

Word Processing Key Stages 1 and 2 is a companion volume in the series which also includes *Handbook for the Primary Classroom*, *Data Handling Key Stage 1* and *Data Handling Key Stage 2*. In this book Sue has discussed the writing process, covered the use of concept keyboards including the making of overlays in step-by-step detail for both BBC and Nimbus and again provided some very valuable charts relating well-known, easily obtainable programs at both key stages to attainment targets. Word processing activities at key stage 1 are covered on the basis of the development of a progression, and the writing of stories is covered very comprehensively. At key stage 2 this is covered under the headings of 'Factual Writing', 'Creative Writing' and 'Newspapers' and also provides a useful cross-curricular applications chart.

Another section evaluates concept keyboard programs, whole word processors, word processing programs and newspaper generators for both BBC and Nimbus users, and resources, references and addresses are provided at the end.

Although these books will inevitably need to be revised over time, the basic messages and suggestions are fairly universal and will not date quickly. These books could be particularly useful to anyone undertaking or involved in initial teacher-training, in-service work or those returning to primary school teaching who have missed out on the development of the use of the micro in the classroom. However, there are still ideas for experienced, practising teachers to add to their portfolios of ideas. Neither volume would

rest long on a staffroom coffee table. The whole series deserves a place on the resource shelf of any primary school.

Sarah Earl

Now for the information!

Teachers have been using different media since chalk and talk were first invented, when Neolithic educators painted the first visual aids on the walls of their caves. Recently teachers have been able to employ different electronic media at the same time: slide-tape programmes, audio and video, computers and electronic music, and so on. In IT, 'multi-media' has now taken on a new meaning and covers software that accesses devices other than the usual floppy discs, for example LaserVision videodiscs or CD-ROM drives. Multi-media software typically incorporates video and audio alongside the more conventional computer graphics.

Why then should teachers bother with multi-media packages? Although this review is primarily concerned with Oak Solutions' *Genesis Plus*, a package that has much to commend it, a wide variety of new multi-media software is now available (Sherston's *Hiligher*, Logotron's *Magpie*, and *Key Author*). Is there too much hype in software like *Hypercard*? The problem is that many teachers do not appreciate the tremendous educational potential of multi-media packages. Oak Solutions' *Genesis Plus*, for example, is not simply another DTP program with a few bells and whistles added; it is a very powerful and versatile tool for displaying a wide variety of information. *Genesis Plus* is different because it provides an interactive environment within which children can experience, investigate and control worlds of their own or others' making, worlds that are not available to them in any other realistic way. Furthermore, it is not difficult to use!

Genesis Plus allows the user to create 'pages' of information (text, graphics, music and sound effects) and to link them in a variety of ways. *!Draw* and

!Paint files can quickly and easily be incorporated. Electronic 'clip art' (discs full of *!Draw* files that have been produced by professional artists) is becoming cheap and plentiful. Another option is to include scanned images or digitised video pictures. (Computer Concept's *ScanLight* costs £399 plus VAT for a scanner, sheetfeeder and software, whereas a vision digitiser costs only £49 plus VAT, but you do need a CamCorder, a video recorder or a Canon Ion camera.) Finally, *Genesis Plus* can also make full use of *Euclid* 3-D drawings and *Mogul* animation sequences.

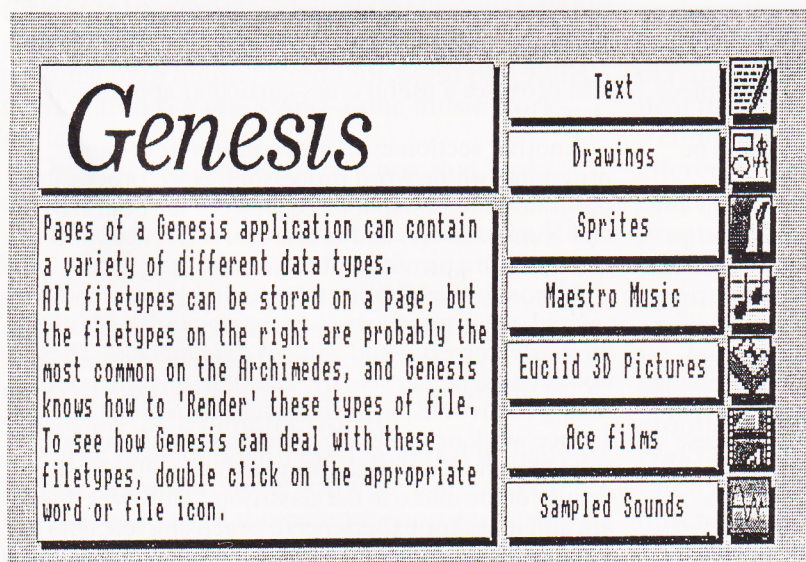
As well as conventional text and illustrations, *Genesis Plus* allows the user to include music, speech and atmospheric noises. *!Maestro* files can easily be accessed and Oak Solutions' sound sampler can be used to incorporate sound effects. The quality of the output of sound samples is remarkably good, but there are three drawbacks. So far I have not been able to use files from other music software, such as *Rhapsody* or *Notate*, and everything else stops while a sound sample is being played. Furthermore, software houses do not seem to have got around to the idea of 'clip sound'. (The BBC used to produce LPs full of sound effects, but there is nothing similar on floppy disc yet.)

How can *Genesis Plus* be used? As with most 'content-free' software, the real boundary is the user's imagination. The 'Examples Disc' contains some sample files (Oak Solutions confusingly refer to them as 'applications') which give a good picture of the package's potential. I intend to use *Genesis Plus* to support *1665*, a CAL program about the Great Plague of London. There will be Samuel Pepys 'reading aloud' from his diary, graphs showing the spread of the plague, contemporary illustrations, sound effects and 'Ring-a-ring o'roses'! Oak Solutions permit the distribution of *Genesis Plus* applications on a free-of-charge basis, so I hope that many schools will take advantage of this.

Packages of this type will surely have a great impact upon the development of information technology in our schools. Perhaps it is time we

moved away from sterile debates about hardware and asked a fundamental question: 'What about the information?' The Programme of Study for Key Stage 2 states that pupils should be taught to 'use information technology to organise ideas in written, pictorial and aural forms' and to 'work together to prepare and present stored information using information technology.' Multi-media software is a very powerful and effective way of combining these different forms of information and displaying them to others. 'Wings for the mind' or desktop publishing for the 1990s? *Genesis Plus* is both – and more.

Simon Hill
Northaw School



Roamer resources

Some useful materials for Roamer activities

Undoubtedly the Roamer offers pupils challenging opportunities within a wide curriculum context and we look at two different sets of Roamer support materials.

First there is a set of eight booklets recently available, published by Fife Regional Council, written by Alan Gordan from Crail Primary School. This material is aimed at the primary age range and at a cost of £5 is excellent value. The booklets are clearly laid out, offering a wide range of activities starting from the introduction of the Roamer to the use of the Roamer in a control context (using inputs and outputs on the Roamer control box).

The contents of the eight booklets are:

1. *The Roamer – Teacher User Guide*
2. *Activities with the Roamer*
3. *The Valiant Roamer – Pupils' Activities*
4. *Help Sheets for the Valiant Roamer*
5. *Using the Roamer to make Sounds*
6. *Control with the Valiant Roamer*
7. *Roama the Roamer helps out – Teachers' Notes*
8. *Roama the Roamer helps out – Pupils' Activity Book*

These booklets contain a wealth of ideas to enable pupils to get more from Roamer activities. For example the second booklet, *Activities without the Roamer*, contains up to 16 practical tasks which reinforce several concepts including practice at following commands and a Battleships-type game.

The booklet on making sounds opens up an easily disregarded facility that the Roamer has to offer.

The addition of a control box (which screws underneath the Roamer, taking its power from the on-board batteries), allows the exciting possibility of the Roamer sensing its environment. The control box has one input and four outputs. The input could be a simple micro switch Blu-Taked to the front of the Roamer. The Roamer can be programmed to carry out a procedure whenever the switch is activated. Such a procedure could cause the Roamer to back off

and turn round before continuing in a forwards direction. Other control box inputs could be from vibration, light and sound sensors. Outputs could consist of lights (LEDs or torch bulbs), buzzers, motors and stepper motors. Unlike a standard buffer box that is normally attached to a computer, the Roamer control box is mobile, making it respond to its environment like a real robot!

For teachers just beginning with the Roamer or those familiar with its possibilities but requiring activities offering progression through years 3–6, this set of booklets would prove a worthwhile investment.

The set of Roamer booklets is available from the Microcomputer Unit, ASDARC, Cardenden, Fife, Scotland.

Secondly, Valiant are now selling Roamer Cards. These are similar to playing cards but have the coloured Roamer keypad symbols on them. Originally designed as a method of recording Roamer keypad presses, their wider use has rapidly become apparent.

The cards lend themselves to many activities away from the Roamer. For example working out Roamer journeys or coming to terms with the syntax of a repeat or procedure sequence. There are many games (including snap and pelmanism!) possible with these cards. Again this resource would be useful across the primary age range and for both individual or group activities. Furthermore the cards are most useful for teacher training purposes.

The activity booklet accompanying the set of cards contains many ideas as to their use, providing interesting and amusing contexts for Roamer activities. Using the cards clarifies the function of Roamer commands and allows pupils adults alike to see the syntax of the Roamer-Logo language.

The cards come in a set of two packs of 86 cards each with an accompanying activities booklet; the cost is £9.95 per set available from Valiant Technology Ltd, Myrtle House, 69 Salcott Road, London SW11 6DQ.

Philip Mann

MAPE matters

Chairperson's news

This year's national conference will be held in York from April 2nd until the 4th. It looks like being a very interesting event with themes and presentations to suit every taste. If you haven't been to a MAPE conference before do try to come; it's excellent value for money, and you'll meet lots of new people, make friends and become part of a lively network. If you have been before then I'm sure you found it both informative and enjoyable and can't wait to

come again. I look forward to welcoming delegates who have been before and those who are attending for the first time. You will all be well looked after so send in your booking now!

The joint MAPE/World Wide Fund for Nature 'IT Saves the Planet' competition attracted entries of the highest calibre. The prize (an IBM computer) was won by Chilcote Primary School (Mrs M Dunkley), Hall Green, Birmingham. An entry from Longhaugh Primary School, Dundee (Nina Fugaccia) was highly commended. Congratulations to them

both and thank you to everyone who entered.

'Into Europe' is a great success and now the files are available for the Archimedes version. If you would like a copy please send a cheque for £5, made payable to MAPE, to Mrs Y Peers, MAPE, Newman College, Bartley Green, Birmingham B32 3NT. You need *Touch Explorer Plus* to run the files. This is available from NSNSU, RESOURCE, Exeter Road, Wheatley, Doncaster DN2 4PY, Tel: 0302 340331.

In an earlier edition of *MICRO-SCOPE* I wrote that we are in the process of implementing a strategic development plan for MAPE. If we are to make some changes to MAPE's structure we need to amend the constitution. Outlined below are the changes we have in mind. These will be voted upon at the AGM which will be held as part of the conference programme in York.

Finally, MAPE is interested in establishing contacts in schools who are using CD ROMs. We would like to collect evidence about the way in which CD ROMs can contribute to teaching and learning. If you are working with CD ROMs in your school, please write to me.

Proposed changes to the constitution (subject to agreement by the MAPE National Council):

Clause 4.2 currently reads: *The same subscription shall be due from the individual, student or institution.*
Proposal: 4.2 The Council may determine differential subscription rates.

Clause 6.1 currently reads: *The Executive shall be the Chairman, Vice-Chairman, Secretary and Treasurer.*

Proposal: 6.1 The Executive shall be the Chairman, Vice-Chairman, Secretary, Treasurer, Journal Editor, Business Manager and Regional Co-ordinator.

Clause 6.2 currently reads: *The overall policy of MAPE shall be determined by a Council consisting of the Executive, the editor (or his/her representative) of the House Journal, the Publicity Officer, and one representative from each MAPE region (currently those of the MEP) together with any other co-opted members.*

Proposal: 6.2 The overall policy of MAPE shall be determined by a Council consisting of the Executive, plus 2 representatives from each of the six (maximum) Working Groups, with an additional 3 representatives from the Regional Activities Working Group.

Clause 6.3 currently reads: *The Council has the power to co-opt on an annual basis.*

Proposal: 6.3 The Executive has the power to co-opt on an annual basis up to 3 additional members to each of the Council and the Executive.

Clause 6.4 currently reads: *The Council shall meet at least once per term.*

Proposal: 6.4 The Council shall meet at least once

per year. The Executive shall meet at least once per term.

Clause 7.1 currently reads: *The Chairman, Vice-Chairman, Secretary and Treasurer shall be elected by the Council at the first meeting following the AGM to serve for one year.*

Proposal: 7.1 The Executive shall be elected by the Council at the first meeting following the AGM to serve for a period of two years.

Clause 8 currently reads: *Regions will each elect a representative to serve on the National Council; they will also elect a second member to deputise for the representative should the need arise.*

Proposal: 8. Each Working Group will elect annually a representative to serve on the Council for a period of two years. The Regional Activities Working Group will elect 5 representatives to serve for a period of two years; three representatives elected in even years and two in odd years.

Senga Whiteman

BLUG news

Services and membership of the British Logo User Group have been held in suspended animation during the last year whilst we restructured. We are delighted to announce the emergence of the new, improved LogoS (Logo User Group). There will be more news about this from Mike Doyle in the next issue of *MICRO-SCOPE*.

With new versions of Logo and other products being announced, we anticipate a demand for local one day courses. Members of LogoS are happy to help if we can and we can be contacted through me (address on the inside back cover.)

Chris Robinson
BLUG/LogoS

5-6 March 1993

Design & Technology for Children with Special Educational Needs

A 2-day Conference and workshops
at Easthampstead Park,
near Bracknell, Berkshire.

Residential and non-residential places
available.

Further details from:
Ron Lewin,
Department of Education (QA),
Shire Hall, Reading RG2 9XE

Regional news

Chiltern

We had a very successful session at Barnet Teachers' Centre on 3rd October, when those who braved the rain heard Chris Robson talk about the *Into Europe* pack. There was then a practical workshop on *Touch Explorer Plus*. Following from a suggestion at the meeting, we are planning an 'Overlay Exchange' in the summer term; details will be sent to all members.

I am happy to report that now we have a group of 30 or more active members; we hope to hold events termly. Although our meetings are currently held in the south of the region we're happy to travel and suggestions for topics and venues will be most welcome.

Our next event will be at Wall Hall College, University of Hertfordshire, on 6th March and will be run by Roz Chapman, head of IT. The focus will be 'Using ordinary software for children with special educational needs'. Cost and time have yet to be finalised but please phone me on 081 866 0827 in February to book a place.

Betty Lumley

East Midlands

Before Easter, many members of the East Midlands Committee were involved in organising Conference 92, but now everyone is able to put their time and energy into regional activities. The local courses which we have run have convinced us of the need for further support for teachers who are still trying to get to grips with the basics of the A3000 and Nimbus machines. MAPE does welcome beginners and hopes that we can help them to use IT in their classrooms with more confidence.

At present we are taking a Roadshow around the different regions. We hope that we have identified the areas that you will wish to work on, but if we have overlooked something, please don't hesitate to let us know. You can choose a full day or half days at the Roadshows, working on any of these areas:

Beginners A3000 (or 5000) or Nimbus; Logo; Control; Data Handling

Our courses are also open to non-members, so perhaps you would like to bring a colleague or friend. We are able to offer this event for £20 to members and £22.50 to non-members.

Our first Roadshow was at The Grove Primary School in Melton Mowbray on Saturday 21st November. We had an encouraging number of participants and the ratio of providers to learners enabled people to have very personalised sessions.

Lunch at a lovely thatched pub was an added attraction and gave everyone the chance to get to know one another. It was good to see old friends but equally enjoyable making new ones.

During the autumn term, the East Midlands Committee have been in touch with all members and

sent them details of what is happening in the area, but perhaps we can ask you to check again that you have put the dates of the Roadshows in your diary.

You are invited to join us on 6th March 1993 at College House, Chilwell, Nottingham, or on 22nd May 1993 at Kilburn Junior School, Kilburn, Derbyshire.

We can assure you that you will find our meetings pleasant social occasions as well as an opportunity for learning something new. The pub lunches are particularly recommended!

If you have any different ideas for the region's development or want further information, please get in touch with Trevor Wright, our Regional Rep, or me.

Wishing you all a Happy New Year and hoping to see you at a Roadshow!

Chris Foster
Seely Junior School, Perry Road
Sherwood, Nottingham (0602 606783)

Eire

Many of our members began the autumn term by visiting the Acorn Roadshow which took place at centres in Dublin, Cork, Limerick and Galway. The East Cork Teachers' Computer Group (see *MICRO-SCOPE* 37) ran the following meetings at Scoil Chlochar Mhuire Carrigtwohill:

Creative writing with the aid of the micro – a talk by school inspectors Séan O Floinn and Miss Eileen Kent;

PenDown on the Arch – a three-session course led by Luke McAuliffe;

Edword on the M128 – a three-session course led by Tomás O Gormáin;

Electronic Mail – a demonstration by Dan Leo;

Into Europe '92 and the concept keyboard – a demonstration by Luke McAuliffe;

The Owl pack on the concept keyboard – a demonstration by Derry Keogh;

Logo Ar Scoil – a talk and demonstration by Donal Kearns and Tomás O Gormáin;

Education for a changing world – a discussion on the IT aspects of the Green paper on education issued by the Department of Education.

Many of our members also attended the very successful Computer Education Society of Ireland's conference in Dublin in November. Discussions have already begun to find ways in which CESI and MAPE can cooperate. Among projects planned for the spring term are 'Making overlays on the concept keyboard', 'Creative writing in the primary school' and a bilingual version of Logo Ar Scoil.

Note: MAPE subscription for Eire members is £20. Further details from Luke McAuliffe – address on the inside back cover.

Luke McAuliffe

Northern

37 people attended an excellent one-day Conference in Newcastle on 21st November. Laurie Decyk, IT Adviser

for South Tyneside gave the keynote address, and presentations included Control Work, Assessing IT, Language Development and Using IT to Support Teachers. The regional committee would like to thank Anne Muxworthy for the use of the ITSEN Focus Centre and wish her well in her new post in Sunderland. We were delighted to have some suggestions for future events from conference delegates, but if you have ideas for events or venues, please contact the regional representative.

Details of the next meeting, *Into Europe and the Concept Keyboard*, on 8th May, will be sent to members in the spring term.

David Campbell

Northern Ireland

This is my first contribution to *MICRO-SCOPE* as the new regional representative for Northern Ireland, an event brought about by the recent 'retirement' of Pete Young. Pete has served for many years as our representative on the National Committee but has now decided to hang up his mouse, concept keyboard etc in order to devote his time and efforts to his duties as Principal of Taughmonagh Primary School. Pete was an excellent regional representative and is responsible in great part for the very high profile which MAPE enjoys in the Province. His drive and enthusiasm will be missed within IT circles in general and especially by his colleagues on the NI MAPE Committee.

1993 events include:

5-6 March: MAPE Conference at Stranmillis College;

14-15 June: Final of the Schools' Computer Competition.

The March Conference is once again a two-day conference and we hope to provide a range of workshops and presentations suitable for key stages 1 and 2, using a range of hardware and software. Details will be distributed to schools soon.

The Competition is being sponsored yet again by BP Oil to whom we are most grateful for their continued support. The important news is that there is no entrance fee for this year's competition! Other details, including competition categories, will be with schools in January.

Ron Cromie

Overseas

In October, I was fortunate enough to go to Moscow, where I visited several schools looking at their use of computers. I had hoped to include a report of that visit here, but pressure of work has prevented it. However, look out in the next issue for news of MAPE in Moscow!

Chris Robson

Scotland

Regional activities continue to thrive in Scotland! The

Into Europe pack was demonstrated at six evening sessions in November at Northern College, Dundee.

Tayside members are planning evenings for Learning Support teachers in the spring and summer terms - dates have yet to be fixed.

Fife Region were the hosts for this year's successful MAPE Scotland Conference and a report of this appears elsewhere. Now that they have recovered from their exertions, they are planning three evenings entitled Laptops, Foundations of Writing and Apple Mac.

Monthly local user groups have been held in Kincardine & Deeside, Aberdeen & Peterhead and Fraserburgh in Grampian Region, whilst Banff runs a monthly A3000 group, where word processors, databases and spreadsheets are demonstrated. Grampian's MAPE Day will be held on 24th April.

Lothian members have held evening meetings on the Apple Mac and Video Capture, with further meetings planned on Programmable Toys, Writing and Managing IT.

Strathclyde and Central have nothing to report from the autumn term, but hope to plan meetings early in 1993. If you would like details of these or any other events in Scotland, contact Ann Clayton, 24 Athollbank Drive, Perth PH1 1NF.

Ann Clayton

South West

We had a successful AGM on 30th September, followed by a session on Music and IT. This included a demonstration of sound processing devices, MIDI and a range of software. In good time for the festive season, our *Computers at Christmas* session took place on 21st October.

Future events are:

Data Handling: 10th March at Exeter University;

Logo: 5th May at St Andrew's Junior School, Cullompton;

Controlling Robots: 12th May at Exeter University;

All events will begin at 4.30 and there will be a charge of £4.00 per member to cover administrative costs.

Other events being planned include Control Technology at Lipson Vale School, Plymouth; Data Handling at Eden Park School, Brixham; a day course for supply and returning teachers and in July, a day workshop, both at Exeter University. For further details of these and other events, contact Chris Taylor, Tel 0392 264989.

West Midlands

Christmas came early to Newman College when we held our Christmas Morning on 17th October. Approximately 50 people enjoyed an informative session and collected lots of ideas to use in the classroom.

Future meetings include:

Saturday morning, 6th February: *Into Europe* and many other interesting items;

All day, Saturday 6th March: *Early Years Conference* plus AGM.

Mick Harwood

MAPE National Committee Members 1992–1993

<i>Chairperson</i>	Senga Whiteman, Newman College, Genners Lane, Bartley Green, Birmingham B32 3NT. Tel: 021 476 1181 Campus: YLJ008 FAX: 021 476 1196
<i>Vice Chairman</i>	Les Watson, Shaftesbury Hall, St Georges Place, Cheltenham, Gloucestershire GL50 3PP. Tel: 0242 532968 Campus: HFE111 FAX: 0242 532968
<i>Treasurer</i>	Keith Whiting, 149 Sherbourne Avenue, Nuneaton, Warwickshire CV10 9JN. Tel: 0203 396132
<i>Secretary</i>	Alison Galbraith, 34 Bristol Street, New Hartley, Whitley Bay, Tyne & Wear NE25 0RJ. Tel: 091 237 2374
<i>Publicity Officer</i>	Anne Liddle, Pentland Primary School, Pentland Avenue, Billingham, Cleveland TS23 2RG. Tel: 0642 552848 Home: 0642 781546
<i>MICRO-SCOPE Editor</i>	Chris Robson, 99 Foxcote, Wokingham, Berkshire RG11 3PG. Tel: 0734 733718 Campus: YNE009 FAX: 0734 733718
<i>MAPE Administration</i>	Mrs G.E. Jones (MAPE), 'The Old Vicarage', Skegby Road, Normanton on Trent, Notts NG23 6RR. Tel: 0636 821647 Campus: YNE070 FAX: 0522 545584
<i>MAPE Membership</i>	Val Siviter, Cilgeraint Farm, St Anns, Nr Bethesda, Gwynedd LL57 4AX. Tel: 0248 602655 FAX: 0248 602655
<i>MAPE Sales</i>	Yvonne Peers, Technology Centre, Newman College, Genners Lane, Bartley Green, Birmingham B32 3NT. Tel: 021 476 1181

Regional Representatives

CHILTERN

Betty Lumley, 26a Chamberlain Way,
Pinner, Middx HA5 2AY
Tel. 081 866 0827

LEAs

Barnet, Bedfordshire, Brent, Buckinghamshire, Ealing, Enfield, Haringey, Harrow, Hertfordshire, Hounslow, Hillingdon, Northamptonshire, Oxfordshire

Code 12

EASTERN

Contact the Chairperson

LEAs

Norfolk, Suffolk, Cambridgeshire

Code 03

EAST MIDLANDS

Trevor Wright,
28 Grantwood Road,
Melton Mowbray, Leics LE13 1SB
Tel. 0664 480070 (home)
0664 62554 (school)

LEAs

Derbyshire, Leicestershire,
Lincolnshire, Nottinghamshire

Code 10

GREAT WESTERN

Bill Urwin, SCITE,
Somerset Education Centre,
Parkfield, Park Road,
Bridgwater, Somerset TA6 7HS
Tel. 0278 423721 ext 214
FAX 0278 428181

LEAs

Somerset, Avon, Wiltshire, Gloucs

Code 08

NORTHERN IRELAND

Dr Ron Cromie, IT Dept,
Stranmillis College,
Stranmillis Road,
Belfast BT9 5DY

Code 14

EIRE

Luke McAuliffe,
Prospect Hill,
Youghal, Co. Cork, Eire
Tel. 024 92998 (home)
024 93101 (school)

Code 16

NORTHERN

Elizabeth Freeman, Dale View,
Wetherall Pasture, Nr. Carlisle,
Cumbria CA4 8HR
Tel. 0228 560427

LEAs

Cleveland, Cumbria, Durham,
Newcastle upon Tyne, North Tyneside,
Northumberland, South Tyneside,
Sunderland, Gateshead

Code 07

NORTH WALES

Dave Siviter, Cilgeraint
Farm, St Anns, Nr Bethesda,
Gwynedd LL57 4AX
Tel. 0248 600612
BTG 74: MIK2080

LEAs

Clwyd, Gwynedd, Powys
(Montgomery)

Code 09

NORTH WEST

Yvette Blake, 95 Freenfields,
Appleton, Warrington,
Cheshire WA4 3BT

LEAs

Bolton, Bury, Cheshire, Isle of Man,
Lancashire, Manchester, Merseyside,
Oldham, Rochdale, Salford, Stockport,
Tameside, Trafford, Wigan, Wirral

Code 05

OVERSEAS & FOREIGN

Chris Robson, 99 Foxcote,
Wokingham, Berks RG11 3PG
Tel. 0734 733718 Campus YNE009

Codes 21 and 22

SCOTLAND

Anne Foster, 69 South Road,
Charlestown, Fife KY11 3EF
Tel. 0383 872475

Code 15

SOUTH EASTERN

Eileen Jaques,
44 Dunvegan Road,
London SE9 1SA
Tel. 081 850 4112

and

Chris Price,
Merton Court School, Knoll Road,
Sidcup, Kent DA14 4QU

LEAs

East Sussex, Essex, Greater London
Boroughs not listed in 12, Kent, Surrey

Code 01

SOUTHERN

John Bennett, 11 Randall Close,
Chickerell, Weymouth, Dorset DT3 4AS
Tel. 0305 772817

LEAs

Berkshire, Channel Islands, Dorset,
Hampshire, Isle of Wight, West Sussex

Code 11

SOUTH WALES

Chris Britten, 11 Welford Street
Barry, South Glamorgan CF6 8RJ
Tel. 0446 747970

LEAs

Dyfed, Gwent, Mid Glamorgan, Powys
(Brecknock & Radnor), South Glamorgan,
West Glamorgan

Code 13

SOUTH WEST

Chris Taylor, St Luke's College,
University of Exeter, Heavitree Road,
Exeter, Devon EX1 2LU Tel. 0392 264828

LEAs

Cornwall, Devon

Code 04

WEST MIDLANDS

Mick Harwood, Flat 3, Baxter Court,
96 School Road, Moseley,
Birmingham B13 9TP Tel: 021 449 8224

LEAs

Birmingham, Coventry, Dudley,
Hereford/ Worcester, Sandwell,
Shropshire, Solihull, Staffordshire,
Walsall, Warwickshire, Wolverhampton

Code 02

YORKSHIRE & HUMBERSIDE

To be appointed

LEAs

Humberside, North Yorkshire,
South Yorkshire, West Yorkshire

Code 06

CO-OPTED MEMBERS

Ron Jones, 'The Old Vicarage',
Skegby Road, Normanton-on-Trent,
Notts NG23 6RR Tel. 0636 821647
Campus YNE070 FAX 0522 553311

André Wagstaff, NCET,
Unit 6, Sir William Lyons Rd.,
Science Park, University of Warwick,
Coventry CV4 7EZ Tel. 0203 416994

Chris Robinson (BLUG observer),
3 Cowdray Park, Hill Head, Fareham,
Hants PO14 3SA Tel. 0329 661565

Roger Keeling
Newman College, Genners Lane
Bartley Green, Birmingham B32 3NT
Tel. 021 476 1181 FAX 021 476 1196

MICROSCOPE

MAPE Conference 1993



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NEWMAN COLLEGE with MAPE