19

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MICRO SCOPE

Newman College with MAPE

Contents

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MICRO-SCOPE 19

Editorial

Next year's MAPE Course and Conference will be held at Newman College, Birmingham from late afternoon on Friday 10th April until Sunday afternoon, 12th April. A booking form is included with this copy of *MICRO-SCOPE*. You can either book straight away or write to Dave Whitehead, 550 Whitworth Road, Rochdale, for further details.

In some ways this course will be different from the courses of previous years. We will be offering five practically-based themes. A delegate may select one theme which will then be followed in depth for the major part of the course. Alternatively, we will be offering a range of short presentations; a delegate may opt to attend these in order to get a broad over-view of current developments in information technology. Delegates who choose to follow a theme will also get the opportunity to attend presentations which are of interest to them.

One of the themes will relate to control technology. British Schools Technology have agreed to site their trailer at the college. It is extremely well-equipped and delegates who follow the control technology theme will be solving problems. A second theme will relate to newspapers. Further themes will include Adventures, The Management of Innovation, and Creative Arts. We are hoping that different delegates on each theme will represent a wide range of experience from absolute novice to modest expert. You do not have to know the answer, in fact there are so many answers that everyone will be able to discover a solution for themselves (with assistance).

We will also be offering publishers the chance to show their products in a presentation slot rather than in a general exhibition. This should enable delegates to get a really good look at items of software, or packages of resources in which they are interested.

We will be retaining the practice of inviting controversial(!) speakers to air their views and share information with all the delegates via a series of main lectures. Those who attended this year's meeting will remember the stirring final lecture which was presented by Anthony Adams. We hope to offer a similar kind of experience to next year's delegates.

All in all it's going to be an event that no-one should miss! If you have never been to a MAPE course before, do come. We try to make everyone feel at home. You can meet all kinds of interesting people and discover a range of little known facts. If you have no one to come with do not fear, indicate that fact on your booking form and we will put you in touch with someone else from your area who is going to attend.

In the past we have castigated members for not booking a place early enough. This time there are two reasons for booking NOW. Firstly places on the themes will be limited and they will be allocated on a first-come, first-served basis. Secondly, all bookings received before February 1st 1987 will be put in a draw; the prize will be fifty pounds worth of software.

MAPE Tape III licences have been offered to LEAs. Tell all your friends that they can now get the software which was previously exclusively for members of MAPE, if their LEAs have bought a licence.

MAPE Tape IV (on disc!) is on the horizon. Make sure your membership has not lapsed, and does not lapse, otherwise you will miss it.

Letters

Left-handed snails?

Inspired by a picture on a question paper, one of my students, Jason Smith, briefly attempted to devise a program to produce a similar pattern.

Due to a 'mistake', the segments of the shell (below) have been produced 'backwards'. The correct outputs were found by trial and error. Only one variable, :A, is used which determines the size of the first segment.

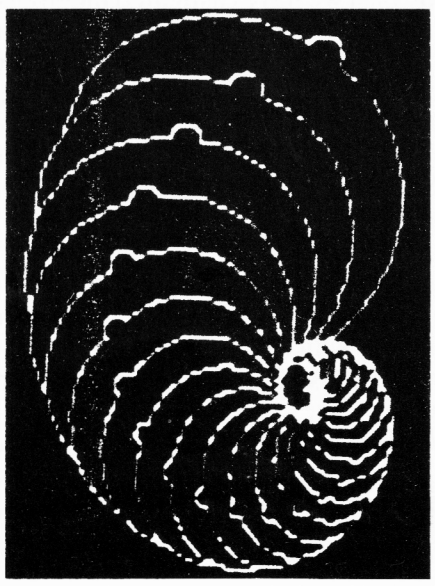
This work is offered here for others to experiment and play with. We suggest you try different outputs and parameters to see what shapes you can develop.

Listing:

```
TO SHELL :A
REPEAT 55 [FD :A RT 2]
LT 90
REPEAT 45 [FD :A / 4 RT 4]
LT 90
REPEAT 60 [FD :A RT 2]
PU
RT 80
FD :A * 64
RT 65
PD
MAKE "A :A * 1.1
SHELL :A
END
```

Have fun!

Reg Eyre & Jason Smith
College of St Paul & St Mary
The Park, Cheltenham
Gloucestershire



Mastering incompatibility

Over the past two or three years schools in this authority have been increasing their stock of micro-computers so as to give as many children as possible experience of this tool. We have standardised on BBC models. Now we have come across a problem that we cannot solve. Hence this cry for help.

Towards the end of the last year Acorn stopped production of the 'B' machine substituting the 'Master' series. Many schools are now in the position of having 'B' and 'Master' computers only to find that programs will not run on the 'Master'. Whatever Acorn say the machines are not compatible. *Front Page Extra* is just one example. It is difficult enough time-tabling computers into the work of the school; now we have the added difficulty of matching machines to programs. There is now no flexibility. I understand that some software houses are prepared to exchange discs, this solves nothing.

Is there any routine that will go some way to solving this problem? Has some clever person come up with a solution?

D.J.D. Gilbert Headmaster
William Bellamy Junior School,
Frizlands Lane,
Dagenham, Essex RM10 7HX.

Viewpoint

Run yourself a software library Part (1)

The librarian should attempt:-

- To maintain and update a database of titles for easy reference.
- To negotiate the purchase of licences for software.
- To maintain contact with software manufacturers.
- To develop an understanding of the way in which the copyright laws affect the library.
- To circulate schools with details of the library's titles.
- To review new material.
- To maintain subscriptions to educational computing organisations such as MAPE, ATM, MUSE.
- To duplicate and distribute material for which a licence has been purchased.
- To copy documentation where licences have been purchased.
- To order discs in bulk and arrange for schools to buy cheaply.
- To take out subscriptions to magazines of interest and archive them.
- To replace discs which have been corrupted while in school.
- To arrange viewing facilities for teachers to use when visiting the library.
- To offer in-school demonstrations of software.
- To offer subject related demonstrations in the library.
- To assist in in-service training.
- To initiate an electronic mail service for schools to use as an enquiry service.
- To collect materials from schools which have been produced with the help of a software package, for display within the library or teachers centre.

Some authorities (9 letters, begins with W, connected with vicars) allow an advisory teacher one day a week to perform these 18 functions. Assuming an eight hour day (I know, I know!) that's about 25 minutes for each per week.

Support for micros in school? Bah! Humbug!

'Half a pound of tuppeny rice, half a pound of treacle.'

An Interim Report on the introduction of a word-processor in two inner-city first schools

Graham Peacock
Sheffield City Polytechnic

Origin of the study

During a meeting at Sheffield City Polytechnic in Autumn 1985, concerned with children's recording, the headteacher and one of the staff from an inner-city Sheffield first school said how disappointed they were with the recording done by the children in the F4 class (7–8 years). In spite of having rich and varied experiences, the children seemed incapable of sequencing their ideas in descriptive writing and reports. The teachers also felt that the children were too happy with their first efforts and could rarely be persuaded to improve on their first drafts. This led me to suggest that they look at the possibility of using a word processor in the classroom over an experimental period of one term to see if the children would begin to:

- record more fully;
- order their observations more rigorously;
- appraise their own work more critically;
- take a positive attitude to the teacher's help and intervention.

These concerns echoed my own classroom experiences in trying to encourage junior-age children to alter creatively and rework first drafts. I realised that it was the chore of rewriting and the dislike of the inevitable messy page of crossings out and additions that militated against children revising their own writing.

The younger the children, the more problems they face in trying to redraft work since they cannot write quickly nor can they, in general, write and then alter neatly enough for self-satisfaction.

A second inner-city first school with a high proportion of children from ethnic minorities (some of whom had English as a second language) also joined the project at the end of 1985; this class was also aged from 7–8 years. Their teacher's concerns centred on:

- encouraging children to simply enjoy writing;
- helping children with basic concepts of left to right sequencing;
- facilitating the skills of spacing words and ordering the elements of a story;
- assisting with simple punctuation.

Both schools had been using BBC Micros, mainly for LOGO and structured reinforcement, for over a year, but neither had used a disc drive nor a printer. These were provided by the LEA at the start of the project in January 1986. The classes in the study had almost exclusive use of the microcomputer for the whole of the Easter Term.

The word processor

The word processor chosen for this project was *Writer* from MEP. It is simple to operate using a menu of commands which can be called up by pressing the escape key. The self-explanatory commands are:

B	Begin new work
C	Continue writing
S	Save on disc
L	Load from disc
F	Find and change some words
P	Print your work
E	End

Whenever there is a chance of losing written work, the computer always asks, 'Are you sure you want to . . . ?' Apart from pressing E to end the session, followed by typing 'YES' a child cannot finish the program. The simplicity of operation and the level of robustness taken alongside the double width letter size makes it a near ideal word processor for young children. *Writer* also allows the user to highlight, delete, copy or move blocks of text, via the function keys. Within seconds of starting a session children were typing and within minutes they were deleting and inserting words.

The project

The two teachers agreed to use the word processor in their classroom on most days for at least a term and report on how they utilised it in the course of their work. They learned how to use the word processor in their own time during breaks and lunchtimes; this initial training period probably lasted over two hours in total.

Data collection

Once the project was under way, I used an audio tape to record children's conversations as they worked at the computer and I took notes as unobtrusively as possible. An example of the form of my data collection is given below; the writing took place as part of a project on old things following a collection of old domestic objects.

Time and Comment	Typing on Screen	Child Doing
11.20	she stated	Both children concentrating on screen
	to do wase	
	the Shets and	L rereading work so far
11.25	then She hung	
	the Shets on	S changes places with L as typist. Discuss spelling of sheet, add e
GP: I wonder why you are doing capital S?	the Line	
		Replies: They look nicer
11.28		

~~ — deleted
^ — inserted

The first draft of this piece is Appendix 1a; the expanded and corrected second draft is Appendix 1b.

Other important data was collected through talking with the teachers in structured and unstructured interviews. The teachers also kept notes about their own reactions to the pieces of work done by the children on the word processor.

The children's work

Any misgivings we might have had about first-school children handling the word processor were quickly dispelled as the first stories and descriptions were written. The children had no difficulty in using the upper case keyboard and they quickly found the cursor keys and the delete key which they used with great delight. 'It's great, you don't make them black marks like you do wi' rubbers', was a typical reaction.

Children often worked in pairs and even those who were not confident writers were soon typing. Here is an early example:

> eona and naila
> me and leona went to leona houes
> eona was wojin telwiyn ten leona
> com ten she fend in the gorden we
> fend some flow ten we took it in
> leona houes.

These children co-operated to some extent in this work although one child did most of the typing. At first they did not put any spaces between words but once shown, Naila automatically put in spaces and went back to add the missed spaces. Their teacher confirmed that both girls have great difficulty in remembering word spacing in handwritten work; the children overcompensated by adding extra spaces between words.

Once finished, the work was saved and printed. The teacher helped the children to improve the writing and this was later amended and printed by the children with some satisfaction:

> Leona and Naila
> Me and leona went to leonas house
> Leona was watching television. When
> Leona came to her house she went
> into the garden. We found some flowers.
> Then we took them in Leonas house.

In both classrooms all the children were given opportunities to use the word processor. Damian's writing was inspired by a stuffed pheasant which he was describing; then he started to write about *Danny, Champion of the World*:

In our class we had the book
about Danny the Champion of the World
and Danny and his father went poaching
and Danny said to his father
will we make it yes Danny said his
father we have to set off soon Danny
Ok father. well lets go so they went
on. they came to the wood. well hear
we go so they went poaching. Danny
stay still Ok.

This was saved on disc, printed and then discussed with his teacher who discussed the need to remove one of the 'ands', put in a question mark and try to sort out some of the dialogue without spoiling the spirit of Damian's own work:

In our class we had the book
about Danny the Champion of the World
and Danny and his father went
poaching. Danny said to his father
will we make it? Yes Danny said his
father we have to set off soon. Ok
father. Well lets go. So they went
on. They came to the wood. Well hear
we go so they went poaching.
Danny stay still Ok.

Both teachers and I originally saw this process of printing out and revision as the most important part of using the word processor but I observed that most of the revision was done by the children during the first draft independently of the teacher. The children usually worked in pairs and often fruitful discussion would ensue when one of the pair noticed an anomoly in the storyline such as Richard noticed when he and Victoria were writing 'Space Adventure'. At first the opening read like this:

Once upon a time Victoria and I went
to the park and we saw a spacecraft
and it landed near me and Victoria.
It was empty but we could see a
very bright light in the sky. Th

But then Richard noticed that it didn't make sense. The children revised their work by moving the vital phrase:

Once upon a time Victoria and I went
to the park and we would see a very
bright light in the sky. We saw a
spacecraft and it landed near me and
Victoria. It was empty.

I also observed that whilst children were working at the word processor other children would come over and read their work and offer comments, help and encouragement which was occasionally reflected in the writing. One of the teachers in particular valued this co-operative element from the rest of the class and was particularly pleased that the children at the computer were ready to listen to advice from their peers.

Both teachers became convinced that the word processor helped the majority of their class to structure their ideas and take a lot more care with spelling, grammar and punctuation. They were also very pleased with the children's ability to concentrate when using the word processor in contrast to much of their other work. In the appendix I have included several pieces of work alongside the teacher's comments to me about the quality of the writing.

Towards Easter, the children were using the word processor with great confidence, centring titles, making extra spaces and writing at length. Here is an example of a second draft from late in the Easter term written after the class had been to a sculpture park near Wakefield:

The Sculpture Park

Yesterday we went to the sculpture
park. We saw lots of sculptures. The
first one we saw was a totem pole. It
was a red cedar tree from Canada. A
red indian brought it from Canada.
He brought it to England. He brought
it to the sculpture park and carved
it in the sculpture park. When he was
doing it he carved it on its side.
When he had finished it. A crane came
to put it up. The second one was made
out of sandstone. When we moved our
hands up and down it bits of sand
came off. The third one we saw was one
that was called the broken window and
it was representational sculpture. At
the bottom of it was rough and at the
top was smooth. The fourth one was
made of aluminium and it was hollow.
The woman said that you had to walk
round it to see it from every
angle. It was a musical sculpture
because where ever you tapped it made
a different note. Some sculptures are
abstract which means they dont look
like a particular human or animal
form but can be made from shapes and
different materials. Representational
means it looks like a human or animal
and you know what it is just by
looking at it.

Teachers' concerns

I was interested in the way that teachers perceived the place of the word processor in their classrooms and the strategies they adopted. Both teachers raised several concerns and issues:

1. the issue of groupwork;
2. whether the children should ever use the word processor to make neat copies of work previously handwritten;
3. the level of intervention by the teacher during the writing of the first draft;
4. the level of correction of the first draft;
5. the impact on individual children.

1. *Groupwork*

In both cases the computer remained in the main classroom. At first neither teacher was sure whether the word processor should be used by groups or individuals but both teachers decided quite quickly that the use of the word processor by pairs of children was optimum. They felt that more than two children working round the keyboard created physical space problems but the opportunity afforded by the word processor of encouraging more co-operative writing was too good to miss. Both teachers felt that pairs stimulated and helped each other to produce more interesting and accurate work. One characteristic of pair work was that the children took turns to type but one teacher noticed that the child who was not typing had to be encouraged to speak up when he saw a wrong construction or spelling done by his colleague – this critical faculty didn't come naturally to all of the children. When I observed sessions I noticed that pairs tended to concentrate for longer than individuals.

The composition of the group was critical to the success of a writing session; if the children were ill-matched in ability, I observed that there was little turn-taking and the 'dominant' partner took little account of the other's suggestions. Teachers noticed that the 'passive' partner looked at the screen for short periods and rocked back on his chair, but when a well matched pair were working the session was characterised by longer than usual concentration spans (as estimated by the teacher) and turn-taking and co-operation over storylines, spellings and construction as observed by myself.

One of the teachers on occasion gathered a group of approximately seven to eight children who together worked out the start of a story whilst their teacher typed for them thereby facilitating the initial story development. The children were then able to load the group-beginning from disc and finish it in their own way, saving the story under a new name.

2. *Transcribing handwritten work*

At first both teachers felt that there might be a place for this but after the initial few weeks they felt that the word processor time was too valuable to use for making fair copies, preferring to use a conventional jumbo typewriter for this purpose.

3. *Intervention during first draft*

At the start of the project both teachers said they wanted to give the same or even more guidance over spelling, content and style than would be normal with handwritten work; this may have been the result of having an observer in their room. At first they did help the children a great deal but as the term progressed they both became content to allow the children more independence hoping to increase their fluency and concentration in the knowledge that any errors could be easily corrected later. The children were encouraged to use dictionaries and word books and towards the end of the term the teachers confirmed that they intervened hardly at all during the first draft. The teachers felt that the time taken to produce the first draft was comparable to that for a similar handwritten piece.

4. *Correction of the first draft*

Several examples of the 'before' and 'after' are included with observations and comments in the appendix to this paper. Both teachers felt they could be much more rigorous in their correction of a first draft produced at the word processor as the children enjoyed editing their own work. This was confirmed by my discussions with the children who agreed with this view. The teacher who had several second language learners in her class was particularly pleased to be able to draw attention to the link words that were often missed out but in a context where children could easily and painlessly insert them into their own writing.

5. *The impact on individual children*

Both teachers noticed that certain individual children responded very positively to using the word processor and seemed to gain a great deal. In the following cases the names have been changed.

> Simon Bull is a boy of apparently average intelligence who has particular problems with letter recognition and aural discrimination and in consequence his recording, in particular, is of a low standard. His teacher reports that using the word processor has motivated Simon a great deal and although he needs a lot of help when typing, his attainment is improved when using the word processor.

> Lennie was a girl who didn't speak for a long time when she came to school but she was highly motivated by the word processor and the teacher felt she gained a great deal through talking with her partner when writing on the word processor.

Several of the children who have English as a second language were felt to have benefitted from not having to tackle both the difficult mechanics of handwriting and sequencing ideas at the same time.

In both schools a small group of boys and girls were selected by the teacher to learn about the word processor initially. These children were chosen for a variety of reasons, ranging from their being responsible to their needing to develop that quality. In each case one child took a special interest and was eventually recognised as the class expert when things occasionally went wrong or children had a problem.

> Michael was a very difficult child who exhibited much anti-social behaviour in class and would not co-operate with others; he was, however, very able with models and construction kits. The teacher involved him with the word processor as part of her efforts to improve his social skills. As part of this programme the involvement with the word processor was successful because Michael took great delight in helping his classmates overcome technical problems and became sensitive to the needs of others. He would not talk to the girls before the start of the project, but because he wanted to show himself to be helpful in this respect, Michael began to interact socially with girls and boys.
>
> At the second school, Christian was a shy boy who lacked confidence but while acting as class consultant he grew in confidence and his teacher recognised this as being due, at least in part, to his involvement with the word processor. Both boys' recording was dramatically improved when using the word processor, both in length and quality.

It was noticeable that both these class consultants were boys. This may be coincidence but already existing attitudes were probably reinforced by my presence in a largely female environment where I, the man, was seen as something of an expert. There are at present LEA studies of sexism as relating to microcomputers.

The teachers' views at the end of the project

I talked with the teachers at the start of the project and at intervals during the term. As a result of the term's work, both teachers felt that:

1. they would like a word processor in their classrooms on an extended basis;
2. long periods of use result in the word processor being used routinely and expertly by the children with little technical intervention by the teacher;
3. the experience of using the word processor had made their children pay much closer attention to punctuation, spelling and grammar;
4. the quality of the content of a substantial minority of children was dramatically improved by using the word processor;
5. the teacher was to some extent freed from directly intervening with the children at the word processor;
6. most children took the mechanics of using the word processor in their stride;
7. the word processor became just another classroom tool after the first few weeks;
8. the more sophisticated elements of the word processor such as word change or block move were rarely used and only then by very able children;
9. the children actually enjoyed doing their corrections;
10. children with specific problems with recording and letter formation were dramatically helped by using the word processor and were highly motivated.

The teachers also valued the word processor because they could look afresh at the work of children whose presentation was normally very poor; they were pleased to recognise that many children of apparent average ability actually produced work that was both interesting and thoughtful. One of the teachers also reported a very positive reaction from the parents who, although supportive of the school in any case, were eager to find out more about the word processor.

Conclusions

The word processor proved itself a tool highly valued by both teachers and children alike.

The original hypothesis that children would make wholesale changes to the first draft of their written work proved unrealistic because they altered their work piecemeal as they composed.

The mechanics of highlighting whole sections of text and then deleting, moving or copying was very rarely seen as necessary by the children, and was, any way, too confusing.

The teachers used the first draft as the starting point for discussion and help with elements of spelling, style and punctuation rather than a large scale re-writing exercise.

Children responded positively to teachers' help in nearly all cases as well as to many of the suggestions given to them by their peers, and enjoyed the chance to correct their work.

Extension of the project

I would like to extend the project in several ways which include:

1. the use of the concept keyboard version of *Writer*;
2. observation of both younger and older children;
3. the comparison of work done by the same children at the word processor and by conventional methods.

Acknowledgements

This project would not have been possible without the active support and encouragement of Mr Brian Steven, but most of all the enthusiasm and professionalism of Mrs Jennie Shoobridge of Brightside Nursery First School and Mrs Gail Wadby of Firshill Nursery First School. The two classes of children must also be thanked for their generosity in allowing me to watch them at work and pester them with questions.

Appendix 1

a) A 100 yeres ago there was an old women and she lived in a little cottage and one day she went to town to buy a pump and she bought a carpet beater and some coal and some sheets and a brooch and then she went back home and then she put some coal on the fire and then she lit the fire and then she stated to wase the sheets and then she hung the sheets on the line and she started to beat the sheets on the line and then she started toiroen the sheets

b) Second draft of 1a

A 100 years ago there was an old woman and she lived in a cottage. One day she went to town to buy a pump and she bought a carpet beater and some coal and some sheets and a brooch. Then she went back slowly home and then she put some coal on the fire. She lit the fire and then she started to wash the sheets then she hung the sheets on the line Later she started to iron the sheets. When she had finished she started to do some knitting by the fire and then she made a cup of tea.

Appendix 2

a) I made static electricity with a balloon. I rubbed it and it stuck on the wall and then we combed Lucy's hair near the water to make static elcity and then we went to the table and we combed Lucy's hair 20 times and then we got a piece of painting paper and then we put the comb under the painting paper and the paintingpapper stuck on to the comb.

b) I made static electricity with a balloon. I rubbed it and it stuck on the wall and then we combed Lucy's hair near the water to make static electricity and then we went to the table and we combed Lucy's hair 20 times and then we got a piece of painting paper and then we put the comb under the painting paper and the painting paper stuck on to the comb.

Teacher's comments

Tara 27.1.86. Finished 29.1.86. Found keys well, had help from Lucy about half way through. Much better standard – good motivation – worked better when co-operating with Lucy.

Appendix 3

Wool is a natural fibre. During the winter the sheep grows a double coat. Then the farmer shears the sheep's coat. Then the farmer's wife cards or scrapes the wool clean so it's ready for spinning. Spinning twists the wool in to fine thread ready for knitting and weaving.

Teacher's comments

40 minutes – came for speiling – that is unusual for Paul and Daniel – shows concern for accuracy. Wrote this after class discussion – using reference books, Mayfield photos, etc.
We had experimented with washing and twisting wool etc., so boys had some experience of the processes involved.

Information retrieval and learning

Mike Schilling and Barrie Galpin
SPIRAL Project, University of Leics

A major use of the computer is as an information processor, with the user now having ready access to vast quantities of information. One of the tasks of education is to prepare pupils for a world in which, both at work and in the home, information will be more readily accessible than ever before. Pupils will need not only those skills which will give them access to data; they will also need to use the information with understanding. Evaluating, sorting and editing data are, for example, skills that will be needed in order to make full use of the opportunities presented by this revolution in the availability of information. Many 'data-retrieval' programs are now available in schools and are being put to good use both in specific 'information skills' courses and as tools which are used in subject-specific investigations.

For example, secondary pupils might use a program like *Quest* to interrogate a database containing census returns in the course of their study of the history of their locality. In primary schools too, programs like *Factfile* enable young children to begin to understand how the computer can be used to store information and then to interrogate it in various ways. Very often in primary schools the data is entered by the children themselves, or with the help of their teacher, in order that its relevance to the children may be absolutely clear.

In an article entitled 'Topic Work – the rôle of the micro', Mary Hodges makes some valid points about information skills, social skills and children's attitudes, which can be developed through careful planning for topic or project work. In introducing the potential of the micro in this area of work Ms Hodges states that:

> 'The most powerful programs *provide a framework* for the children within which they can place *their own* information and ideas.' [Our italics.][1]

We do not dispute the fact that children learn better by using their own experience and knowledge. However, our concern is that the framework which the data-handling software provides imposes a structure on the data with which children are not familiar.

A class may be entering data about their own physical characteristics, for example. They must decide first what categories of information they are interested in – the colour of their hair, their height, weight, shoe-size etc. Everybody must agree what these categories (or 'fields') are to be and how much data will be entered in each field. The computer can then be used, for example, to give a list of pupils with shoe-size greater than 2 but height less than 120cm. Of course, such a list could be compiled by means of the teacher asking the pupils to raise their hands if they fall into the appropriate categories, but by doing this work on the computer the children might learn more about the nature and storage of information. We should ask whether it teaches them more about the structure that the program has specified. Why should it be necessary to decide in advance about the fields? It is because the software forces this approach. Why should the boy who wishes to write a lengthy description of his hair be forced to enter a single word describing its colour? What about the girl who in the course of entering her data remembers that she has a scar left from when she had her appendix removed? Nobody else wants to have a category for scars but she wants to record this fact about which she is very proud. Why should the program structure prevent her from doing it her way? Yes, of course we hope that they will come to realise ultimately that the data-file will be more efficient if it has a uniform structure, but they must come to that understanding for themselves, rather than being forced to make decisions about the structure of the data before they have compiled or used it.

In the recent book by A.J. Obrist, *The Microcomputer and the Primary School*, the use of the program *Factfile* is described:

> 'Collection of information in the first instance needs to be done on a methodical basis and it is best to devise a form on which it can be set down before keying it into the computer.'[2]

The key words here are 'in the first instance'. While agreeing that often it is best to be methodical, it is not always possible to predict in advance the information we may need to enter. Certainly most people collecting information without a computer to help would not always use such a restricted structure from the outset. Children using the computer to handle information for the first time might accept the

mystique that 'it has to be done this way to suit the computer'. However they might well learn more about why it is best to do it this way if they have the experience of entering their data in their own way, and then endeavour to arrange it with more appropriate structure. It is our contention that the recognition of the need to sort and structure data will help the children to understand the process of designing a tabular database.

As a contrast to working with structures imposed by the program we envisage the computer being, initially, little more than a note book for a child engaged in a topic or project. Typically a child might be working on an individual or a class topic and recording data, collecting pictures and writing information in a folder or book of his own. Such topic or project work, collected in the children's own folder or book often remains the private work of the individual. However, if the child is encouraged to record on the computer some facts or information which he wants to share, using his own words and style, that information begins to take on the form of public knowledge.

For example, a class may be doing a project on kites which has involved some practical work together with individual note-taking about materials used, dimensions, success or otherwise of the test flights etc. The following information might then be entered by three pupils as a summary of their work so far.

Alison: My square paper kite would not fly even on a windy day. It had a tail on it.
Bruce: My paper kite had two strings and a tail. It flew best when I ran.
Chris: My plastic kite had a hole in it and flew higher than yesterday. It is like an old Chinese kite.

When these aspects of the work are recorded on a communally used program, others are able to scrutinise the data and make comparisons. Hypotheses may then be made: 'Perhaps it's the tail that makes the difference.' Searching the file may then reveal that Chris and others have not entered any details to show whether their kites have a tail or not. Their entries may then need to be edited. The need for standardisation of the data begins to become apparent.

During the stages of editing and altering, not only are the children going to be involved in the discussion about their own work, but from it will stem ideas to further their reading or broaden the selection of items stored. As the individual records develop similarities, opportunities for combining information will arise. Then, with necessity perceived by the pupil, alternative ways of structuring the data can be considered.

It is at this stage that some of the most important process skills can be practised. The computer as 'information handler' has always held the potential to develop such skills but, we contend, they will be more readily exercised if they evolve from project work of the children's own creation. A first step is for them to break their own data into separate sections or 'fields', if for no other reason than ease of manipulation. Then each child gives his fields names which are appropriate to the data contained within each field. This involves the child in the important skill of generalisation and classification.

Next the field-names chosen individually are compared, with discussion taking place as to the appropriateness or otherwise of the words used. The class can then decide on a set of field-names which will be appropriate for everyone's data and the file of information restructured so that it becomes standardised and approaches a tabular form.

This process might result in the realisation, in some cases, that the data is incomplete and children may need to consult books to complete the information in particular fields. Having chosen a book appropriate to the topic, the index will need to be consulted. It is likely that the discussions and negotiations, of which the child was a part, will have given rise to a number of possible field-names. These can now be used as alternative sources of appropriate information, from the index of the book.

By identifying the need to consult books and having some real clues as to appropriate words under which to search for information, the child's skill in information retrieval will improve. The meaningless copying from books, so often a feature of a topic work folder, is then less likely to occur.

We suggest that the appropriate time for supplementary material to be sought is when the fields have been created. For instance in the project on kites referred to earlier, it might now become apparent that a book on 'The history of flight' could be a good source of information. The library then supplements the child's own contribution to the topic work, based thus far on his own experience and immediate knowledge. Books are consulted for specific reasons and not simply for 'padding out' a project folder. As more information is gathered, true resource-based learning is facilitated.

We have described how, using this approach, the need for a tabular database might become apparent. The ability to compile and interpret tabular information is an important skill, which is specific to science, and has been chosen by the Assessment of Performance Unit to be part of their recent testing of 11-year-old children in schools. To quote from Wynne Harlen's recent book, *Teaching and Learning Primary Science:*

> 'As children grow in experience the information they have to record becomes more complex. . . . for more complex data it is necessary to collect and tabulate it. . . . Tabulation is a skill not widely taught . . . [and is] of considerable value to children in organising their observations and any measurements they may have taken.'[3]

And again, in making an important link between data handling with a micro and some science-specific skills, in *Exploring primary science and technology with micros*, (Ed. Jan Stewart), David Squires suggests that:

> 'Too often children collect data for the sake of it. . . . Collecting scientific information is equivalent to designing a database, and this is analogous to posing questions and devising experiments. . . . Creating a database leads to children being able to explore their own hypotheses.'[4]

Squires goes on to describe *Quest* and *Seek* and then says that

> 'fundamentally the need and hence the ability to design a database is missing.'

The ideas outlined above are being tested by the SPIRAL Project, funded by the British Library Research and Development Department and based at the School of Education at Leicester University. We are developing software, written in the programming language micro-Prolog, which will enable information to be progressively structured as described above. To conclude we show an example of how our *Notepad* program might be used as part of a project on 'Ourselves'.

'Ourselves Project' (Physical characteristics)

Level one. Pupils enter data in an unstructured way.

Alistair
I have blue eyes and brown hair. I am 128cm tall and weigh 32kg.

Brenda
I have blue eyes and fair hair. I am 124cm and 28kg big. I have a scar on my tummy and freckles on my face.

Colin
My hair is very dark and is quite long. My Dad says it needs cutting but my Mum likes it. I have greeny brown eyes and wear glasses.

Level two. The data can be automatically divided into separate items using delimitors decided by the class (in this case full stop, comma, and the word 'and').

Alistair
I have blue eyes
brown hair
I am 128cm tall
weigh 32kg

Brenda
I have blue eyes
fair hair
I am 124cm
28kg big
I have a scar on my tummy
freckles on my face

Colin
My hair is very dark
is quite long
My Dad says it needs cutting
but my Mum likes it
I have greeny brown eyes
wear glasses

Words specified by the class can be automatically removed (in this case: I, have, am, a, an).

Alistair
blue eyes
brown hair
128cm tall
weigh 32kg

Brenda
blue eyes
fair hair
124cm
28kg big
scar on my tummy
freckles on my face

Colin
My hair is very dark
is quite long
My Dad says it needs cutting
but my Mum likes it
greeny brown eyes
wear glasses

Level three. Each child provides a name for each item of data.

Alistair
eyes: blue
hair: brown
height: 128cm
weight: 32kg

Brenda
eyes: blue
hair: fair
height: 124cm
heavy: 28kg
scar: on my tummy
freckles: on my face

Colin
hair: very dark
hair: quite long
hair: My Dad says it needs cutting but my mum likes it
eyes: greeny brown
glasses: worn

The computer compiles the complete list of field-names for the class:

eyes hair height weight heavy scar freckles glasses

Together the class decides which of these field-names are to become the standard ones.

For example,

eyes hair height weight glasses.

All other items are displayed separately as 'extras'.

Alistair
eyes: blue
hair: brown
height: 128cm
weight: 32kg
glasses:

Brenda
eyes: blue
hair: fair
height: 124cm
weight:
glasses:
extra: heavy 28kg
extra: scar on my tummy
extra: freckles on my face

Colin
eyes: greeny brown
hair: very dark
height:
weight:
glasses: worn
extra: hair quite long
extra: hair My Dad says it needs cutting but my Mum likes it

Finally each child is able to edit his own record, with extra items in a field called 'extras'.

Alistair
eyes: blue
hair: brown
height: 128cm
weight: 32kg
glasses: no
extras:

Brenda
eyes: blue
hair: fair
height: 124cm
weight: 28kg
glasses: no
extras: scar on my tummy and freckles on my face

Colin
eyes: greeny brown
hair: very dark and quite long
height:
weight:
glasses: yes
extras:

This uniformly structured data can now be readily transformed into a tabular format with individual fields displayed like this:

```
                    hair
                    ¦
Alistair:           ¦ brown
Brenda:             ¦ fair
Colin:              ¦ very dark and quite long

                    extras
                    ¦
Alistair:           ¦
Brenda:             ¦ scar on my tummy and freckles on my face
Colin:              ¦
```

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2. Obrist, A.J., *The Microcomputer and the Primary School*, Hodder and Stoughton, 1983.
3. Harlen, W., *Teaching and Learning Primary Science*, Harper & Row, 1985.
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Using a micro on TP

Sally Hitchings, *Yr II*
College of St Paul & St Mary, Cheltenham

Background

A class of 29 7–8 year olds. They were timetabled for use of the computer for the whole of each Tuesday morning, but this opportunity was not being utilised by the class teacher due to lack of expertise and confidence.

I decided to use my TP time (five weeks) to bring the computer into the classroom and introduce it to the children.

* *

My initial fears were that I had little expertise myself and no experience in how to introduce it to the children. My thought was to just let them 'play' with the *Welcome* tape to familiarise themselves with the keyboard and some of the things they could do on a computer. I sought help back in college and was given the valuable advice not to use it just because it was timetabled. No point unless there were firm objectives. After discussing my class topic (the Parish Church), Reg Eyre gave me some ideas on how I could incorporate the computer. We decided to use *Factfile* to catalogue gravestones, so after trying a few suitable headings it was up to me to put it into practice.

In the classroom I started off by introducing the idea of compiling a file of information by introducing the class as a whole to *Myfacts*. During this session I encountered some of the problems I would later meet. The two major ones were both of a practical nature. One was organisation, simply the problem of allowing the children to see the monitor. I eased this situation in the second session by using a TV as a second monitor. This was still not ideal as the children could not work and view at the same time. The other problem was the time it took for the children to become accustomed to the keyboard; they took ages to put their information in. (They did not understand the arrangement of the characters on a typewriter-style keyboard – they felt that they should be alphabetically arranged.)

In order that the children could collect the information under the correct headings I produced banda sheets for them to fill in on the visit to the Churchyard. Back in the classroom we made a file using the headings on the banda sheet so the children would understand the relevance of the headings they had. After putting one or two entries to start them off I then let them individually put in their own entries. Although this was very slow, and some children needed close supervision, they mostly got the hang of it and in fact began to help each other.

I had technical problems when it came to storing this information on disc (the title being to long for the disc to store), and needed Reg's technical expertise back in college to solve this.

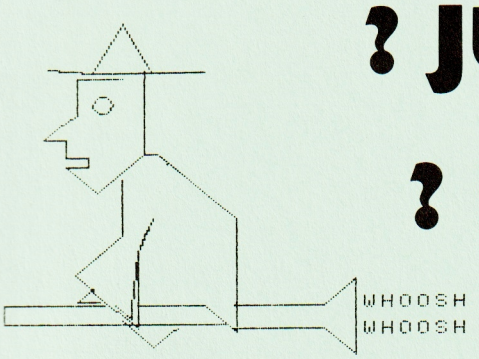
In the next session we looked as a class at the information stored and recalled, some of it in various combinations.

The following week Reg came in and we worked with *Factfile* and *Picfile*, producing wall graphs, similar to the computer's, from the information the computer gave.

* * *

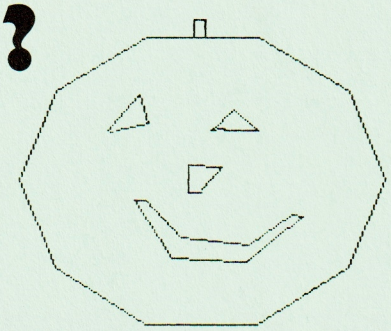
After these experiences I certainly felt more comfortable with the computer. I discovered the children felt less strange with it than I did, and soon became accustomed to the computer. The practical experience of actually working in the classroom combined with the advice which was also of a practical nature, meant that the small amount of knowledge gained during the course in college could be applied and seen as relevant.

I will certainly feel more relaxed and confident with a computer in the classroom and have more ideas on how to approach work with it next time.



? JUNIOR ?

? MAPE ?



Hi! — I'm Di — **and I'm Charles,**

Hallo . . . e'en again (spot the joke)!

The closing date for the first set of competitions is not until December 1st; we have only just started to receive entries. Even so, we are very impressed with the work we have been sent. Thank you to all the schools whose work was on our mat almost before the ink was dry on the page:

White Mere Primary, Class 1
Whitehall Primary, Mr Smith's Class
Raglan School, Mrs Hutton's Class
Pennycross CP, Class 6
Kennet Valley School, Mr Clayton's Class

We have also been sent some beautiful project work by children at the Junior School, Royal Grammar School and from Class 4 of the Raglan Junior School. We will be forwarding it to the regional representatives and no doubt they will want to put it on display at one of their local meetings.

If you have not entered our competitions yet there is not long to go, SO DON'T DELAY! (If you are still trying to think of an idea for your entries, remember that 1986 is Domesday Year). Prize winners will be notified by January 1st. By the way, did you discover what TTNS stands for? Page 6 of *MICRO-SCOPE 18* gave you the answer.

Now for this issue. Our theme this time is change. As you can see from the top of the page we ourselves have changed a bit since last time. This is because Mike Matson, interviewed in the last issue, was so upset that we could not find any room for a photo of his handsome antipodean looks, that he sent the Wicked Witch to exact a toll! Just look what she did, and WHAT AN IMPROVEMENT.

But, back to change: in particular the change experienced when you move between classes or to a new school.

By now most of you will have settled in to what, in September, were unfamiliar, possibly frightening surroundings. Was it what you expected? Were all the things you had been told by other children true? — is your new teacher really as nice or as ghastly as you thought? — are the school dinners really that terrible? — are schools really like Bash Street and Grange Hill? Over the page we have included some work from first year children at Sylvan High who wrote about what it was like starting at secondary school. They thought back to how they felt this time last year and the sorts of things they worried about, like being late and bullying. The first-year brochure they created was their own attempt to help the new first years settle in as quickly as possible.

Now it's your turn. What did YOU feel when you changed class or changed school? Perhaps you have just moved into a different part of the country. Do you think you could write about a younger brother or sister who has just started school? Did they enjoy it? Did they do something funny? Did mum miss them at home all day?

●1● COMPETITION

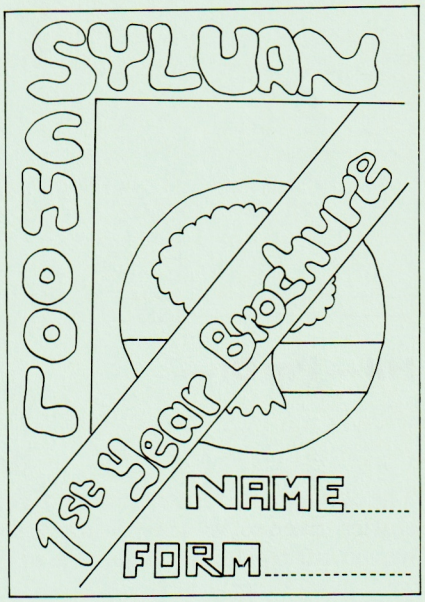
Write about a change you have experienced (it needn't be about changing school).

Competition rules

1. *A maximum of six entries per class.*
2. *'Change' writing should be in the form of a printout from a wordprocessor or other language program.*
3. *All entries must have clearly written on them the name of your class, the name of your teacher, the name and address of your school, and the school's membership number (if known).*
4. *Sorry – no entries can be returned.*
5. *Entries for the competition should arrive no later than January 1st, 1987 and be addressed to:*
   MAPE Competitions, Charles Bake, Thames Polytechnic,
   Avery Hill Campus, Bexley Road, London SE9 2PQ.

General correspondence can be sent to either of us:
Di Wailing, Sylvan High School,
Maberley Road, Croydon SE19 2JH.
or Charles Bake (address above)

●20● SYLVAN SCHOOL FIRST YEAR BROCHURE AND HOW WE DID IT



by Anjum Din, Damien White, George MacKenny, Vicki Tate, Melanie Amis
Sylvan School, London SE

It all started one Wednesday when Mrs Dawson asked to see us after assembly. At first we thought we'd done something wrong. She wanted us at first just to do a newspaper article for the Croydon Advertiser about the First Year Centre and what we did here. It wasn't very long and when we finished she said thank you, you can go back to your classes now. Groans all round. So Mrs Dawson said what about a brochure for the new first years telling them about the school.

We started with a brainstorming session (Mrs Dawson told us that word – it means having ideas). Straight off we thought it ought to include information about these kinds of things:

equipment
uniform
a map of the centre and the school
worries – what happens if I'm late and what do I do if I'm bullied?
rules – breaking school rules is also a common thing about schools, as they are all written in the brochure there is no excuse for breaking them.

We each started drawing a cover and ended up with 4 versions. Mrs Dawson liked them all so we merged them. Then we worked out the paging on rough paper and started writing.

The first one was very messy, we were using black pen, with one of us writing and the others dictating. George was writing, he's got the neatest writing, and Damien was doing the illustrations.

All this was very messy, there were big spelling mistakes and it was a bit thin. We showed it to Mrs Dawson, she said 'Do another one, make it neater and longer.'

We used the same cover but we had to tidy it up a bit and we worked out the paging again at dinner time. Once we decided what we needed on the pages we just got on with it.

Only one page was typed – the contents page, the rest was handwritten, there were all different writing styles. Worries are always the main thing in a move from primary to secondary school so the brochure includes a Worries page but we changed it so it is like a talk between two people. We included an Activities page about all the things we had done in the past school year and added a map of where to find us. Mrs Dawson put in a letter and we added a lot more illustrations (they fill up the spaces). George wrote a quiz and we were given some writing about other peoples first impressions written last September.

We showed it to Mrs Dawson. 'It's not enough. Finish it by Tuesday!'

And we had a week to do it.

George suggested using the word-processor because it was easier and quicker and easier to edit.

George asked Mrs Wailing and she said "yes" and we finished it in A DAY. This was because we'd used it before in lessons and Mrs Wailing was around to help with some of the commands.

The office photocopied it and made stencils, the most boring bit was putting it together and stapling it, (it helped a lot when the right size staples arrived). We organised ourselves into a production line, Vicki and Melanie collated it, George put them in place, Damien stapled and Anjum stacked. The covers were coloured by all the first year classes.

We enjoyed the wordprocessing and missing Languages. Our favourite page is the teacher's page, particularly the skeletons of people who have misbehaved. If we do it again we'll be quicker and more efficient, and we'll use the word-processor right from the beginning.

Things that worried us

Damien: Where do you go?

George: You wait in the playground.

Damien: What do I do when I am late?

George: You get a late slip from the main office and hand it to your teacher.

Damien: What do I do when I am absent?

George: When you come back you bring a note signed by your parents saying why you were absent.

Damien: What do I do when I lose a book?

Anjum: You have to pay for a new one.

Melanie: What do I do when the fire alarm goes off?

Anjum: You walk out of the building calmly and go to your form tutor in the playground.

Vicki: What do I do if I find a purse in the playground?

George: You hand it in to Mrs. Dawson.

Anjum: What do I do when I lose my dinner money or my dinner disk?

George: You tell Mrs. Dawson immediately.

Anjum: What do I do if someone is bullying me?

Melanie: Report them to a member of staff as soon as possible.

Vicki: What should I do if I spot a leakage?

George: Tell the school keepers imeadiatley.

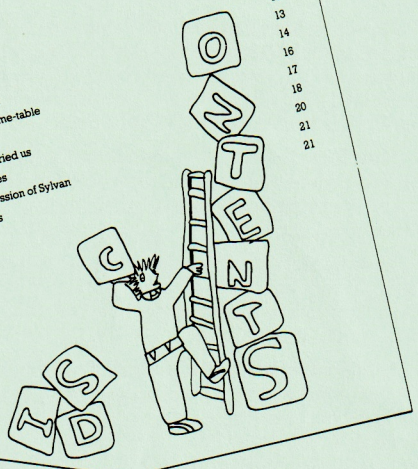
Damien: What should I do if I have a detention?

Anjum: Report to the tutor at the time given.

Melanie: What should we do if we are left alone in a classroom?

Vicki: Just get on with work set or read a book.

CONTENTS



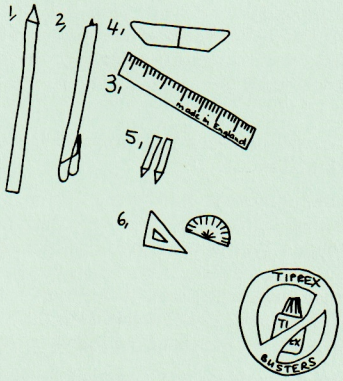
Equipment

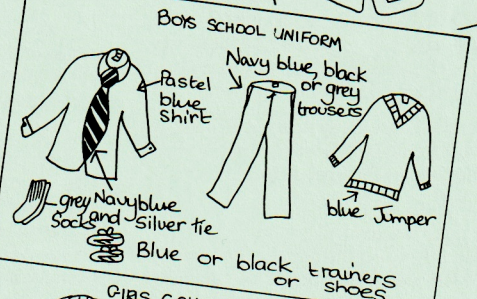
1. A GOOD HB PENCIL
2. A GOOD PEN OR BIRO
3. A RULER
4. A RUBBER
5. SET OF COLOUR PENCILS
6. A MATHS SET

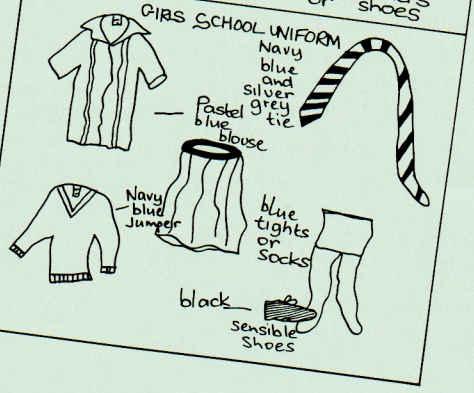
NO TIPP=EX

AND A STRONG BAG TO HOLD IT ALL.

P.S. WE SELL BAGS WITH SYLVAN WRITTEN ON IT £8=99 AND £9=99







UNDER THE MICROSCOPE:

●● FRED HARRIS ●●

After Mike Matson we tracked down someone you will have seen many times on television, Fred Harris. He has appeared in *Play School, Chockablock, Counting On, Junior Maths* and is one of the presenters of BBC's *Micro Live*. And as if that were not enough his voice can be heard on several 'steam radio' programmes – *Introducing Science, Science Scope, Science Games* and *Using Your Computer*. It is a wonder we managed to catch up with him at all, but he could not escape. This time the interview was devised by four children from Downsview Primary, Croydon: Tim Boothby, Anthony Virtue, Scott Byrne and Daniel Hicks. As with last month's interview they typed their questions on a wordprocessor (*Edword*), then mailed them to Fred at the BBC via The Times Network. Unfortunately, Fred finds it difficult to get access to electronic mail, so he had to wordprocess his replies and send them 'snail mail'!

By the way, if your school is on TTNS and you can think of someone you would like to interview then let us know. Remember that the person you put 'under the Micro-Scope' should be someone that children round the country will recognise and, if possible, someone who knows a little about computers! So far we have interviewed two men . . . what about a woman next? Come on, see who you can think of, and we will arrange the rest.

Dear Downsviewers,
Thanks for the interview. I'll try to answer the questions one by one.

1. **How long have I worked with computers?** Not long. I've only had one since 1981 – when I bought a ZX81. But I did maths at university many years ago and I once SAW the computer! (This was considered a bit of a privilege). To actually use it you had to apply six months in advance. So I didn't get a chance to use it!

2. **How long do I spend on the computer each week?** It depends a lot. I do a lot of writing, and I use a wordprocessor, so sometimes it can be over forty hours a week. Some weeks I don't even plug it in. Sometimes I can't get near it for my children!

3. **How important will computers be in the future?** That's a bit like asking a stone age man how important the wheel is going to be. If I had a few years to spare, I might be able to start to tell you. What do you think?

4. **Is *Micro Live* really live?** It certainly is! Yes, all kinds of mistakes happen. Micros have crashed on me several times and I've had to 'ad lib' to get out of the mess – but, as often as not, nobody realises there was ever a problem so I don't get treated as a hero! We once had a fault with what's called 'AUTOCUE', which is a prompter system which broadcasters sometimes use to give them their script words. All the wrong words came up, so I had to ignore them and try to remember the right ones, which is a bit tricky, I can tell you.

5. **My favourite computer game?** There are so many good ones, it's hard to single one out. A shortlist would include *Killer Gorilla* for the Beeb and *Jet Set Willy* and *Fairlight* for the Spectrum, though I haven't got hooked on Elite – yet!

6. **My favourite micro?** The Beeb is a good all-rounder, but was always a bit pricey. For a cheap micro, I quite like the Spectrum, except for that awful cluttered keyboard. Best buy at the moment I think is the Electron – I picked one up the other day for forty pounds!

7. **TTNS.** I have to admit, I don't like using electronic mail. It's very fiddly for me to set up, load the software, connect the modem etc. If it was as easy as making a phone call, I'd probably use it all the time. But unless you've got a setup hooked up 24 hours a day, it's not the easiest way of sending a message. It's been useful for me getting last minute script changes from *Micro Live*, though, and a lot of my colleagues swear by it. I swear AT it.

8. **How soon will E-mail take over?** Just as soon as they make it a doddle to use. I have nothing but trouble – for example, see my reply to question 13. I get so frustrated, I've decided to send this reply to the Davidson Centre by ordinary 'snail mail'. Having said all that, electronic mail has got a lot to offer. At the moment there are too many wires to connect and fiddly operations for the average domestic user.

9. **Next series of *Micro Live*** is starting in October, every Friday on BBC2. Think of me – it really is live!

10. **What other educational programmes have I been involved with?** Lots. I've presented the Central TV maths programmes for the last 12 years. The latest, *Junior Maths*, goes out twice a week in term time. I write and present several series of science programmes for BBC radio, and of course I do pre-school programmes from time to time, like *Play School*. The funny thing is, almost every series I've been in has been nominated for some sort of award or other, but they never win! I don't know if that's good or bad. I'm thinking of calling myself 'the award-losing Fred Harris'.

11. **What uses do I put my micro to?** Wordprocessing, games, some software writing, Prestel, music composition (using a Music-500 synth.)

12. **What computer do I use?** A BBC micro, mostly, but I have got one or two others – even my old ZX81. My children use a Spectrum for games, but they prefer pushing me off the Beeb!

13. Now this is another reason I don't like e-mail. The question came across as '**Do you think you will continue worters?**'. My worters are my business! Seriously, if that should have been 'working with computers' then yes, I hope so. They can be great fun.

14. **Do I write much software?** Not as much as I'd like. Software writing takes a lot of time, and I don't have much to spare. However, I do write a few simple programs for my wife's nursery school. The kids there love the micro, and often surprise their parents with the way they operate it. I also wrote a phone-in maze game for *Saturday Picture Show*. I don't know if they're going to use it. I hope so, it took a long time.

15. I don't know if there was a question 15. Thanks to this wonderful e-mail system 14 is followed by . . .

16. **Do I teach in a computer class?** Not any more, though I did teach BASIC in a club a few years ago. I think I ought to attend computer classes as a pupil – I'd love to be able to program in different languages. But there are many other things I love doing – I enjoy playing Elizabethan music with a small wind group. I also play rock drums (and am learning sax). I like long walks in the country and so on. You can't live for ever with your head stuck in a micro.

There it is, I hope I haven't left anything out. Good luck with your next electronic interview!

Guidelines for integrating LOGO into an infant classroom

Eileen Risk
Castlechurch First School, Stafford

These guidelines were written as a result of a major project undertaken as part of a B.Ed. course. The implementation of LOGO used is that of the Spectrum, but although the language may differ, the principles remain the same.

General aims

1. To maintain the central feature of LOGO, i.e. to allow the children control over their own learning.
2. To introduce LOGO programming skills as an aid towards the development of procedural thinking.
3. To integrate computer activities with work done away from the computer.

Specific objectives

1. To allow plenty of time for exploration at all stages.
2. To relate the turtle movements to body movements, i.e. to 'play turtle'.
3. To allow the children to try out new ideas on their own first.
4. To allow the children to decide their own turtle projects.
5. To introduce the children to new ideas and relevant programming skills in response to need.
6. To encourage planning and modifying away from the computer.
7. To encourage the recording of procedures: a) on paper; b) on the computer.
8. To facilitate the acquisition of editing skills.
9. To develop the skill of using sub-procedures as Papert's 'building blocks'.

Method

1. Give experience with BigTrak or the floor turtle if possible, especially with the lower achievers.
2. Introduction to screen turtle through turtle graphics. Working in pairs found to be optimum for initial exploration. Be prepared to allow individual development of projects as need arises.
3. Introduction of language. Suggested order:
   a) Drawing vocabulary – appropriate abbreviations for: FORWARD, BACKWARD, RIGHT, LEFT, CLEARSCREEN.
   b) Placing defined shapes; setting the turtle's starting position; PEN UP, PEN DOWN, HIDE TURTLE, SHOW TURTLE.
   c) Colours; SET BACKGROUND, SET BORDER, SET PENCOLOUR.
   d) Shorter methods; REPEAT.
   e) Introduce textscreen; PRINT, CLEARTEXT.
   f) More complicated graphics – curves; circles; spirals; recursion.
   g) Variables; changing side measurements of squares; variable SIDE.

Writing procedures

1. After exploration, children keep written record of a turtle drawing. Teacher enters procedure to computer, exactly as written by children. Check if it works. Discuss reasons why not. Edit to children's directions.
2. Introduce method of listing procedures for computer, e.g. enclosed by 'TO X' and 'END'. Children enter and test. Edit with teacher assistance. (Errors are often typing errors not procedural errors.)
3. Build up library of short procedures for simple shapes.
4. Children create a design on paper using own set of shapes. Introduction of numbered grid for designing and planning turtle moves helpful at this stage. Decide which procedures to be used. Write any for new shapes introduced into plan, change sizes of shapes etc. List procedures in order of requirement. Plan turtle starting point.
5. Children need to place each part of design on screen, keeping written record. Enter to computer by stages (to be saved by teacher). Printouts useful if printer available. Test each stage. Young children need lots of support through discussion at this stage.
6. Colour changes added to design procedures.
7. Procedures made simpler and shorter. Allows design plan to become more ambitious.

Observations

1. Introduction of new LOGO language should be mainly determined by procedural development.
2. Children tackle design problems in different ways.
3. Not all children can use procedural 'building blocks' at the same stage in their problem setting. Some appreciate and quickly adopt the 'short method' while others are not ready to progress from the turtle drawing technique.
4. Many children can solve their graphics problems but are defeated by the technicalities of typing in procedures.
5. The amount and nature of teacher intervention and support is variable and must constantly be based on subjective judgements of children's development of LOGO concepts and technical skill.
6. The children must be allowed to set the pace of development of their programming skills.

The educational uses of speech synthesisers

(based on the seminars given at the MAPE Easter Conference 1986)

Dr Mike Wald
Grove Park School, London

What is a speech synthesiser?

A speech synthesiser is a machine that speaks by 're-creating' speech from a digital code.

Why use 'machine speech' in education?

Well . . . imagine a science fiction 'future' where children could use an electronic device to speak out the words written in a book or on a TV screen. Imagine also a machine which would print out anything they spoke into it. Would these 'text to speech' and 'speech to text' translation machines alter the educational practices in schools? I certainly feel they would, because children could then understand the written word and produce writing long before they could themselves 'read' and 'write'. Reading and writing could then be learnt 'naturally' and spontaneously by the child without requiring the constant intervention and 'teaching' by an adult.

How far off is this science fiction future?

It is already here, as there has existed for some years the Kurzweil reading machine which is used by the blind to speak out the text from books. At the moment it is still very expensive, but similar cheaper machines are now in use and I would envisage a drop in price over the next two years resulting in their widespread availability in the home, school and at work.

The development of a machine to automatically and reliably transcribe any speech into text is still a long way off. This is because speech is actually a continuous stream of sound from which we have to recreate in our minds the 'words' intended by the speaker, by using contextual, semantic and syntactic information. For example, 'I scream' and 'ice cream' sound similar; it is only when they are put in a sentence or in context that we can decide which was intended by the speaker. Although machines are available now that understand a few hundred words spoken in isolation by a particular speaker who has 'trained' the machine to the sound of his or her own speech, if the person has a cold or the surroundings are noisy the machine will fail to perform successfully.

What is possible now in schools with affordable equipment?

Analogue recorded speech
It is possible to record speech onto a cassette recorder and synchronise the 'speech' with a display of words on the screen. Although this gives the best quality speech, only texts that have been prepared in this manner can be used and so the child cannot play at having his own attempts at writing spoken out.

Digital recorded speech
A more flexible approach would be to digitise speech and store it in computer memory. However this takes up too much memory to allow more than a few hundred words to be stored in school micros. Linear predictive coding synthesisers as used in the Texas *Speak 'n' Spell*, the BBC Micro's speech rom and other 'speaking toys' manage to squeeze more digitised words into computer memory by approximations based on the fact that we have only a few organs of speech (tongue, lips, etc.) which can change shape only slowly. There are still however limitations of memory and speed of access. These systems can produce very realistic speech using their digitally recorded inbuilt vocabulary; but are of use only in the odd eventuality that those words are the only ones you require. As with all systems based on stored words, there is little possibility of putting in the 'correct' prosaic features of speech (rhythm, stress, intonation). They also offer no opportunity for children to play at making up sounds and words, for if the word is spelt incorrectly the synthesiser would not be able to offer any self-correction as it would not be able to speak the word.

Phoneme based synthesisers
An alternative and more flexible approach is for the machine to store the separate sounds of speech (phonemes) and put them together as required to speak out any word much as we, in writing, put together the twenty-six letters of the alphabet to spell a word. This, however, is more difficult than it seems as, for example, the 'a' in mat is different from the 'a' in cat. In fact sounds are affected by the sound that precedes them and the sound that follows them. To store all the possible combinations of sounds (allophones) is too difficult for existing systems and so they compromise on some fifty to sixty phonemes and allophones. There are many systems on sale based on this principle and they can produce intelligible but machine-like speech when used with a microcomputer. Most of the cheaper systems require you to type in the words phonemically (i.e. how they sound) rather than as they are usually written. This is fine if you are writing your own programs and can spend a lot of time working out how to get the synthesiser to say a word, but it is of no use if you want the synthesiser to speak out whatever has been written on the screen in normal spelling.

Text to speech synthesisers
The only speech synthesisers that can produce 'real time' speech from correctly spelled normal writing are those incorporating text to speech rules of English pronunciation. There are quite a few of these synthesisers and they are very similar in construction and performance (Votrax, Braid, Namel). These text to speech synthesisers are simple to use; they just replace the printer (using the same connecting cable) and will speak out what would otherwise have been printed out. These synthesisers do of course occasionally make errors of pronunciation; but these are the same sort of errors that young children might make themselves. Children find these 'computer' errors reassuring and also helpful in understanding both computers and their own abilities. (As an aside, I feel that one of the most valuable uses we can make of computers is to demonstrate and stimulate discussion and thought on the differences and similarities between human beings and machines.)

The educational potential of these text to speech synthesisers is vast. In addition to the obvious benefits they have for physically handicapped children (e.g. providing a 'voice' for children who cannot talk, and speaking the contents of books or screens to children who cannot see), they can help all children with their reading and writing and also their number work. Talking word processors can allow children the chance to experiment with spelling and free them from always having to ask how to spell words correctly. Talking books and talking 'writing' allow children the opportunity to learn to read without always having to ask the teacher to tell them what an unfamiliar written word says. Thus the child can employ a truly phonic approach to reading and writing using their own strategies.

There are very few programs in existence (apart from those for the speech or visually handicapped) that make good use of speech. I have therefore had to write my own; some of which were demonstrated at the seminar at the MAPE Easter Conference 1986. (It is however fairly easy to modify existing programs and most synthesiser manuals give simple instructions.) Programs were shown that allowed children to play with phonics, spelling and number. Games were also demonstrated that allowed children to develop their own strategies for reading without requiring constant adult intervention.

I do not claim that a talking text to speech computer should or will replace an adult or a teacher, for the human aspects are very important in motivating children to want to read. It does however provide a tool that allows the child to play with reading and writing and extends their natural self-motivated play and discovery approach to learning into the previously formalised areas of school-based learning. The speech synthesiser can therefore do for reading and writing what LOGO Turtle Graphics has done for mathematical concept development.

Technical details and addresses

Text to speech synthesisers that can replace a printer and therefore require no 'programming':

NAMEL: Cambridge Microcomputer Centre, 153–54 East Road, Cambridge CB1 1DD
The cheapest available.

BRAID: Toucan (Communication Aids) Ltd, Unit 3, Quakers Coppice, Crewe Gates Industrial Estate, Crewe, Cheshire CW1 1FA
Expensive but portable and has the best loudspeaker and is therefore used by handicapped children and adults.

VOTRAX: Cyber Robotics Ltd, 61 Ditton Walk, Cambridge CB5 8QD
The original text to speech synthesiser.

(The above are all based on the same Votrax phoneme-based speech synthesiser chip but with slightly different text to speech 'algorithms'.)

*Text to speech synthesisers that require software commands (albeit minimal e.g. *say hello how are you)*

SPEECH: Superior Software, Dept Z, Regent House, Skinner Lane, Leeds 7
A software disc that uses the BBC Micro to do *all* the processing and speech production (no speech chip required). This is the cheapest system but the quality is limited.

COMPUTER CONCEPTS SPEECH ROMS: Gaddesden Place, Hemel Hempstead, Herts HP2 6EX
Two roms plus the BBC speech chip are required. These have only recently been released and I have no experience of them.

Micro-rhymes for the very young

Ding, dong, bell,
The micro's down the well.
It was cruel, don't you think?
Just because he's on the blink.

My word

Carol Lancaster
Deputy Head,
Greatworth Primary School
Northamptonshire

As an infant teacher for many years, I have always been concerned about young children's writing — not the quantity or quality of the actual ideas but their physical ability in manipulating the pencil. Children of around the age of five/six are usually bursting with enthusiasm and ideas for stories but are handicapped by the speed with which they can put pencil to paper. The teacher and child can read the story together (the child often as translator!) but this cannot be shared easily with others unless it is read aloud, probably by the teacher. Can you expect a young child to 'copy out in best' for the wall? There are, of course, those who have many ideas but are only, as yet, able to write one or two short sentences.

In order to overcome the problems outlined above, in the past I have written out a child's work or used my typewriter at home to make a legible copy. This has been made into a book, put on the wall or taken home by the child to share with the family. It is this sharing that I feel is so important as it builds up that child's confidence and often inspires others.

I do not think, in all my wildest dreams, I ever imagined a child being able to type out his own story using a word processor. I have tried letting the children use a jumbo typewriter — this they enjoyed but the number of mistakes was considerable and erasing them was difficult.

Since the early days of computers in primary schools in Northamptonshire, we have been fortunate to have had the use of a program called *Mickey*. This is a very simple word processor written by one of Northamptonshire's Inspectors, Michael Lovett. It was intended for use with young children and although it is not a sophisticated word processor it is very easy to operate and has proved very successful with the intended age group.

I shall never forget the faces of the children as they watched their own writing being printed out for the first time. Their stories, to start with, were disappointing as they were only a couple of sentences long. Then I realised that the attraction, of course, was watching the printer work and the excitement of producing several copies. One day the printer got carried away and produced copy after copy, much to the delight/horror of the children; what exactly had been pressed on the machine we never found out!

It was while the children were using *Mickey* that it occurred to me that although we were using their printed work for all sorts of different things — making story and poetry books, their own reading books, menus, recipe books, circus programmes, rotas for 'jobs', labels for pictures etc — was *Mickey* really helping those children who needed it most?

I have read recently a comment: 'Do young children *really* have problems with capital letters or is it only their teachers who think they do?' This was exactly the problem that we had come up against with *Mickey* — the children who would benefit most from the printing facility of the program were not yet able to cope adequately with capital letters. They spent so much time looking for each letter (even with the help of a card that is always by the computer, Fig. 1) that the actual meaning of their writing was lost. They were not reading whole words but looking for individual letters. Certainly, there is a stage an infant reaches when capital letters are no longer a problem but by this time the child is usually a fairly confident reader.

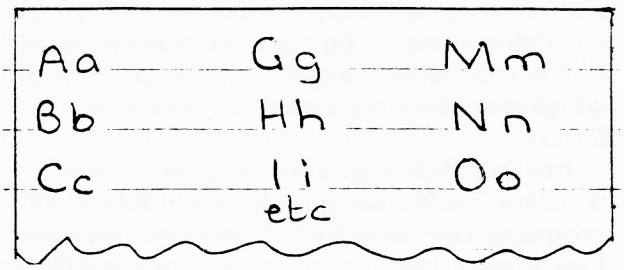


Figure 1

So, what now? How could we help those children who would most benefit from this type of program. *Mickey* was along the right lines but in using letters and not words it was failing where it was most needed. Would it be possible to produce a 'whole word' word processor, where the child could ignore the capital letter keyboard and concentrate on whole words? After all this is how they are being taught to read.

Following discussion with Michael Lovett, it seemed that it might be possible to produce such a program. The idea was similar to some extent to the 'breakthrough' word bank but without the child having to copy out the words and possibly including a wider choice of vocabulary. It would

be a word bank on the screen for the child to select whole words and make up simple sentences — 'a writing program for early readers!'

Initially what was needed was a list of the most common words children used in their writing books. I went through all the childrens writing (in the 5/6 age range) that I could get hold of and ended up with a list of very common words and a second list of not quite so common words.

The most common words were put on the 'Home page' together with all the operating instructions. The program had to be simple to operate but have many facilities available for the user. There were one or two initial problems with the layout. . . .

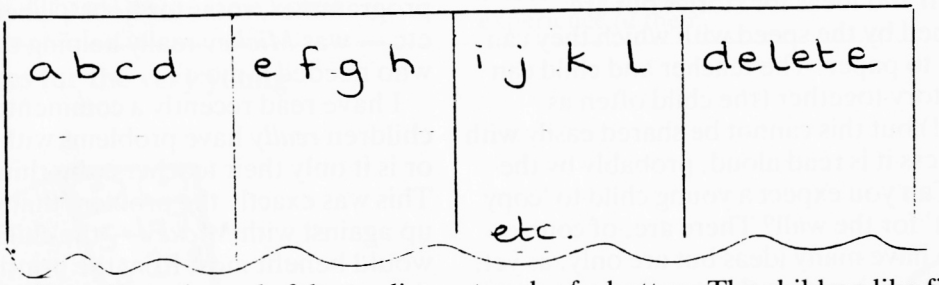


Figure 2

a) Delete could not be at the end of the top line as the children were reading it as part of the alphabet, the alphabet was later highlighted in blue to help as well.

b) Rub out had to be changed to delete as it felt that this was a word that children ought to learn.

To operate the program the child has to select words or control functions by moving the coloured rectangle to the required word or function and then pressing the space bar (or return). If the word required is not on the 'Home page' then it may be on one of the other pages; if not then the child can spell it on the 'spell it' page which consists of the alphabet in lower case letters.

Just as a child would have his own personal word book so the same can be produced with this program; a file of each childs' words can be saved for use next time. The program comes with four word sets provided, they are:

'Magic words'

'Magic Adventure words' — to go with the computer program of the same name.

'Christmas words'

'One, two, three and away words' to go with the reading scheme of the same name.

To describe all the facilities of this program would be very complicated on paper but a good way to understand its potential is to view the program — the best way to view the program is to watch the children using it as they become very quick and adept at operating it.

My Word has proved to be everything I hoped it would and far more besides. Whilst observing the programs use in the classroom other ways of using it have come to light. I will describe a few of them.

1. Infant teachers encourage the use of word banks, personal word books and dictionaries so why not use the computer as another source of 'Self help'. The children go to the computer to look up a word; if the word they want is not there they find out how to spell it and type it in for someone else.

2. Following, for example, a visit to a farm I would perhaps put 'farm words' on the blackboard — this tends to produce very similar writing from all the class and even —from those very clever children! — an exact copy of my list of words!! Putting the words into *My Word* means the words are hidden but can be found at the touch of a button. The children like finding their words this way and it inspires better, more individual, accounts.

3. Suggestions for stories and imaginative writing can be put into the word sets and the children can uncover the clues.

On observing the children using the program several skills are emerging. Their knowledge of the alphabet order is improving and also their directional skills — 'move it down, up, this way, etc.' are all comments overheard. Perhaps the most impressive is the children's ability to scan the screen for a particular word; their delight and enthusiasm when that word is found is so rewarding.

I have no doubt about the benefits of *My Word*. The children have found it easy to use and the program seems to be helping those who most need it.

My thanks must go to Michael Lovett for all his time and patience in producing the program. Other teachers have shown great interest in *My Word* and feel that it will be of value to 'that particular group of children' as well as, of course, the rest of the class.

* * *

My Word is available from Northampton Computer Education Centre for the RML 480Z: disc £7 in county (£9 others); casette £3 in county (£5 others).

The program may be used with a simple push button box or a joystick.

Mickey is also available from N.C.E.C.: disc £3 (£5); cassette £1 (£2).

Book reviews

Title: **Geometric and Artistic Graphics: design generation with computers**
Author: Jean-Paul Delahaye
Publisher: Macmillan Education Limited, Higher & Further Education Division, Houndmills, Basingstoke, Hants RG21 2XS
Price £9.95

There are a number of books about, which provide short programs that build up into 'libraries' of procedures for the generation of computer graphics. They usually begin with simple shapes and end up with the now familiar hairnet draped over a jelly mould. It's as if the latter has become synonymous with powerful computer-generated graphics, and a must for any would-be programmer who wants to impress his mum with his grasp of the mathematical principles involved. Well, this book looks like one of those, and is. Except that it's a particularly *good* variant.

Its first big plus is that it's easy to follow. If, like me, you can't tell your arc from your tangent, but would still like to be able to generate the odd Escher or two, Professor Delahaye isn't going to spend a long time telling you what the formulas mean and how much he knows about the trajectories of miscellaneous balls.

The second plus is that all the programs are short. The book says that no program should take more than 30 minutes to enter at a keyboard, and this is about right. The programs cover a varied and interesting range of topics. I particularly enjoyed playing with the deformed fractals and the folded paper dragons – programs that took literally ten minutes to enter.

In addition to this, the programs actually work! How many people interested in programming have spent four hours typing in a program from a magazine, three days trying to de-bug it, and two days sulking? Not one of the programs I tried from this book had that effect. They all worked first time.

The original programs seem to have been written on a photocopier – something called a Canon X 07. Despite this, there was no difficulty in transferring the listings to BBC, RML and Commodore. As long as you know how to plot and line on your computer there should be no problems.

If you enjoy a spot of programming or like the idea of producing interesting graphics but haven't got the mathematical background this book is the best of an expanding bunch. Of course it could all be academic and unnecessary for LOGOphiles. . . .

After all that, only one mystery remains. Why are all French men called Jean-Paul?

Geoff Turrell
Primary Team BECC

Title: **The Magic of the Micro** (MEP Reader: 7)
Author: Mary Hope (Editor)
Publisher: CET, 3 Devonshire Street, London W1N 2BA
Price: £8.00

One of the difficulties facing any worker studying the uses of the microcomputer in alleviating special educational needs is the enormous breadth of the subject. This is true in terms of both needs and possible strategies. This MEP reader, edited by Mary Hope, sensibly tackles this problem by narrowing the field whilst at the same time pointing to the wider possibilities.

The subject matter of the book is targeted firmly on the child with moderate learning difficulties. The approach used is a series of papers by workers in the field put together to make a coherent whole. The volume's impact lies in its practical base and its use of case studies; the children described will frequently ring bells of familiarity with experienced classroom practitioners. It is encouraging to follow their progress and enlightening to see the thinking processes of their teachers.

This book is up to date, a quality difficult to achieve in this fast-moving field. Mary Hope describes it as being 'a snapshot of the ways in which new technology is enriching the learning experience of some children with moderate learning difficulties.' It is a snapshot offering some thought-provoking views.

Can micros change the curriculum? This question is addressed by Colin Richards of Newcastle SEMERC. Among other aspects he discusses the use of *Annual Review*, a piece of administrative software offering curriculum management on the micro.

Many of us can cite chapter and verse explaining why we would not use a 'drill and practice' program or one offering a task that could be performed with pencil and paper. Although the emphasis in the book is on the use of powerful open-ended software, on section relates experiences with the program *Sums*, a

program offering guided practice in the four arithmetical rules. In the controlled study on which this article is based children using *Sums* improved significantly more than children being taught by more traditional methods.

In this young and changing field we hear from many who are all too ready to pass on fixed views of how the micro should, or should not, be used in education. The compilers of this book do not fall into that category. They allow the power of the micro to come through by exampling the many and varied ways that this tool is benefiting children with learning difficulties.

Would I buy it? I will, for it is a book that I will dip into for inspiration for the future.

Should you buy it? There are few teachers with access to a microcomputer who could not benefit from something in this book. For the special needs professional in the school it could provide new lines of approach to intractable difficulties.

Dave Wood
Special Education Co-ordinator, BECC

Software reviews

Title: **The Music System**
Publisher: Island Logic Ltd, 22 St Peter's Square, London W6 9NW
Machine: Acorn BBC B (disc or cassette)
Price: £35.00 (extra Song Libraries are available at £4.00 each)
Reviewed on disc

We have hardly begun to investigate the possibility of using our school micros for the production of music. This is partly due to the fact that, traditionally, computer enthusiasts have not been musicians. Also, we must recognise the reluctance of some music teachers (or advisors) to agree that such music, unsupported by the weight of tradition, is worthy of respect; and we must recognise the reluctance of some computer teachers (or advisors) to agree that such a use of the micro is a properly 'serious' educational one.

What can computers bring to primary school music? Firstly, they can free us from the restrictions of the present limited range of sound qualities which we are able to utilise. In addition to the recorder, xylophone, chime bar and percussion, the children can now experience a vast new range of musical effects — some of them never heard before. Secondly, the computer can enable the child or teacher to have a hand in manipulating and even creating such voices. Thirdly, the computer has a memory – so it can be programmed to store pre-produced music or sound effects, releasing them at the touch of a button for the class assembly or school show. Fourthly, the BBC micro contains enough power as it stands to satisfy most requirements – although I would suggest that a cheap adaptation to enable an external loudspeaker to be connected is essential.

The package under review is an advanced one, and was not planned with the needs of the primary school in mind. It certainly shows the potential of the BBC micro, although we need time to see how far young children and their teachers can explore that potential.

The Music System is produced by Island Logic Ltd, an offshoot of a recording company called Island Records. The primary concern of this company is not with school-based education but with music. The *System* does not teach any musical skills in a direct way, but it is intended to be a tool for the musician. A knowledge of musical notation, harmony and counterpoint are assumed; an ability to compose and arrange pieces is useful.

The package comprises items contained in a sturdy plastic book-type folder. There are two discs: the first a heavily-protected program disc that can be read by 40- or 80-track drives, the second a library of example envelopes and musical arrangements together with three utility programs for file-handling. There is a function-key strip, a quick guide to the *System*, and a 75-page handbook of instructions.

The handbook is written with adults in mind. The aims of the system are given as enabling the user to create, edit, play and print music. There is no mention of schools or children. Use of the programs at a recording studio is referred to.

The authors have given careful consideration to the way the software is to be driven, bearing in mind the type of user and the nature of the material itself, which is intended for regular use over a long period of time (becoming as much a musical standby as the piano in the corner). They decided that ultimate speed and ease of use would be the criteria. This means that the *System* is not immediately accessible, and needs some study to grasp its mechanisms and possibilities. The number of on-screen questions or demands for input has been kept to a minimum. The user drives the *System* by pushing buttons as though he were sitting at a console; the only time an alpha-numeric input has to be typed is when loading or saving files to disc or tape. Icons are

used on-screen to give a pictorial representation of the possibilities. Error-trapping occurs through the use of 'pop-ups' which give messages which are superimposed on the existing screen layout and which vanish again without affecting it.

Let us take a closer look at the software. The initial 'Control Screen' allows the choice of five modules – *Editor, Linker, Keyboard, Synthesiser*, and *Printout*.

The *Editor* module allows the user to write music in a maximum of four parts (all that the BBC micro's sound chip can handle). This is achieved by adjusting, with the arrow keys, the position of notes automatically printed on a linked pair of treble and bass staves. Such notes can be heard as well as seen. All the usual musical parameters – note-length, bar lines, rests, ties, accidentals, key-signature, time-signature – are available, plus a choice of volumes, tempi and qualities of sound. Any music created can be saved on disc and later recalled for editing. It can easily be transposed, and audibly played – wholly or in part, either by a single voice or by all voices together.

The *Linker* module allows musical pieces that have been created via the *Editor* to be joined together consecutively. Thus, long pieces can be composed by the judicious arrangement of several smaller ones. Any of the latter can be repeated as the longer work is being put together. The final piece is saved as a 'plan' – that is, when it is loaded the computer will then need to load all its separate parts which must therefore be on the same disc.

The *Keyboard* module turns the computer into a musical keyboard, using the top two rows of keys below the function keys. The player can alter volume, choose from 16 default 'envelopes' if he has not loaded his own, and raise or lower the pitch of his keyboard by an octave. It is in this module that the computer can be played, like any other instrument. A metronome will tick at a chosen rate, if required. Music played can be simultaneously recorded in memory, and played back; other voices can then be over-dubbed; such keyboard files can be saved on disc for later recall for playback or editing.

The *Synthesiser* module is used to create, and save, the voices which are used when music is heard. *The Music System* comes with a default set of such sounds, new ones being made by altering this set. This is achieved by changing the amplitude and pitch parameters built into BBC BASIC's ENVELOPE command, with a few extras. Amplitude and pitch can be viewed graphically. Although the changes that are thus made can appear dauntingly complex, the parameters can easily be played with and the results heard immediately; anything interesting can be saved without worrying too much about what exactly has happened.

The final module is the *Printer*. This actually does print out the music constructed in the *Editor* module in true notation – although you have to be prepared to wait! Any or all of the four possible voices are printed continuously down the paper, with their bar lines and note durations kept in step. Notes with tails are not joined together. Epson-compatible printers are catered for.

Initially it seemed to me that the users of this software would probably be: adults with an interest in musical composition and arrangement (from an amateur or professional viewpoint); music teachers, in all types of school, who at any time use more than one voice in vocal or instrumental work; older secondary pupils with a proficiency in music; children (or adults) of any age using the software to turn the computer into an instrument in the school band. It is difficult to say how young children (with little knowledge of the rules of music) will be able to handle the package beyond using the keyboard module. Music can be seen as an expression of culture – it is not inbuilt or obvious, but is learnt, like speech, by one's immersion in it. People find that the arts of composition, harmonising and arrangement are progressively more difficult and they are less likely to produce results without specialist knowledge. Therefore, children will no doubt be able to explore and experiment to some extent, particularly in the *Synthesiser* module, but would need musical knowledge for most situations. However, time will tell what can actually be achieved with *The Music System* – it is a resource whose potential will be realised through use.

Peter Graystone
St. Luke's Primary School
Silverdale, Newcastle-under-Lyme

Title: **Bigprint**
Publisher: Barbara Maines, South House, Yatesbury, nr Calne, Wiltshire SN11 8YE
Machine: Acorn BBC B (disc only); Epson and Epson compatible printer
Price: 40/80 track disc £8.00. Licence to LEA by negotiation. Additional characters or symbols included on request.

Bigprint is a simple word processor supplied on a single disc. No additional support software or ROMs are required to write, edit, save or print text. Its special feature is the size and style of print produced via a printer. Characters have been especially designed to produce pages of easy-to-read script, five times normal height. Each letter is a with-ligature model which is suitable for young children to copy or trace

BIGPRINT is a simple word processor which produces a large, easy to read print on an Epson or Epson compatible printer. Text can be saved and edited and any number of copies printed. Character size and style are designed for young children and for the partially sighted reader wanting large print.

AaBbCcDdEeFfGgHhIiJjKkLlMmNn
OoPpQqRrSsTtUuVvWwXxYyZz
"??" "??"
.,, !? !? ,,.

during the early stages of the development of handwriting skills.

The program was on trial in our school last summer and is now in use in our infant and lower junior classes. Children have produced stories and news which they are proud to display on the walls. One child wrote a story which stretched from floor to ceiling. Another small group designed a sentence with no ascenders or descenders to see if the printer would still traverse the page five times.

Editing features include insert and delete at cursor, save a page at a time on disc, print any number of copies and an underline. Setting out work into columns requires careful planning as the text prints in proportional spacing with fat letters like m and w using much more space than i or l.

Text is displayed at normal size on the screen so that the writer can see a whole page at a time. After careful consideration this feature was chosen at the expense of the double height text.

This is an inexpensive and interesting program to use as an introduction to word processing for young children. I wish it had been available a few years ago for the two partially sighted children as it is far superior to the jumbo typewriter they learned to use.

Derrick Richardson
Cherhill School, Wilts

Launch of Microelectronics Education Support Unit (MESU) to teacher training institutions

Senga Whiteman
Newman College

The launch of the MESU to teacher training units took place on Monday 14th July at Newman College. The Chairman of the Management Board (Mike Nichol) welcomed the Director of the Unit (John Foster), and a Minister of State at the Department of Education and Science (Chris Patten). One hundred and twenty representatives from teacher training establishments also attended.

In his introduction Mike Nichol stated that part of MESU policy would be to advise and support teacher training institutions. In his experience newly trained teachers have a minimal knowledge of computers. Technological innovation is moving sideways – both five and thirty-five year olds are (for example) beginning to explore the use of word processors.

Chris Patten said that as a nation we are doing well in introducing new technology into schools. But we can't stand still, we need to move on to a new stage to maintain our lead. Materials and experience must reach the classroom. LEAs must lead the way because they are responsible for the detailed curriculum in schools, and for establishing priorities. However LEAs cannot be expected to find their own way without support and advice.

The MESU should (a) establish an effective information service; (b) produce materials to help the 'average' teacher to use hard- and software in the classroom (teachers should be involved in the design of these materials); (c) run seminars for those engaged in teacher training and support; (d) produce new curriculum materials which build on the experience gained under the MEP.

Chris Patten concluded with the following comment: 'The Secretary of State thinks new technology is important and he should demonstrate so, in a tangible form, in the current months.'

John Foster stated that the MESU would provide information to help teachers use the micro as an aid in their lessons. MESU would be producing materials with management in mind; for example, curriculum materials to support a specific project. MESU will be inviting tenders to produce these materials. MESU will be offering fellowships to explore pre-service and in-service curriculum development.

In addition, MESU will be running seminars, at their base at the Science Park, Warwick University, which would be cross-curricular and open to all people concerned with teacher training. These seminars would be designed to allow members to explore materials in untraumatic circumstances (i.e. away from colleagues!).

Mr Foster gave some indication of the structure of MESU. Eventually, MESU will have a staff of forty-one. There will be close co-operation between members of MESU and LEAs and teacher training institutions. MESU would like to know how it can help you!

Members of the audience were invited to direct questions to the panel. The following points were made in the answers: (1) MESU will continue to support MEP produced materials but there will be selective distribution; (2) There is a gap between the potential for micro-electronics and the reality of use in the classroom, this will be alleviated when MESU presents examples of 'good practice'; (3) MESU should support those LEAs who have made little progress in the introduction of IT, this support could be offered via a local network; (4) MESU staff will be 'attached' to certain authorities, they will visit these several times a year.

The afternoon began with the delegates dividing into groups in order to discuss their perceptions of the role of MESU. This was followed by a report back to the panel. The suggestions which were offered were varied and extensive. Mr Foster noted them down.

The day formed part of a three day conference for those concerned with initial teacher training. That conference will produce its own report in due course.

The VATman Cometh

Keith Whiting
MAPE Treasurer

I hear footsteps.
Are they the pitter-patter of tiny feet?
No, they can't be.
Are they purposeful steps?
Are they coming here?
Am I to be declared exempt or in contempt?
Friends have warned me about them:– *Right of entry; seizing all my books; searching the house for the bank statement I let my children use as an aeroplane!*
Pounding at the door.
What shall I say? *Sorry, sir, but I didn't answer all the questions because I couldn't understand them. Yes, certainly, take anything you like – my wife, children, even my Spectrum, but please leave my Front Page Extra.*
Go on son, open the door while I hide.
Oh, it's only the postman with my monthly recorded deliver from BKT to sign!
Well, I hope you like the scenario for my next adventure game. It should be ready in 1988 for ZX80 users called 'Save the Treasurer'.

This year, so far, has been the year of officialism. Since being granted Charity Status there have been forms to complete for exemption from Tax Liabilities and Income Tax. If the latter is accepted then you should be able to set subscriptions against income tax as you do for union dues. The next package of four books to read, together with several forms to fill in, was about the Data Protection Act.

Our sale of licences for *MAPE Tapes 1 & 2* proved to be very popular with 85% of LEAs. New members should ask their local authority for details on how they may obtain these programs. By the time you read this, licences for *MAPE Tape 3* will have been distributed. Our funds have grown as a result of this promotion which has helped to keep down your subscriptions this year. Our expenses for last year were on target with an overspending of 50p per member. This will be about £1 per member this year.

Conference '86 made a small profit, due to many last minute bookings. Poor Dave Whitehead nearly lived up to his name having a very nerve-wracking time wondering if anybody was going to turn up! I understand that a good time was had by all, so apply to your LEA NOW and BOOK EARLY this year for Conference '87.

It is a well-known fact that organisations such as ours are lucky if they get 10% active participation. Most of us have many other commitments or must travel long distances to MAPE functions. Is there a course or meeting that would help you? Are you a beginner needing advice? Perhaps there are others having the same problems as you. Many of us are teachers first and computer users second, so there is not always time to read all the manuals. More often than not, a short chat with someone is all that is required. Try a local event, get your problems sorted out and you may actually save yourself time and headaches. I was trying to use Prestel the other day, without success, when the secretary suggested that a plug may be in wrong. She was right. It was upside down. And she has never touched a computer before! How could YOU be helped? Let your regional representative know as there is money available for regional activities.

Now that the summer holidays are over, we can look forward to new classes, courses, meetings, fund-raising events, Christmas parties and concerts and all the other things that we missed during last year's action! For several months last year I was able to devote nearly all of my energies to what I was trained to do – TEACH. And I loved it!

References

Solving Problems by Ray Box
Diving in the Solent by Mary Rose
Grass by Phil Handling
Learn to type by Ed Word
The Thegn by Norman England

MAPE news

Northern

Despite the difficulties which have beset us all through industrial action over the last 18 months, MAPE Northern Region has continued to flourish and our membership has increased considerably. Indeed, in South Tyneside, the adviser was so impressed with what MAPE had to offer, he financed one year's membership for all schools in the LEA!

Our main activity this year has been to organise the Roadshow which has been touring the region. It has been a great success in those centres where it has been presented. Those teachers who saw it found it most helpful and informative, as it gave them the opportunity to see how others have used MAPE programs and the type of work which can be produced and developed from them. There is still time to see the Roadshow for those of you who live in Gateshead, from 16 June and in Cumbria from 30 June.

In 1988 the Northern Region is hosting the National Conference in Durham, so much of our effort over the next eighteen months will be channelled into its organisation. This will be an excellent opportunity for MAPE members in the North to attend this conference and it is, of course, a matter of great prestige to our region. The Committee hopes it can rely on your support through the pains of organisation.

Unfortunately, we are currently short of representatives for the following LEAs: Northumberland, North Tyneside and Gateshead. I would urge all members to think seriously about joining the committee. Like all committees, we need all the help we can get, and would benefit from the different ideas and fresh outlooks brought in by new blood. That way we can, hopefully, continue to provide members with the sorts of activities that will be of interest and benefit to them.

If you do not wish to join the committee but have suggestions as to the types of activities you would find fruitful, then please let us know; we shall be delighted to hear from you.

Marilyn Nellist

Prestel MAPE Corner
Page 88055

South West

Saturday 8 November 1986: One day course of practical workshops on the theme of 'Wordprocessing in the Primary School'. MAPE members £1.00, others £2.00. Details from Reg Eyre, College of St Paul & St Mary, The Park, Cheltenham, Glos.

Reg Eyre

Wales

After a short period of dormancy, MAPE activities in South Wales have started again thanks to the efforts of the Wales Regional Committee. John Chamberlain, Chairman, Patrick Drewett, Secretary, Tim Osborne, Treasurer, David Wharry and Julia Williams, form the backbone of a travelling Roadshow which has given lectures in Newport and Cardiff, and forms the impetus for the establishment of local MAPE groups in these places.

There are now local MAPE groups meeting regularly in Newport at Gwent College of Higher Education, Allt-yr-yn Site, and in Cardiff at the University of Wales Education Department. Activities include demonstrations and displays of children's work produced via the computer as well as discussions and workshops. An important aspect of these meetings is that the exchange of ideas between teachers helps both those new to using micros in school and those who are longer in the tooth.

More local groups are planned in other parts of Wales, and if you are prepared to help set up a group in your area please contact the regional representative.

Patrick Drewett

Scotland

Scottish MAPE will be holding a One Day Conference on Saturday 6 December at Moray House College, Edinburgh.

Details from A. Foster, Inverkeithing Primary School, Roods Road, Inverkeithing, Fife.

Tax relief

Members may obtain tax relief on MAPE subscriptions from 1 April 1986, but should quote T1644/23/1986/MT until we are included on the register issued in April 1987.

Regional reorganisation

The Sub-Committee for Regional Reorganisation is proposing the following on the basis that:

(i) activities can centre on places where events happen,
(ii) authorities with similar machinery are together,
(iii) travel is minimised to local events, and
(iv) membership is balanced between regions.

Please write to Reg Eyre with your comments and ideas

Proposed list of new regions

1. *North Scotland* – Highland, Grampian, Tayside, Fife
2. *South Scotland* – Central, Strathclyde, Borders, Dumfries & Galloway
3. *Northern Ireland*
4. *Northern* – Cumbria, Northumberland, Tyne, Durham
5. *Yorkshire and Humberside* – North Yorkshire, West Yorkshire, South Yorkshire, Humberside
6. *Lancashire* – Lancashire, Manchester, Cheshire
7. *East Midlands* – Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire
8. *West Midlands* – Salop, Staffs, Hereford & Worcs, Warwicks, Birmingham
9. *North Wales* – Gwynedd, Clwyd
10. *South Wales* – Powys, Dyfed, Glamorgan, Gwent
11. *South West* – Devon, Cornwall
12. *West* – Gloucestershire, Avon, Wiltshire, Somerset
13. *Chiltern* – Oxfordshire, Berkshire, Buckinghamshire, Bedfordshire, Northants
14. *London North* – Hertfordshire, Essex, London (North of the river)
15. *London South* – Surrey, East Sussex, Kent, London (South of the river)
16. *South* – Dorset, Hampshire, West Sussex
20. *Overseas*

Micro-rhymes for the young

There was a jolly miller once,
Lived on the River Dee.
He played computer games all day,
No lark so blithe as he.

MAPE National Committee Members 1986

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