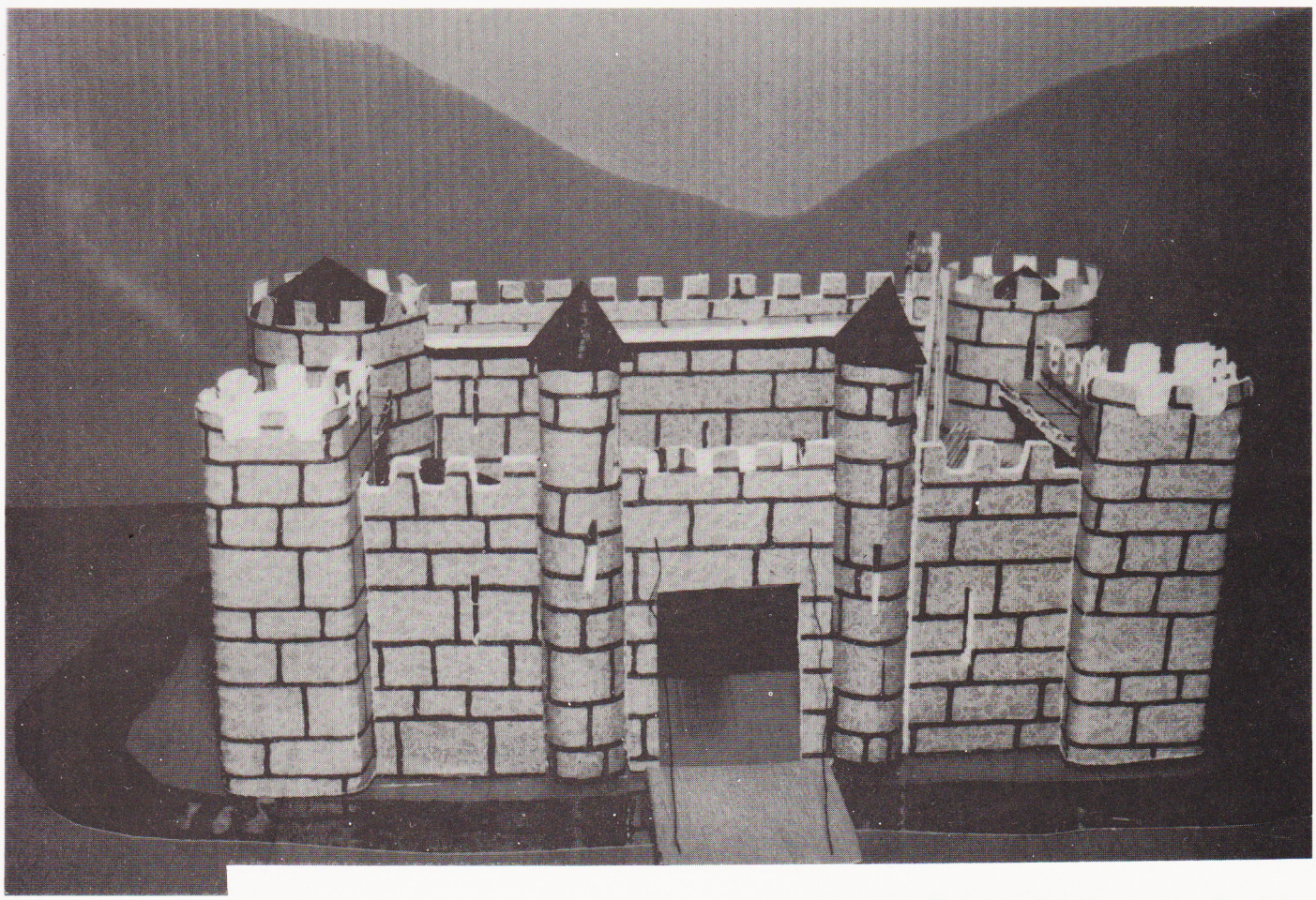
MICRO-SCOPE

ISSUE 30 SUMMER 90



MAPE Conference 1990 – more inside

Computers at Kingsleigh First School
Primary French pilot project
Producing the *Young Citizen* Newspaper
Z88 and Logo **Robotics**
The Spreadsheet as a versatile learning tool

NEWMAN COLLEGE WITH MAPE

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MICRO-SCOPE 30

Computers in Kingsleigh First School

June Spanier
Headteacher, Kingsleigh First School, Bournemouth

The following three articles are linked together by the fact that the first two describe the way in which IT has developed in one school, and the third follows the progress of a seconded member of staff. These articles have been adapted from a presentation at the NAACE (National Association of Advisers in Computer Education) Conference in February this year.

The children at Kingsleigh First School range in age from three to eight years old. Faced with the computer they are confident – ready to 'have a go'. They are learning to work together, whilst at the same time growing in independence. All the work is linked to other curricular activities and they are learning to work and rework. They are all actively involved – including the girls!

Prior to becoming Head of Kingsleigh First School, I had worked in a similarly-sized school in outer London (which I left in 1985). Our first disc drive arrived in that year (after we had been told that floppy discs were much too delicate to be used by small children, and were heavily discouraged from using them). At that time, one of our most-used programs was a subset of Logo (turtle-graphics), and it took 20 minutes to load from cassette. I can still remember the intensity of our discussions about whether to invest in break-cover keys.

When I left, we had five machines. Several of us had begun to use some content-free software, as well as some of the early problem-solving and investigation programs which didn't begin and end at the keyboard.

When I arrived at Kingsleigh First School, I found one BBC B which lived in my office. I also found a team of professional and committed colleagues. It seemed I only had to show them the available software, communicate my own enthusiasm, and provide more machines. I was confident of moving forward very rapidly (in other words, a fairly typical new Head). I soon learned, however, that I had made far too many assumptions, and had tried to go far too fast. However competent and professional the teachers, they need time to 'play' and lots of support to gain confidence with unfamiliar machines, and they need to feel relaxed about using them. This means they may have to use some fairly trivial software before jumping into deeper waters. As software becomes more 'user-friendly' this is a less daunting problem, but still not insignificant.

Two terms on, in the Summer of 1986, a rethink was needed. As a result of staff development interviews, I had discovered that Rosemary Burton was interested in working with computers. She held a post of responsibility which had somewhat outlived its usefulness, and was delighted to be offered the chance of a reincarnation as IT co-ordinator. We were fortunate enough to get a place for her on the IT DipEd course which started in September 1986, and the combination of In-service Training and the post of responsibility was magic. (It wouldn't have worked in every case – personality had a great deal to do with it.) With Rosemary's support, the enthusiasm grew throughout the school, and there was soon a demand for more hardware. By various hooks and crooks, including a fairly high priority from capitation, we managed to buy some more machines, and by Summer 1987 colleagues throughout the school were asking to go on County courses, and joining in enthusiastically with school-based INSET.

During Rosemary's time as IT co-ordinator, Pat Jackson had developed a great deal of interest and expertise, so it was logical that she got lumbered with keeping the impetus going. When Rosemary was seconded to the IT team, I really only expected a 'holding' exercise, but I reckoned without Pat's drive and energy. She kept up the voluntary Tuesday INSET sessions, which as well as motivating staff towards computer work, have had other spin-offs in encouraging other co-ordinators to offer similar school-based INSET. We have moved on still further and have eight computer stations (*almost* one per class), four black-and-white printers, one colour printer, two turtles, three concept keyboards, four mice and a deltronics box.

We are able to offer experience of word-processing to most of our children, and graphics, including turtle graphics, to many.

But we do desperately need:

1. A much better staffing ratio to provide time for more school-based INSET.
2. A technician.
3. More reliable, and better, ie quicker service from suppliers and manufacturers.

Evaluating INSET at Kingsleigh First School

Pat Jackson
Kingsleigh First School

Towards the end of 1988 I was involved in a course on the Evaluation of INSET, and I had to undertake a study of one area of staff INSET. It seemed appropriate at that time to direct this study towards the development of Information Technology at our school. Having begun in 1986 from a position of virtually no staff knowledge or confidence in the use of computers, any progress in this field could thus be directly attributed to INSET.

We felt at the time that work in the area of IT was going well, and beginning to become established as part of the work in the classrooms. I wanted to find out if our 'feelings' of progress were justified and backed up by evidence; and if so, to find out what particular forms of INSET had been most effective in developing staff confidence and knowledge.

I collected information by:

1. Interviewing the Headteacher and the IT co-ordinator.
2. Compiling and collating questionnaires which were completed by all teaching staff and nursery nurses. These provided information both on INSET received by staff, and a self-evaluation of their confidence, knowledge and needs in this area.
3. Consulting school documents.
4. Carrying out observations of children using computers – looking for progression, confidence, keyboard skills and computer literacy.

From the information thus gathered, the following factors emerged as significant:

1. From the outset, the aims of the Headteacher and the IT co-ordinator were clearly defined in terms of providing the equipment and support for the staff to develop the necessary expertise. It was recognised that the crucial factor in this was staff confidence.
2. Our INSET programme was developed with the specific intention that the staff retained control of how much new technology they could cope with at any one time. Attendance at weekly after school sessions was purely voluntary.
3. Support and encouragement was always available, essentially in a non-threatening capacity.
4. As staff were able to cope, they were given opportunities to develop further knowledge of a specific program by attending a more intensive LEA course.
5. The few random observations of children using word processors at all levels of the school did provide a small insight into the successful application of IT within the school. Certainly a progression of growing skills could be seen, particularly in the use of *Pendown* by the oldest children.

Some problems were also highlighted:

a. A recurring one at that time was the rapid change-over of staff. This meant a constant need to provide training for new staff in the basic use of the computer, whilst continuing to expand the expertise of longer established staff members. However the new staff were given much support by other colleagues, and

soon began using the computers quite confidently.

b. There were difficulties in providing INSET for part-time staff, and for the nursery nurses who play such a vital role in the work of the school with the very youngest children. This problem too has been partially solved by funding for nursery nurses to take part in Staff Development Days.

In conclusion, it appeared to me that this study did indeed support our initial 'feelings' that our work with computers was becoming established in classroom practice. Further, it was evident that the particular way in which INSET on IT had been developed by the co-ordinator was a significant factor. The staff were well aware that with more time and more machines they would be able to extend the use of computers as a tool for learning in the classroom. They were certainly enthusiastic and willing to have a go! The nurturing of that enthusiasm had to be the key to the development of this work at the school. This is an area where, in many schools, staff still feel very nervous and threatened by the advent of the computer in their classrooms. Our IT co-ordinator did not come in as a technological whizz-kid, making everyone feel stupid because they were afraid of the machine and had difficulties making the wretched thing perform. Rather, she led with the philosophy of 'little by little' and by beginning at first principles.

Expectations of a Curriculum Support Teacher

Rosemary Burton

My initial emotion when I was appointed to the post of Curriculum Support Teacher for IT was one of shock, followed quickly by the emotions of surprise and delight. I had never considered myself to be worthy of such an honour because I did not consider myself to be a 'good' teacher. What did I expect the job to involve?

Well, I thought that most of my time would be spent in the classrooms working alongside teachers and children, supporting them in their activities both in 'hands-on' and 'hands-off' situations. I also expected to teach new skills and to develop further the existing skills of the teachers and the children.

I had a feeling of trepidation about how I would be received in the various establishments. After all I had been on the receiving end of some visits from advisors and I knew just how intimidating such an event can be. I wanted the staff and the pupils to feel that they could ask me anything, and I wanted my suggestions to be relevant to the work in hand and to be in real and practical terms.

What the job has actually entailed was rather different. Although I have worked in classrooms alongside the teachers and the children, this has been for less than 50 per cent of my time, and in this respect has been something of a disappointment.

On my very first day I was involved in a school's INSET day. I was to act in a supporting role to the Curriculum Support Teacher whom I was to replace. That was a terrifying prospect and one I had not anticipated at all in my naivety. I shall remain forever grateful to the expertise of my predecessor for all that I learnt from her on that unique occasion. After that the majority of my first term seemed to be spent assisting my other colleagues in delivering courses to teachers on specific IT skills and programs.

There has also been involvement in staff meetings, 'Baker'-days, parents' meetings, workshops for staff, parents and governors, helping to formulate IT policies, and various technical tasks. These activities have occurred across the entire age and phase ranges. I found it quite terrifying as an infants' teacher (and a reception teacher at that!) to walk into a secondary school. Not only that but I was in a position of 'authority'. How was I to cope when the staff were so much more expert at their subjects than I was? But I need not have worried! I discovered that secondary teachers are as human as primary ones with the same fears and anxieties, frustrations and pressures. The teachers I encountered were eager to be helped and grateful for the little we are able to do for them on any one visit.

As I mentioned earlier, we have all been asked in the normal course of our duties to perform an assortment of technical tasks. These vary from something like inserting a 'chip', to solving problems with printers, VDUs and disc drives. It's surprising how much I have learnt in the technical sense during the last four terms!

One school telephoned the IT Centre and asked to speak to someone about their new A3000. I introduced myself and asked them how I could assist them. Back down the phone line, in crystal clear tones came, 'But do you know *anything* about computers?' (I was glad at that moment that there is not yet a telephone with its own television monitor attached, as I fought hard to suppress my giggles!)

What then of the future? I consider myself lucky to be going back to 'my' school at the end of my secondment. I'm lucky because my Headteacher wants me back, my school colleagues want me back and my school Governors are honouring the contract made between them, the LEA, and myself, by allowing me to go back. For some of my IT team colleagues this is not the case. Some have been told that they are not welcome back as it is thought that they will have outgrown their school during their secondment. Others have been told that the school has grown and developed during their absence and that they will no longer 'fit in' if they return. Still others have been told that their post of responsibility, or their job, has been offered to A.N. Other on a permanent basis during their secondment. This does not make for a happy team as new jobs are, of necessity, having to be sought and competed for. They are a resourceful group, highly qualified, with a tremendous amount of expertise and resilience and I am sure they will overcome these setbacks.

As for myself, I wouldn't have missed this experience for the world. I have learnt so much from all the gallant souls who have had me in their schools and classrooms. I am confident that I am returning as a 'richer' person for this experience. If nothing else I have discovered that I *am* as good as lots of other teachers! My Headteacher once referred to my secondment as a holiday; well I'd like to correct her – it's been a *honeymoon*!

As far as my own future is concerned at Kingsleigh First School, I am confident that I shall return to the same highly professional staff that I left almost two years previously. They have been ably encouraged and taught by Pat Jackson who bravely took over my responsibilities as Teacher-in-charge of IT when I left. She has developed the school's use of Logo, and has introduced a new graphics package which is now being used confidently and successfully throughout the school. In view of this, and knowing that word processing, data handling, and some music is being used with all ages, I think the curriculum area for me to develop will be Control Technology. Although we had made a small beginning with this the staff did not feel sufficiently confident to pursue it without my support. Apart from this new area there will be the perennial and continuous task of updating everyone's knowledge and expertise, introducing the delights of computing to any new staff members we may acquire, keeping myself abreast of new developments, and updating our equipment as and when applicable, and resources become available.

For schools in general throughout the country, I can only say how wrong I think it is that the ESG grant is being cut back now by the Government. Originally we were told that it would be for five years. During the first two years all the advisory teachers have been extremely busy raising awareness, developing skills, awakening interest, building confidence. Now that the National Curriculum is about to become law and teachers are aware of what they should be offering to their pupils, and of their own shortcomings; just as they are desperately clamouring for support and guidance, that support is being taken away from them. My own team will be reduced by 50 per cent just at the most crucial time, when in my opinion it should be increased by three or four times. I fail to see how these reduced teams will be able to fulfil their role successfully or to satisfy themselves and their clientele. At the same time the jobs are being offered on a short-term contract rather than as a secondment. I cannot see this as an improvement. I think schools are enriched by their staff returning to them with their newfound confidence and their newly-acquired skills after a secondment. It also gives other teachers the chance to have the experience and enrichment of a secondment. This can only be to the long term benefit of the teaching profession as I see it. Who will apply for these short-term contracts? Will it only be the young newly qualified 'whizz-kids' who as yet have no mortgages, and no family commitments to consider? Or will it be the older teacher whose mortgage and family responsibilities have passed? Surely we want a balanced age group of advisory teachers?

Report on production of *Young Citizen* Newspaper

A Sutcliffe
Deputy Head, Beech Green CP School, Quedgeley

Newspaper of class

In the Autumn term the children of Class 8 (Junior years 3/4) of Beech Green County Primary School, Quedgeley, produced their own newspaper in a joint venture with *The Citizen* newspaper of Gloucester.

The project formed part of a nationwide initiative by The Northcliffe Newspaper Group of which *The Citizen* is a part. The Group wanted to encourage schools to form industry links with their local newspapers and introduce children to the technology involved, the mechanics of newspaper production, and the people who work there. John Lovell, Production Editor of *The Citizen*, made initial contact with the school and offered the children the chance to come and see what producing a modern day newspaper was like.

We spent the first half of term visiting the *Citizen* offices and printing works and looking at how stories, advertising and photographs were collected, produced and printed into a paper which people would read. We also looked at the different jobs involved, technological processes, deadlines and selection of material. As well as welcoming the children into the world of newspapers, *The Citizen* provided me with examples of work which had been done in the past by other schools and we were also able to use copies of the newspaper which were delivered daily to the school for many classroom activities.

The children wrote stories inspired by masses of Press Association photographs and made up crazy captions for them, rewrote stories written by reporters, wrote stories from headlines, and undertook many other language activities from finding word blends to describing the feelings of people in photographs.

There also many possibilities for other areas of the curriculum, and we explored many of them in Mathematics, such as measuring advertising space and costing advertisements, weighing papers for conclusions about value for money, shopping for bargains in sale advertisements and many more. The papers themselves were great for the construction of models (if a little grubby), and hats, bridges, towers and cushions were all fashioned from them. We looked at print styles, cartoon drawing and distribution maps of newspaper outlets. So the list went on until by half term 'newspapers' had been looked at from almost every angle.

This work was exciting enough but when we decided to make our own newspaper after the break things really took off.

Producing the *Young Citizen*

The first thing we did was to set a deadline which gave us just four weeks to produce the finished article. Whatever was ready at the end of this period would go in the paper – anything else would be too late. The tasks would have to be split up amongst the children and we set up a management structure with editors, subs, reporters, illustrators, advertisers and all the other occupations we had seen when looking at the real newspaper offices. The children decided themselves who would do each job and their choices proved to be excellent. No one actually fell down on their job and if they looked like doing so the editors were ruthless. Management meetings were held and the stories we would try to write were agreed on; these reflected local issues. The sub-editors were charged with deciding upon the layout of the paper and were to be seen measuring columns, issuing instructions to illustrators for advertisements and headlines. In Science we had looked at photography and each reporter was accompanied by a photographer when sent on a story by the editors and would develop and print the photographs we would use. We even had crossword compilers and astrologists submitting copy to the editors.

We decided that we would get a professional printer to print our paper, so we knew that we would need to raise capital to finance our venture. A treasurers' department was formed and members went off to Barclays Bank in Gloucester where they had to produce a business plan and negotiate a loan for our newly formed company 'Beech Green Newspapers'. Accounts

had to be kept, money banked and even interest paid. The advertising department managed to raise enough money to pay back this loan by visiting local shops and businesses where they were warmly welcomed. We knew therefore that all sales would raise profit when the paper was sold. The main thing which had to be emphasised to all the adults that we contacted was that they must treat the children as they would representatives from any company and not just give donations. All the adults we met were very impressed by the professional way in which the children tackled their respective jobs.

As with any modern newspaper, computers were to play a vital role in the production of our newspaper. We wanted to achieve a professional result at the end of all our work and Christ Jay, IT Advisory Teacher from the Hucclecote Centre, came to the rescue. Our BBC could be used by the children to input stories using *View*. Illustrations could be typeset at the children's direction by Chris, using the Apple Macintosh computer which produces results as good as any professional system, and used scanning techniques to reproduce the childrens' illustrations as well as the children's own photographs. Having designed their paper, the children could see at the end of it something which matched the hard work they put in.

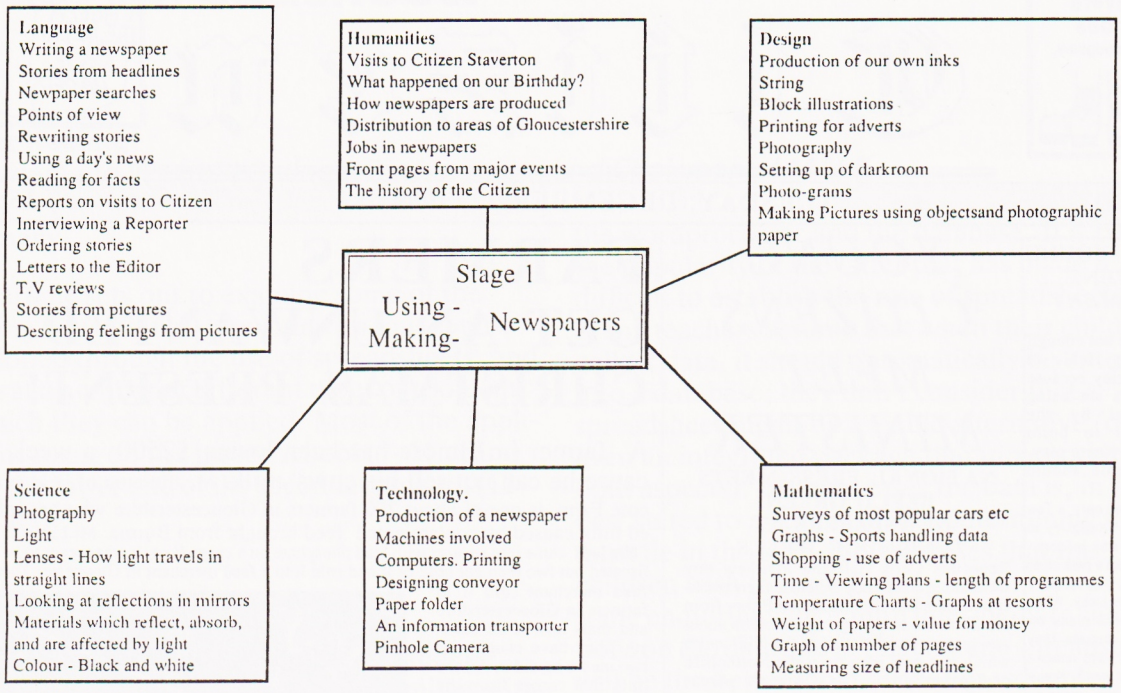
The proof of the newspaper was sent to the printers and 500 copies came back ready to be sold for Christmas. The children were ecstatic with the results and every time a parent, governor or member of staff turned round, someone was trying to sell them a *Young Citizen*.

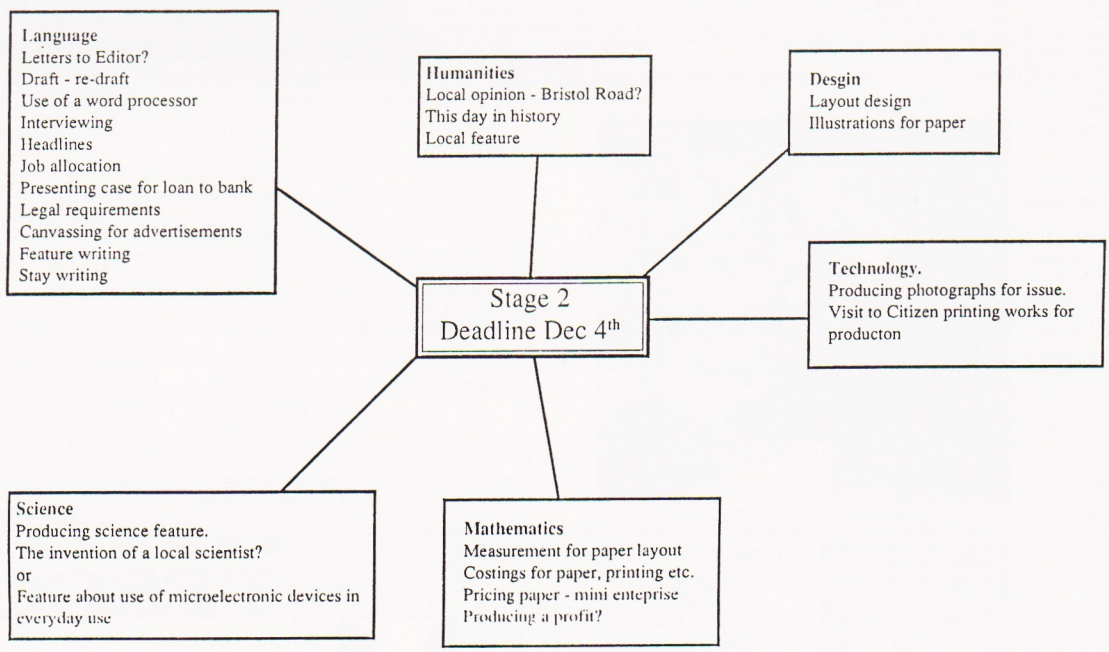
As a final reward the *Citizen*, having already featured the children's efforts in their paper and given us help with expertise and materials such as planning sheets and professional prints of our photographs, took myself and two children to help make up part of an exhibition on 'Newspapers in Education' in Tunbridge Wells where we met Minister Eric Forth of the DTI.

The production of our own newspaper proved to be a project which explored nearly every area of the National Curriculum, helped the children get a view of industry from the inside, made £50 profit, and was most certainly FUN.

It is well worth a try and we will do it again.

Jane Humphries (left) and Emily Trottman momentarily breaking their concentration on maths work with advertisements.


Language
Writing a newspaper
Stories from headlines
Newpaper searches
Points of view
Rewriting stories
Using a day's news
Reading for facts
Reports on visits to Citizen
Interviewing a Reporter
Ordering stories
Letters to the Editor
T.V reviews
Stories from pictures
Describing feelings from pictures
Humanities
Visits to Citizen Staverton
What happened on our Birthday?
How newspapers are produced
Distribution to areas of Gloucestershire
Jobs in newpapers
Front pages from major events
The history of the Citizen
Design
Production of our own inks
String
Block illustrations
Printing for adverts
Photography
Setting up of darkroom
Photo-grams
Making Pictures using objectsand photographic paper
Stage 1
Using - Making- Newspapers
Science
Phtography
Light
Lenses - How light travels in straight lines
Looking at reflections in mirrors
Materials which reflect, absorb, and are affected by light
Colour - Black and white
Technology.
Production of a newspaper
Machines involved
Computers. Printing
Designing conveyor
Paper folder
An information transporter
Pinhole Camera
Mathematics
Surveys of most popular cars etc
Graphs - Sports handling data
Shopping - use of adverts
Time - Viewing plans - length of programmes
Temperature Charts - Graphs at resorts
Weight of papers - value for money
Graph of number of pages
Measuring size of headlines


Language
Letters to Editor?
Draft - re-draft
Use of a word processor
Interviewing
Headlines
Job allocation
Presenting case for loan to bank
Legal requirements
Canvassing for advertisements
Feature writing
Stay writing
Humanities
Local opinion - Bristol Road?
This day in history
Local feature
Desgin
Layout design
Illustrations for paper
Stage 2
Deadline Dec 4th
Technology.
Producing photographs for issue.
Visit to Citizen printing works for producton
Science
Producing science feature.
The invention of a local scientist?
or
Feature about use of microelectronic devices in everyday use
Mathematics
Measurement for paper layout
Costings for paper, printing etc.
Pricing paper - mini enteprise
Producing a profit?

Come and buy your Christmas presents from
Olivers Shoes
at Quedgeley.

The Young Citizen

From BEECH GREEN NEWSPAPERS

No. 1 TUESDAY, DECEMBER 12, 1989 15p

THE YOUNG CITIZEN..... *COMMENT*

The are not enough playing fields in Quedgeley because builders are being allowed by the council to build houses where playing fields should be.

There are only a few fields in Quedgeley so children stay indoors, there is not a park close to them, only about 1 or 2 miles away. When the council plans on building houses they should always remember about parks. Some people are wanting parks just to vandalize when others want to play in them. In most parks the grass is not often cut so weeds like stinger nettles and prickles grow. If you were to play a ball game like cricket for instance,you would lose your ball. There are not enough 'n-o dogs allowed 'signs and if a child were to slip in some dogs' muck and fall in a bunch of stinging nettles they would hurt themselves very much. There are parts of estates that have got no buildings on but most of these have got signs saying "NO BALL GAMES"

These are the only play areas there are: one on Bristol Road, one by Lower Meadow and one at Church Drive.

YOUNG CITIZENS MEET MINISTER

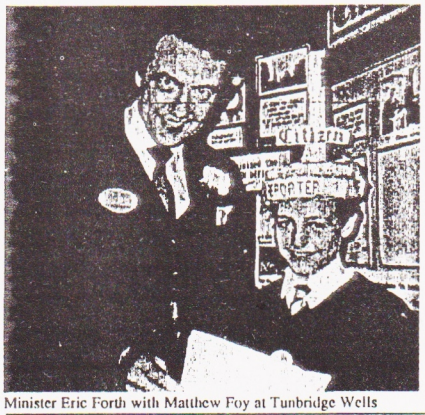
NATIONAL PRESS MEETS BEECH GREEN NEWSPAPERS AT TUNBRIDGE WELLS

Reporters Chris Hall and Matthew Foy went along with Tony Sutcliffe their teacher and John Lovell, Production Editor from the Citizen to help stage an exhibition about newspapers in education at the NIE centre which is a new idea from the Northcliffe newspaper group,The Citizen's parent company.

The Exhibition was to mark the centres opening by Under Secretary of state for Trade and Industry Eric Forth.

When we got to the NIE centre we set up our display about how we are producing our newspaper. Also there were other schools there from all over the country and lots of other children showing how they were working with their local newspapers.We met children from as far afield as Truro and Grimsby.

When we had set up our display we went to a four star hotel.



Minister Eric Forth with Matthew Foy at Tunbridge Wells

THE NEWSPAPERS IN EDUCATION CENTRE OPENS

The next day we went back to the NIE centre and did a few adjustments to our display. Many important visitors from Education and the newspaper industry asked us lots of questions about what we did.

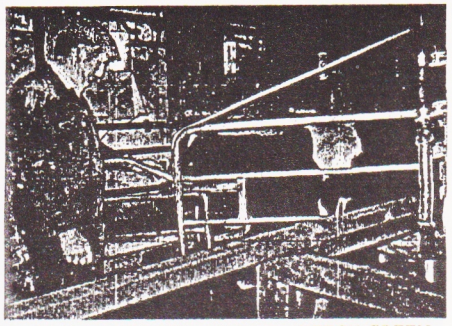
Some newspaper reporters came and took some photographs and wrote about our project. A television crew was there asking us questions and filming us. Soon the minister came and made a speech about how newspapers and schools should get togther more often and then he started to look at all the displays.Soon he came to our display and was very intrested in the loan we had got from Barclays Bank to pay for the printing of the newspaper.

We even managed to get a photograph of him wearing one of our hats which we made.Reports of our visit will appear both in the national press and The Citizen.

FARMERS GET AN UNWANTED CHRISTMAS PRESENT!

A farmer in Elmore has been losing £2500 a week because he can not sell his cows' milk. Mr Littleton of Bridgemancote Farm, is one of about 200 farmers in Gloucestershire who has infected milk caused by contaminated feed brought from Burma. Mr.Littleton said "The feed came into contact with lead phosphate on a cargo boat. It was meant to be confiscated but two men got hold of it and sold it to a feed merchant in Gloucester.Then the feed merchant sold it to farmers in Gloucestershire and thats how it all started."They have caught the two men who did it. All the milk that comes from the cows is made into butter and powdered milk. If a person should drink the contaminated milk there would not be any effect unless they drank great quantities. He is a friend of the school, and some of the classes have been to his farm to see his animals. Mr Littleton said that he was very lucky not to have lost any cows.

Reporter:
Emily Trotman



Graham Littleton in his Milking Parlour

BEECH GREEN NEWSPAPERS LTD.

This paper was produced by:-
BEECH GREEN COUNTY PRIMARY SCHOOL,
ST. JAMES'S,
QUEDGELEY, GLOS.
CLASS 8
BEECH GREEN HAS 233 CHILDREN
HEAD TEACHER- MRS BARNES

HER COMMENT:-

I would like to congratulate Class 8 on the way they have tackled this Project. The standard of work produced is excellent, and they have managed to include a most interesting variety of topics. In all their contacts with the outside world they have been courteous and polite. The industries who recruit them when they have finished their education will be fortunate indeed.

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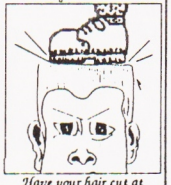

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The Editorial Staff would like to thank *Mr John Lovell* and all at the CITIZEN in Gloucester for their help in producing this newspaper. Special thanks to *Chris Jay* at the Hucclecote Centre for his help and expertise in typesetting which made the presentation of our work so professional.

OUR EYECARE IS NO OPTICAL ILLUSION

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Would like to wish the children of Class 8, BEECH GREEN SCHOOL every success in this enterprising venture.
MERRY CHRISTMAS to ALL OUR CUSTOMERS

How versatile a learning tool is the spreadsheet?

Roger Keeling
Newman and Westhill College, Birmingham, and Chairman of MAPE

Summary

This article sets out to examine some of the exciting educational opportunities that can be developed through the use of spreadsheets, and looks at a number of different types of problems to which they can be applied. Most of the applications focus on the junior school (7–11 years) or on the lower end of the secondary school (11–14 years).

Introduction

There is, currently, an increasing awareness amongst teachers of the need to be familiar with spreadsheets, but this is not always matched by a knowledge of what a spreadsheet is or how it can be applied to the educational environment. This awareness has been heightened by references to the use of spreadsheets in the National Curriculum documents. For example, within the Technology area, pupils are expected to develop an 'IT capability'. At level 5 (upper juniors), it is suggested that pupils should 'be able to use information technology to explore patterns and relationships, be able to form and test simple hypotheses'. A spreadsheet is an ideal tool to be able to explore and hypothesise about number patterns. One of the examples at level 6 suggests that pupils 'define or change the way information is grouped into columns in a spreadsheet showing the nutritional values of types of meals'; while at level 8 they might 'model and investigate the growth of bacteria using a spreadsheet'. Although these statements give examples of content, it is envisaged that the context for using spreadsheets will arise naturally from other curriculum areas and activities; that they will not be taught as an end in themselves.

The right tool for the task?

Over the last five years the use of Information Technology has grown in popularity and in its relevance to education; the software has matured and the hardware has increased in function/cost ratio. Alongside these developments certain generic applications have proved to have a great deal to offer the learning environment; namely the wordprocessor and the database. It is partly the popularity of the latter that has made it difficult to establish the role of spreadsheets. Many teachers assume that when their children collect data, it should automatically be entered into a database; they don't consider that a spreadsheet might be a viable alternative (or even an integrated package that incorporates both aspects). In some cases the data is, in fact, best suited to a database; the determining factor must lie in the type of hypotheses that the children wish to formulate and test. However, some enquiries will require intermediate calculations on the data and in this case the spreadsheet will be the better tool to use. For example, consider the traditional traffic survey where the children have collected data with respect to:

a) type of car
b) age in months
c) mileometer reading
d) number of miles per gallon

Investigations may vary from finding which car is the oldest to finding the total amount of lead which has been pumped into the atmosphere from these cars (given the relevant data). Consider the question of finding which car travels the most miles in a year. This is not easy to answer on most databases used in schools as they do not have the facility to perform calculations across field entries. If the data had been entered into a spreadsheet, the calculation would be very simple; but more importantly the operation of entering the right formula would ensure that the children had understood the process. It would also facilitate further investigations. For example, how much, on average, does each driver spend per year on petrol?

As shown by this example, it is important for teachers to consider whether a database or a spreadsheet is the best program for the children's data (if not both). However, the collection and manipulation of data, the formulation of hypotheses and discussion of the results is only one application. The advantage of a spreadsheet is that it is probably the best all purpose mathematical tool currently available. The disadvantage is that there is a relatively long learning curve before teachers can begin to appreciate all the subtleties of this type of software.

Modelling example

Let us consider two diverse applications which both differ from the one described above. The first is the use of a spreadsheet as a mathematical modelling tool. In this case the children are operating on data without looking for a specific answer. For each child in the class they may have measured their performance on four jumps:

a) the high jump
b) the long jump
c) standing jump vertically – jumping against a wall and making a mark as high as they can
d) standing jump horizontally – the same as the long jump but without the run up (a two-footed take off)
e) height and weight are two further optional measurements.

There are a range of possible investigations:

How many children can long jump further than 2.5 metres? (database enquiry)
How many children can perform a horizontal standing jump and cover a distance greater than their height? (spreadsheet enquiry)

Alternatively the investigation may be open to interpretation. For example, which child is 'best' at jumping? Children would then have to decide on the criteria involved and develop their own model for 'best'. It could be as simple as adding up the total of the four jumps? Should a weighting factor be applied to the different jumps? Should a child's height not have a significant effect?

In situations of this sort the quality of the debate is more important than the sophistication of the model. Do the children realise that there are alternatives; that the relative merits of these have to be weighed up?

Problem solving example

The second application comes from the area of problem solving. The field of mathematics is rich in problems that can be solved on a spreadsheet, and it can make accessible to young children problems that they would otherwise only be able to solve later in life by fairly sophisticated analytical means (which even then they might apply blindly and not understand). In many cases the spreadsheet is used to solve the problem by the method of exhaustion; all the possibilities are listed and the children examine the pattern of results in order to choose the one that leads to the right answer. For example:

A farmer has 144 metres of fencing to create the largest area he can to pen in his sheep. However, he proposes to use part of a farm wall for one side and to use his fencing for the other 3 sides. What is the maximum area that he can enclose?

This problem can be solved by a knowledge of elementary calculus, but pupils at a much younger age can solve it on a spreadsheet. In effect they set up all the possible dimensions (1x142, 2x140, 3x138 . . .) and work out the area for each. Which gives the maximum? In fact a spreadsheet with a graphing facility can be used to graph all the answers and the resulting quadratic curve clearly demonstrates how the area increases to a maximum and then starts to decrease again. A number of investigations can then follow on? If the farmer has 288 metres of fencing will the answer be doubled? What if he sets out a triangular field? If he only has 20 metres of wall available and has to use some of the fencing to complete the fourth side, how does that effect the answer? This is only one problem from a vast array of mathematical challenges.

Learning opportunities

Although the possibilities are endless, very little formal classroom evaluation has been done in analysing the response of children. Certainly they soon master the technicalities of the spreadsheet, they develop a confidence and are quite happy to experiment and alter cell values to see 'what happens if'. When they successfully solve a problem, they show an understanding of the processes involved. Children have used spreadsheets to solve quadratic equations and have been able to explain their answers; often far more successfully than when applying the formula (–b + sqr . . .) or when factorising (for many children these are rote operations which they never fully comprehend).
However, in order that these types of investigations can be approached successfully in the classroom, children need to use spreadsheets as a tool over a number of years. In the first instance they may use the spreadsheet as a graph drawing tool, without using it for calculation purposes. It is an extremely quick and efficient tool for accepting data and displaying it in graphical format. As they gain in confidence, they begin to play and experiment with number. Calculations don't get in the way. They begin to ask 'what happens if'? Number sequences become exciting and easy to handle. The use of the spreadsheet gives structure to what might otherwise be only abstract ideas. It encourages the children to break a problem down into manageable bits, it removes the need for mundane calculation, it shifts the emphasis from number crunching to hypothesis formulation and it sets a real context for algebraic formulation. The spreadsheet presents children with a tool for mathematical discovery.

Conclusions

In the same way that mastery of a wordprocessor is a skill for life, so is that of a spreadsheet. It is not a skill that is achieved overnight, but developed over a number of years as a child matures. The problems that present themselves become more sophisticated; but in the sense that they challenge a child's thinking NOT in the sense that they demand a spreadsheet with more advanced facilities.

So why aren't spreadsheets more widely used?

Part of the problem lies in the nature of the spreadsheet. A wordprocessor has basically one function – that of enabling writing. Whenever children are engaged in the task of writing, of drafting and redrafting, then they will benefit from access to a wordprocessor – but the mechanics of using the software is always the same. Databases also have a uniformity of approach. Decide on the questions you want to answer, choose appropriate field names and collect the relevant data. The skills of interrogation are transferable from one database to another; if you have stored the data in the appropriate form against the correct field names, then using a database requires a standard approach. Spreadsheets are different and their use is more variable. Appropriate problems arise from many different situations; maths, topic work, modelling, scientific investigations. Each requires a different approach; the formulae need structuring differently depending upon the problem. There is a definite need for an increasing number of well documented classroom case studies to illustrate the wide and variable potential that spreadsheets can offer the learning environment.

Postscript

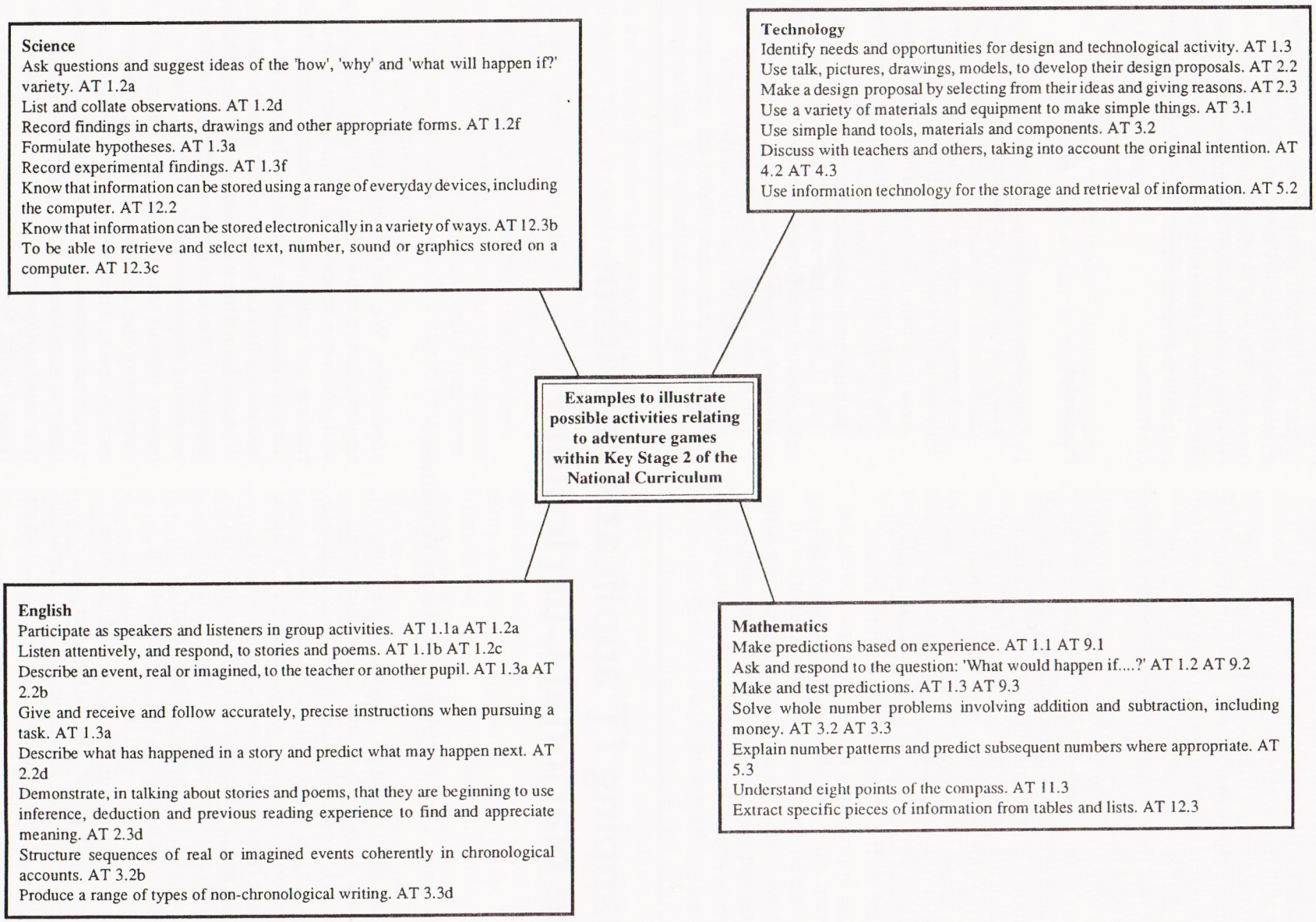
1. Roger Keeling and Senga Whiteman have written a book on the use of spreadsheets in the primary classroom; it is about how teachers can support both cross-curricular and mathematical activities by the use of a spreadsheet. It covers a variety of areas from data collection, mathematical modelling, number patterns, investigations and problem solving. The title is *Simply Spreadsheets* (84 pages, A4). It is available at a cost of £6.00 (plus £1.00 p&p) from KW Publications, 42 Compton Drive, Streetly, Sutton Coldfield, West Midlands, B74 2DB
2. This article was first submitted as a paper to the EURIT '90 Conference held at Herning in Denmark during April, 1990.

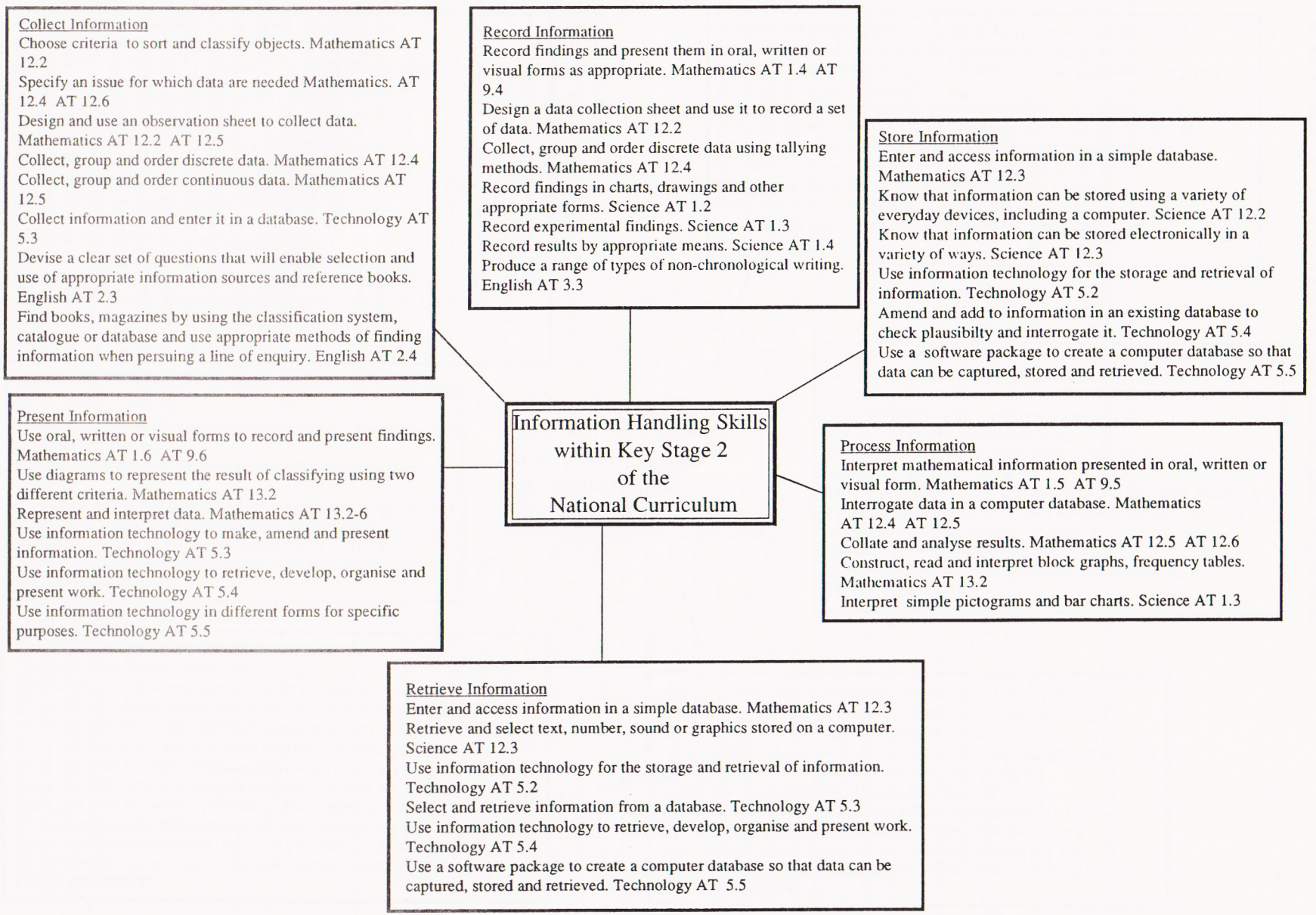
Mapping IT applications within the National Curriculum

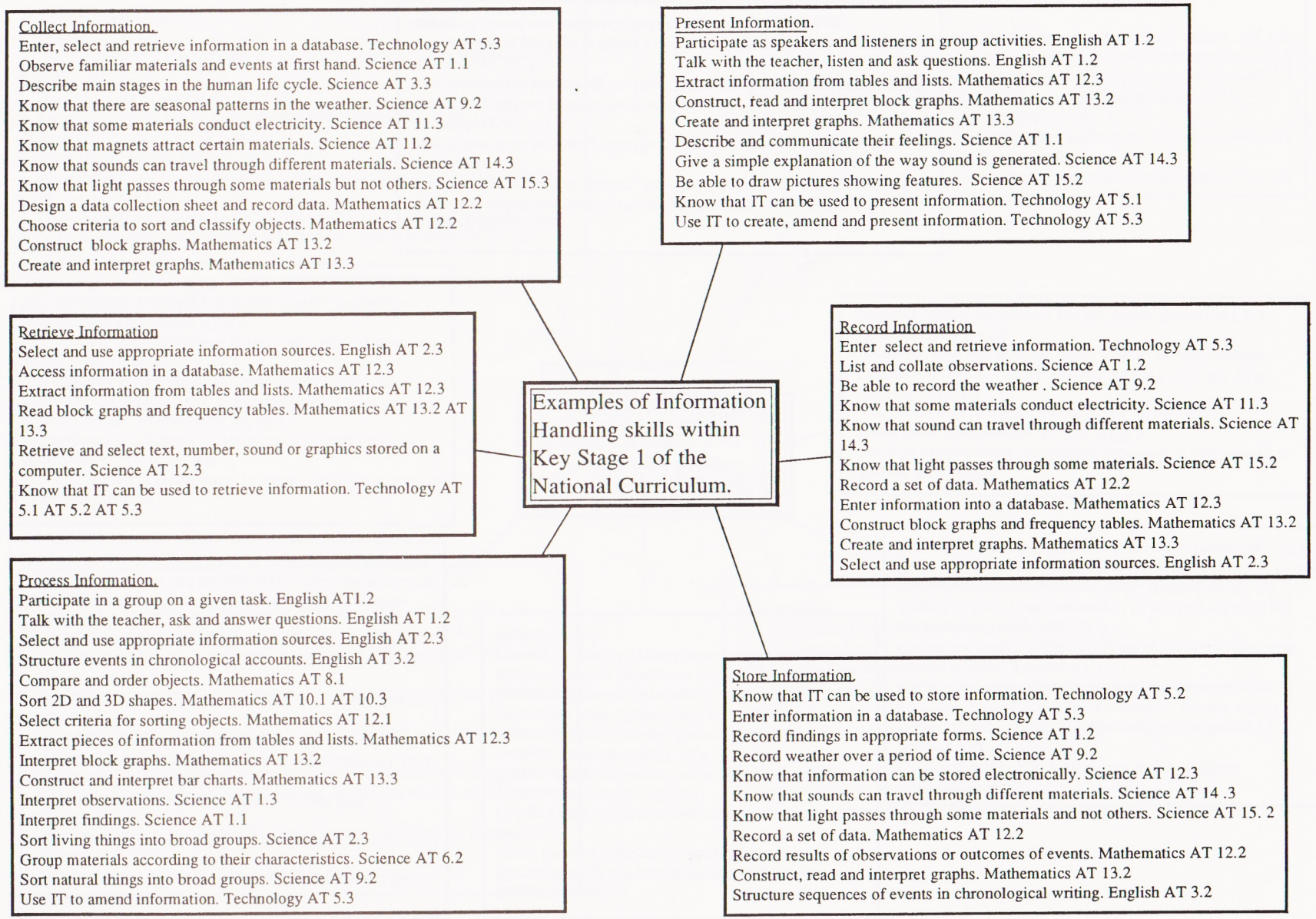
Peter Dent, Lynn Partridge and Senga Whiteman

We are all struggling to absorb the vast amount of material in the National Curriculum documents. However, this does not stop us adding to it. As part of the B.Phil(Ed) course in Information Technology at Newman and Westhill we have been looking at the way in which a specific use of IT can draw together aspects of the National Curriculum in Maths, Science, English and Technology. This is part of an activity which tends to add evidence to the notion that we have all been teaching the National Curriculum for years, only we didn't appreciate that fact. (Or rather everyone else unconnected with education was not prepared to believe that teachers were, in general, doing a commendable job.)

We have drawn up a series of webs which relate to a specific Key Stage and an IT application. We are not suggesting that the IT application is a subject – IT IS NOT – but it is a tool which can support the acquisition of skills relating to a range of Attainment Targets. The webs are illustrative of some of the possible connections. They do not list every possible skill. We have found the webs useful. We are publishing them in the hope that you will also find them valuable (they are freely copiable). We also believe that all over the country teachers are duplicating one another's work and while, in certain cases, this is unavoidable, in other cases a bit of co-operation and sharing would seem likely to ease the load. If you, or a group of teachers in your school, draw up something related to the National Curriculum which is likely to be of benefit to others, please send it to *MICRO-SCOPE*.


Science
Ask questions and suggest ideas of the 'how', 'why' and 'what will happen if?' variety. AT 1.2a
List and collate observations. AT 1.2d
Record findings in charts, drawings and other appropriate forms. AT 1.2f
Formulate hypotheses. AT 1.3a
Record experimental findings. AT 1.3f
Know that information can be stored using a range of everyday devices, including the computer. AT 12.2
Know that information can be stored electronically in a variety of ways. AT 12.3b
To be able to retrieve and select text, number, sound or graphics stored on a computer. AT 12.3c
Technology
Identify needs and opportunities for design and technological activity. AT 1.3
Use talk, pictures, drawings, models, to develop their design proposals. AT 2.2
Make a design proposal by selecting from their ideas and giving reasons. AT 2.3
Use a variety of materials and equipment to make simple things. AT 3.1
Use simple hand tools, materials and components. AT 3.2
Discuss with teachers and others, taking into account the original intention. AT 4.2 AT 4.3
Use information technology for the storage and retrieval of information. AT 5.2
Examples to illustrate possible activities relating to adventure games within Key Stage 2 of the National Curriculum
English
Participate as speakers and listeners in group activities. AT 1.1a AT 1.2a
Listen attentively, and respond, to stories and poems. AT 1.1b AT 1.2c
Describe an event, real or imagined, to the teacher or another pupil. AT 1.3a AT 2.2b
Give and receive and follow accurately, precise instructions when pursuing a task. AT 1.3a
Describe what has happened in a story and predict what may happen next. AT 2.2d
Demonstrate, in talking about stories and poems, that they are beginning to use inference, deduction and previous reading experience to find and appreciate meaning. AT 2.3d
Structure sequences of real or imagined events coherently in chronological accounts. AT 3.2b
Produce a range of types of non-chronological writing. AT 3.3d
Mathematics
Make predictions based on experience. AT 1.1 AT 9.1
Ask and respond to the question: 'What would happen if....?' AT 1.2 AT 9.2
Make and test predictions. AT 1.3 AT 9.3
Solve whole number problems involving addition and subtraction, including money. AT 3.2 AT 3.3
Explain number patterns and predict subsequent numbers where appropriate. AT 5.3
Understand eight points of the compass. AT 11.3
Extract specific pieces of information from tables and lists. AT 12.3


Collect Information
Choose criteria to sort and classify objects. Mathematics AT 12.2
Specify an issue for which data are needed Mathematics. AT 12.4 AT 12.6
Design and use an observation sheet to collect data. Mathematics AT 12.2 AT 12.5
Collect, group and order discrete data. Mathematics AT 12.4
Collect, group and order continuous data. Mathematics AT 12.5
Collect information and enter it in a database. Technology AT 5.3
Devise a clear set of questions that will enable selection and use of appropriate information sources and reference books. English AT 2.3
Find books, magazines by using the classification system, catalogue or database and use appropriate methods of finding information when persuing a line of enquiry. English AT 2.4
Record Information
Record findings and present them in oral, written or visual forms as appropriate. Mathematics AT 1.4 AT 9.4
Design a data collection sheet and use it to record a set of data. Mathematics AT 12.2
Collect, group and order discrete data using tallying methods. Mathematics AT 12.4
Record findings in charts, drawings and other appropriate forms. Science AT 1.2
Record experimental findings. Science AT 1.3
Record results by appropriate means. Science AT 1.4
Produce a range of types of non-chronological writing. English AT 3.3
Store Information
Enter and access information in a simple database. Mathematics AT 12.3
Know that information can be stored using a variety of everyday devices, including a computer. Science AT 12.2
Know that information can be stored electronically in a variety of ways. Science AT 12.3
Use information technology for the storage and retrieval of information. Technology AT 5.2
Amend and add to information in an existing database to check plausibilty and interrogate it. Technology AT 5.4
Use a software package to create a computer database so that data can be captured, stored and retrieved. Technology AT 5.5
Present Information
Use oral, written or visual forms to record and present findings. Mathematics AT 1.6 AT 9.6
Use diagrams to represent the result of classifying using two different criteria. Mathematics AT 13.2
Represent and interpret data. Mathematics AT 13.2-6
Use information technology to make, amend and present information. Technology AT 5.3
Use information technology to retrieve, develop, organise and present work. Technology AT 5.4
Use information technology in different forms for specific purposes. Technology AT 5.5
Information Handling Skills within Key Stage 2 of the National Curriculum
Process Information
Interpret mathematical information presented in oral, written or visual form. Mathematics AT 1.5 AT 9.5
Interrogate data in a computer database. Mathematics AT 12.4 AT 12.5
Collate and analyse results. Mathematics AT 12.5 AT 12.6
Construct, read and interpret block graphs, frequency tables. Mathematics AT 13.2
Interpret simple pictograms and bar charts. Science AT 1.3
Retrieve Information
Enter and access information in a simple database. Mathematics AT 12.3
Retrieve and select text, number, sound or graphics stored on a computer. Science AT 12.3
Use information technology for the storage and retrieval of information. Technology AT 5.2
Select and retrieve information from a database. Technology AT 5.3
Use information technology to retrieve, develop, organise and present work. Technology AT 5.4
Use a software package to create a computer database so that data can be captured, stored and retrieved. Technology AT 5.5


Examples of Information Handling skills within Key Stage 1 of the National Curriculum.
Collect Information.
Enter, select and retrieve information in a database. Technology AT 5.3
Observe familiar materials and events at first hand. Science AT 1.1
Describe main stages in the human life cycle. Science AT 3.3
Know that there are seasonal patterns in the weather. Science AT 9.2
Know that some materials conduct electricity. Science AT 11.3
Know that magnets attract certain materials. Science AT 11.2
Know that sounds can travel through different materials. Science AT 14.3
Know that light passes through some materials but not others. Science AT 15.3
Design a data collection sheet and record data. Mathematics AT 12.2
Choose criteria to sort and classify objects. Mathematics AT 12.2
Construct block graphs. Mathematics AT 13.2
Create and interpret graphs. Mathematics AT 13.3
Present Information.
Participate as speakers and listeners in group activities. English AT 1.2
Talk with the teacher, listen and ask questions. English AT 1.2
Extract information from tables and lists. Mathematics AT 12.3
Construct, read and interpret block graphs. Mathematics AT 13.2
Create and interpret graphs. Mathematics AT 13.3
Describe and communicate their feelings. Science AT 1.1
Give a simple explanation of the way sound is generated. Science AT 14.3
Be able to draw pictures showing features. Science AT 15.2
Know that IT can be used to present information. Technology AT 5.1
Use IT to create, amend and present information. Technology AT 5.3
Retrieve Information
Select and use appropriate information sources. English AT 2.3
Access information in a database. Mathematics AT 12.3
Extract information from tables and lists. Mathematics AT 12.3
Read block graphs and frequency tables. Mathematics AT 13.2 AT 13.3
Retrieve and select text, number, sound or graphics stored on a computer. Science AT 12.3
Know that IT can be used to retrieve information. Technology AT 5.1 AT 5.2 AT 5.3
Record Information
Enter select and retrieve information. Technology AT 5.3
List and collate observations. Science AT 1.2
Be able to record the weather . Science AT 9.2
Know that some materials conduct electricity. Science AT 11.3
Know that sound can travel through different materials. Science AT 14.3
Know that light passes through some materials. Science AT 15.2
Record a set of data. Mathematics AT 12.2
Enter information into a database. Mathematics AT 12.3
Construct block graphs and frequency tables. Mathematics AT 13.2
Create and interpret graphs. Mathematics AT 13.3
Select and use appropriate information sources. English AT 2.3
Process Information.
Participate in a group on a given task. English AT1.2
Talk with the teacher, ask and answer questions. English AT 1.2
Select and use appropriate information sources. English AT 2.3
Structure events in chronological accounts. English AT 3.2
Compare and order objects. Mathematics AT 8.1
Sort 2D and 3D shapes. Mathematics AT 10.1 AT 10.3
Select criteria for sorting objects. Mathematics AT 12.1
Extract pieces of information from tables and lists. Mathematics AT 12.3
Interpret block graphs. Mathematics AT 13.2
Construct and interpret bar charts. Mathematics AT 13.3
Interpret observations. Science AT 1.3
Interpret findings. Science AT 1.1
Sort living things into broad groups. Science AT 2.3
Group materials according to their characteristics. Science AT 6.2
Sort natural things into broad groups. Science AT 9.2
Use IT to amend information. Technology AT 5.3
Store Information.
Know that IT can be used to store information. Technology AT 5.2
Enter information in a database. Technology AT 5.3
Record findings in appropriate forms. Science AT 1.2
Record weather over a period of time. Science AT 9.2
Know that information can be stored electronically. Science AT 12.3
Know that sounds can travel through different materials. Science AT 14 .3
Know that light passes through some materials and not others. Science AT 15. 2
Record a set of data. Mathematics AT 12.2
Record results of observations or outcomes of events. Mathematics AT 12.2
Construct, read and interpret graphs. Mathematics AT 13.2
Structure sequences of events in chronological writing. English AT 3.2

Primary French pilot project

Margery Swinton *(Staff Tutor, Primary Computers)*
and **Kath Millar, Anona Thomson, Louise Westall** *(Primary Computers Support Team)*
Central Region, Scotland

Central Region, in Scotland, was one of the authorities selected to trial the project 'Modern Languages in the Primary School' and the language chosen was French. Ten primary schools are involved, varying in size from 15 to 211 pupils and varying in location from isolated to rural villages. All ten primaries feed to the same rural secondary school with a roll of 725 pupils.

Shortly after the start of the Autumn term, Modern Languages teachers from the secondary school were taking two sessions of 30 minutes per week with each of the primary schools, working orally with the pupils. They started working on a basic vocabulary of everyday phrases, gradually introducing more varied topics. The class teacher gradually reinforced this work. The regional primary computer team was not involved with the project at this early stage. We had been developing concept keyboard materials for teacher in-service. At these in-service courses teachers were most enthusiastic when they realized the potential in open-ended software, where they could tailor their overlays to suit the needs of a class, group or individual. It was pointed out to one primary school that they might like to try out the concept keyboard with their Gaelic class. From this came the idea of using the concept keyboard for the French pilot scheme.

The Scottish Education Department had allocated a small budget to each pilot scheme and this did not include computer or video materials. The money was to be spent on books and audio materials. Here was a challenge indeed. Would the pupils have increased motivation through using the computer? Could a concept keyboard enhance the vocabulary work after the oral presentation? All ten primaries had at least one BBC Master computer and half of them had concept keyboards.

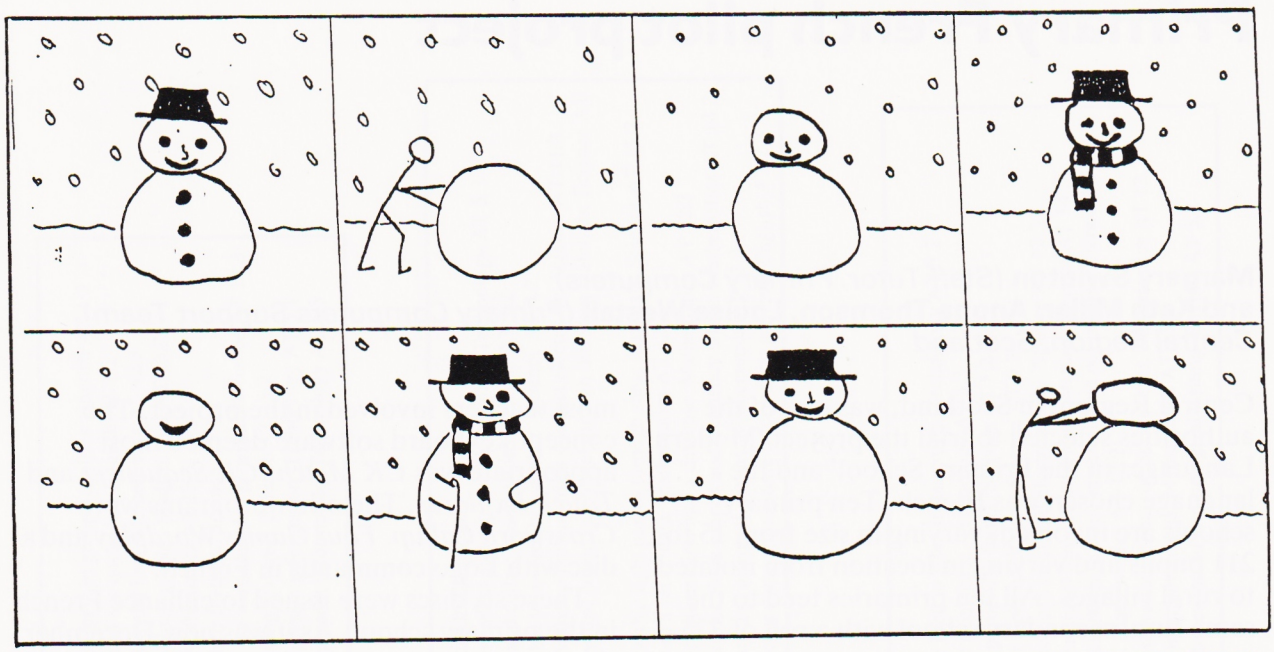
Discussions led to what we felt was the appropriate software to be selected. Initially there were to be six programs and three of these were concept keyboard programs. All the concept keyboard programs are widely used in Scottish schools and were already familiar to most teachers involved in the project. The concept keyboard software deemed most appropriate was *CK Match, CK Sequencer* and *Touch Explorer*. The other programs were *Crossword Callup, Four Games Wordplay* and a disc with Logo commands in French.

These six discs were issued to enhance French in the primary school. As it was now December, the theme for the vocabulary was Winter. It was suggested to schools that other software, already in general use, would be suitable. Two programs in particular were mentioned – *Folio* and *Front Page Extra*. With the exception of *Folio*, all the above software related to the Winter vocabulary list enclosed with the French package.

CK Match is a reading and matching program. Overlays can be made in two, four, six, eight or ten sections. Pictures, words, letters, numbers or symbols can be drawn onto the overlay. The 'matching' words, letters or numbers are easily programmed into the computer. When these appear on the screen, the child presses the corresponding area on the overlay. The program is self correcting. A score page appears at the end. For the French package, programs and overlays were prepared on winter clothing, phrases and activities, parts of the body and numbers.

dix	cinq	un	quatre	sept	
trois	neuf	six	huit	deux	

CK Sequencer gives practice in sequential thinking. In this program overlay sections are limited to four or eight; stories produced are therefore either in a four- or an eight-part sequence. Pictures relating to the story are placed onto the overlay out of sequence. The story is typed into the computer in the correct order. Parts of the sequence are then allocated



French *CK Sequencer* vocabulary

BHOMME
Je roule une grande boule de neige.
Mon bonhomme de neige a une tête.
Maintenant il a une bouche.
Maintenant il a deux yeux et un nez.
Maintenant il a un chapeau.
Maintenant il a trois boutons.
Maintenant il a une écharpe.
Maintenant il a une canne.

BHOMME1
Je roule une grande boule de neige.
Je fais une petite boule de neige pour sa tête.
Je fais une bouche.
Je fais deux yeux et un nez.
Je mets un chapeau sur sa tête.
J'ajoute trois boutons.
Je lui donne une écharpe.
Je lui donne une canne et voilà mon bonhomme de neige.

Winter vocabulary

l'hiver	winter
en hiver	in winter
il fait froid	it is cold
il neige	it is snowing
il gèle	it is freezing
le bonhomme de neige	snowman
la boule de neige	snowball
le flocon de neige	snowflake
la neige	snow
la glace	ice
le glaçon	icicle
glisser	to slide
tomber	to fall
lancer	to throw
patiner	to skate
rouler	to roll
faire du ski	to go skiing
faire de la luge	to go sledging
une écharpe	a scarf
des bottes	boots
un chandail	jumper
un anorak	anorak
des gants	gloves
une casque en laine	woolly hat/cap

to the appropriate section of the overlay. As each section of the overlay is pressed, its corresponding statement appears on the screen. This program is also self correcting. A printout of the final story is available. One of the sequences on the disc already used in schools was 'Snowman' in which pupils build a snowman. This sequence was translated into French at two levels of difficulty.

In *Touch Explorer* the overlay is an empty background picture. As the child presses the different areas of the overlay, writing appears on the screen describing what is there, thus building up a complete verbal picture. This information is then used to draw a picture of the scene, or to write a descriptive story, or both. The French package included an overlay of a winter landscape. As the children press the keyboard, writing in French appears describing children involved in various winter activities.

Crossword Callup is a flexible program which creates crosswords using a simple database of subjects and clues. Crosswords produced can be simple or complicated and can be used across a variety of curriculum areas. A file called 'Hiver' was added. Clues were in English but the answers were in French. It was suggested that as the pupils' knowledge increased, they could either write their own clues to augment the list or write some of the clues in French with answers in either French or English.

The *Four Games Wordplay* disc is comprised of four programs, *Hangman, Magic Spell, Switch* and *Wordsquare* which uses a common vocabulary list of twenty words. Initially only the Winter vocabulary was added but this could be extended by the teacher as pupils progress.

Logo is an extension to the package. It was envisaged that it would be used by children already competent with turtle graphics. The most commonly used commands were translated into French. As most of these were lengthy, abbreviations were devised. Everything else is as it is in 'English' Logo.

French Logo

The children may wish to try their Logo in French.

Command	*French Command*	*Short*
FORWARD	AVANCE	AE
BACKWARD	RECULE	RE
LEFT	TOURNEGAUCHE	TG
RIGHT	TOURNEDROITE	TD
PENUP	LEVECRAYON	LC
PENDOWN	BAISSECRAYON	BC
HIDE TURTLE	CACHETORTUE	CE
SHOW TURTLE	MONTRETORTUE	ME
REPEAT	REPETE	REP

How to use this disc

Once in Logo put this disc into the disc drive and type:

LOAD "FRENCH press <RETURN>

When all the commands are loaded and listed on screen the above commands can only be used in French.

Folio is a wordprocessor package with a concept keyboard facility. It only required the children to use the French vocabulary provided. There was a disadvantage – that of accents. There is no provision for this. Although *French Folio* provides for accents and is available in Central Region's secondary schools, it was decided not to promote its use in the primary sector. To overcome this problem it was suggested that it would be good practice and reinforcement for the children to insert accents where appropriate on their hard copies.

Front Page Extra creates the front page of a newspaper. Schools were supplied with an example of a front page in French and its translation in English.

Four schools had never used a concept keyboard before and they were given training. These were the smaller schools and they were quick to see potential uses at all stages. The other schools, already familiar with the concept keyboard at the infant stages, had not used them further up the school. The upper junior teachers however enjoyed the familiarisation course and were impressed by the possibilities. This pleased us because we do not want the concept keyboard to be seen only as an infant/learning support aid. Through the French project we hope that the concept keyboard will be seen as a support tool to be used at any stage in the school, as and when necessary.

It is too early to report on the outcomes of computer software enhancement in this project. However it has been appreciated by the majority of schools, particulary the concept keyboard programs. Two schools have already been quick to extend pupil expertise by creating more overlays and customising them to their particular needs. Another school (new to the concept keyboard) has now started to do likewise. One school stated that the *CK Match* program met the needs of the range of abilities within the class. Slow learners were making steady progress because of their familiarity with the vocabulary. The high fliers felt sufficiently confident to transfer their knowledge and skills to experimenting with writing a few sentences with *Folio*.

CK Sequencer (Snowman) provided repetition of the third person singular at level one – 'Maintenant il y a . . .', whilst level two used the first person singular – 'Je fais, je mets and je lui donne . . .'. This program encouraged one school to construct a large snowman which was displayed on the wall. His body and clothing was labelled and some writing in *Folio* described a Winter scene.

We had some misgivings about *Touch Explorer*, wondering whether we had entered too much text with too little repetition. Three schools reported that it had gone down well with the more able pupils but was hard going for the less able. Another school felt it was too hard. This feedback is valuable for us; our misgivings were justified – we should have had two ability levels in this program.

The non concept keyboard programs were used as much as the others. *Crossword Callup* has been used but not as much as we had thought. This may be due to the small vocabulary of the pupils at this early stage of the project. *Four Games Wordplay* has proved to be very popular, especially with the less able. French vocabulary is being learned painlessly and the learning is fun. French Logo has been tried in three schools. Two schools were already reasonably fluent in Logo so that French commands gave them something to think about. The third school had no knowledge of Logo but pupil pressure has persuaded them to venture into the Logo world, in English, so that they can move

on into French next term. Two schools had pupils writing little Winter stories in *Folio* and one school even produced a newspaper front page using *Front Page Extra*.

Schools using the software have reported a favourable response from the pupils. The children are keen to do vocabulary reinforcement at the computer and appear to get a lot from it. By working in twos or threes they are willing to try and sound out words and sentences that appear on the screen. The enthusiasm that the software has been generating is very encouraging for us but perhaps the most unexpected bonus has come from the modern languages teachers at the secondary school. They want to know more about the software and how to use it. Next term we shall be running courses for them. At last, a common language across the great divide!

Software details

CK Match: Schools in Scotland apply to Regional Computer Centre (SMDP/SCET 124). All other educational establishments apply to Scetlander, (CK Matching), 74 Victoria Crescent Road, Glasgow G12 9JN.
CK Sequencer and *Touch Explorer*: Free to all UK non-fee-paying schools. All enquiries to Ian Singer, c/o T.D.C. Blackburn Academy, Blackburn, W. Lothian.
Crossword Callup: N. Micromedia, Coach Lane Campus, Newcastle upon Tyne NE7 7M.
Four Games Wordplay: 100 Lines Software, 8 St Stephens Road, Cold Norton, Chelmsford, Essex CM3 6JE.
Folio: Tediman Software, PO Box 23, Southampton, Hants SO9 7BD.
Front Page Extra: contact MAPE regional organiser.

On the right lines

Simon Hill
Windlesham House School, West Sussex

In a previous article (*MICRO-SCOPE 28*, 'To build a robot . . .') I discussed some of the merits of Fischertechnik and Lego Technic. Until recently, Fischertechnik's wide range of electrical sensors and other components has made it the natural choice for the would-be robot-builder, the microswitches and potentiometers being particularly useful for control purposes. However, Lego Technic have now brought out optosensors, a new interface for the BBC micro and the excellent *Lines* control program. This means that children can build relatively sophisticated robots with Lego and also write programs to control them, using a language resembling Logo.

Construction

Last term's robotics activity at Windlesham was an experiment to see what eight ten-year-olds could do with Lego Technic 1092 kits, a few gearboxes and some spares sets. The results were very encouraging. Most of the robots were based upon designs from *Make and Program Your Own Robots* by William Clark. This book was written for the Sinclair Spectrum user and suggests using the Robotek interface and simple, homemade switches. However, it is easy to modify Clark's robots to work with a BBC and *Lines*. The inclusion of gearboxes and optosensors made accurate control possible. The whirly turtle and the maxi arm were perhaps the best robots we built, although the mini arm worked well after modifications to the original design.

While Lego Technic is in some respects very suitable because so many children have used it before, it does have its limitations. The fixing system of knobs and holes for holding components together – a system actually based on a feature from ancient Greek architecture – is relatively weak. Thus some robots tend to fall apart under their own weight! Our attempts to build the Lego buggy described in Pawson's *The Robot Book* were disastrous until we added reinforcing cross-beams not included in his designs.

Compared with Fischertechnik's 6-volt motors and minimotors, Lego Technic's 4.5-volt motors are feeble, although the small 20:1 gearbox helps considerably. Giving fewer revolutions and much greater torque, it is invaluable for robot arms. The children found the larger gearbox to be particularly useful for buggies.

Interfacing

Linking an electromechanical device to a computer is called interfacing. This is essential because, despite their apparent speed and power, computers operate on tiny electronic signals. Neither the currents nor the voltages

inside a computer are large enough to power electric motors directly. Were you to connect a motor straight to the output port of most computers, the motor would not turn and there would be a very real risk of damaging the computer's microchips. Therefore it is necessary to use an interface, an electronic device that acts as a 'go-between', regulating the voltages that go to and from the computer and allowing the user to control motors, lights and other electro-mechanical components without the risk of damaging the computer.

The Lego interface is a compact black box of sturdy construction. It has two input channels for 'feedback' from the optosensors and six 4.5-volt sockets. The latter can be bridged to provide three reversible outputs and there is also an unswitched output. In practice the children found that using the Lego interface was easy. Its simple and solid design means that it is ideal for introducing Control Technology to younger children. While fewer outputs means less initial confusion, perhaps eventually it would prove restricting. In the future we are hoping to experiment with the Philip Harris POJO interface, as its eight outputs make it a good choice for the would-be robotic musician.

Control programs

Having used both the Fischertechnik Computing Kit's programs and the Economatics *Robed* program, I am convinced that neither of them is ideal for children of Middle School age. The Fischertechnik bespoke software does it all for you: LOAD and RUN the program and your robot works first time, provided that it is constructed correctly. The programs can only be modified if you have a good knowledge of BASIC. *Robed*, on the other hand, does allow the user to write a quite sophisticated set of instructions for robotic control, but it is far from being 'user-friendly'. Most ten-year-olds (and quite a few adults!) would find the *Robed* manual unintelligible.

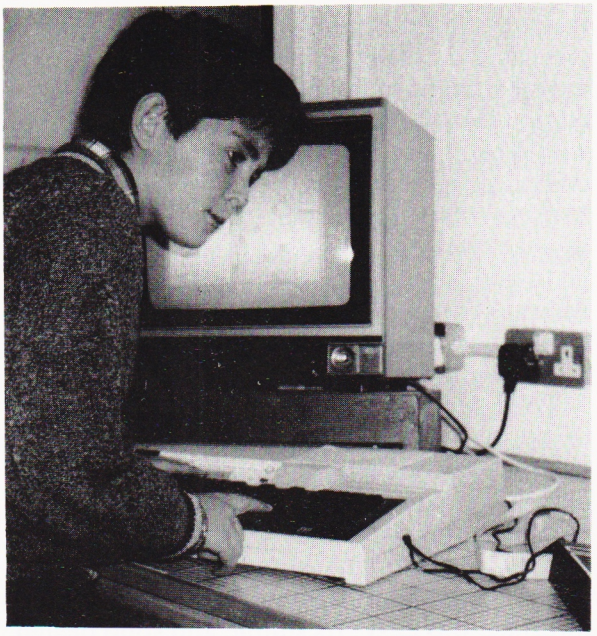
Richard Bennet ('All the fun of a Lego fair', *Educational Computing*, November 1988) has shown how Lego Technic can be used very successfully with Control Logo. However, with our 1092 sets and interfaces came the Lego *Lines* program, a language developed by the Lego company for use with the Technic components, and this proved to be very suitable for our purposes. Commands such as MOTOR, LIGHTON and REPEAT were easy to understand, although there was some confusion with COUNT. The clear function strip, excellent

documentation and the laminated card of programming examples were very helpful.

Control Technology and the National Curriculum

While the National Curriculum makes references to Control Technology, there seems to be little consensus about what CT really is. Valiant turtles, Big Trak and the BBC buggy have their place, but surely it is more educational (and motivating) for children to build their own robots *and* write the programs to control them? Lego Technic and *Lines* have now made this possible.

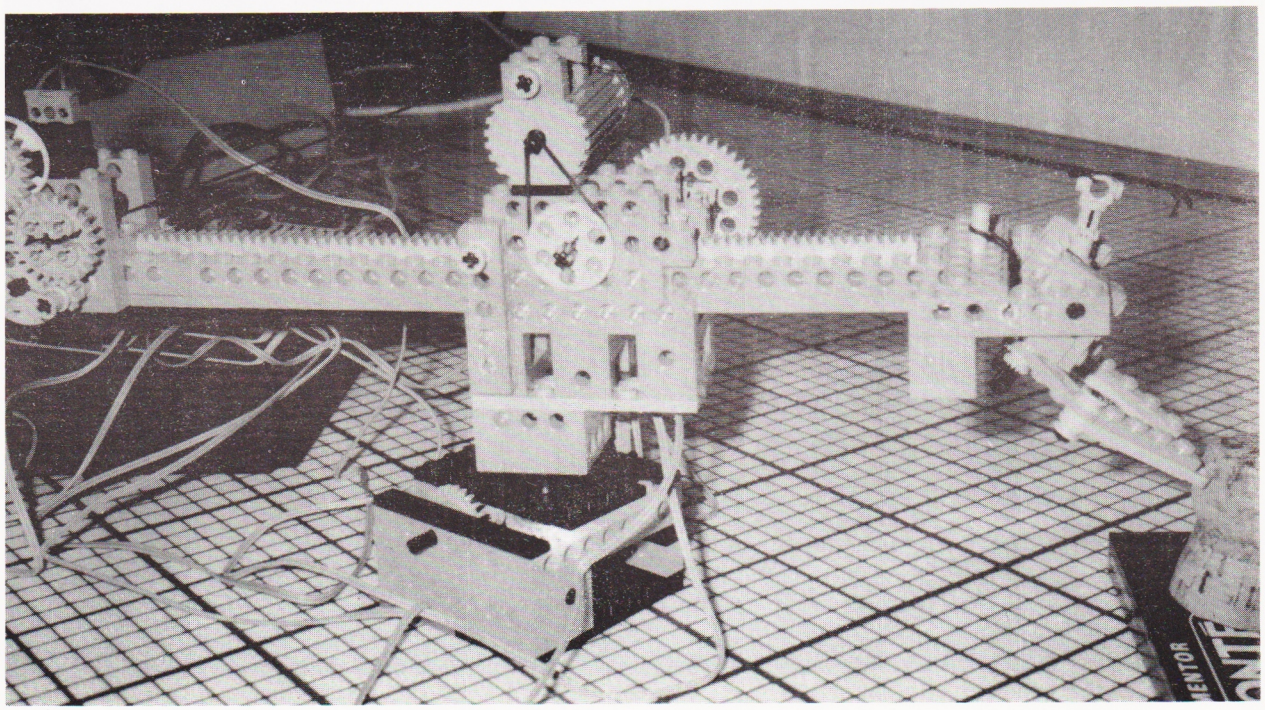
Having seen how children at Windlesham respond to the challenges of Control Technology, I believe that the reciprocal relationship between construction and control is a vital one. This cannot be understood properly when one is using a robot device built by someone else. Furthermore, operating a completed robot soon becomes dull because children want to change it and experiment. 'What happens if . . . ?' is an excellent question when altering a robot made of Lego or modifying a program written with *Lines*, but any experimentation inside an electromechanical device such as a Valiant turtle is likely to invalidate the manufacturer's warranty. Therefore the National Curriculum's Design and Technology Proposals fail to make clear the desirability of enabling children to program robots that they themselves have built. Indeed, I wonder whether such a possibility has been envisaged by those responsible for the Proposals. However, the children involved in last term's robotics activity at Windlesham have proved that it is both desirable and possible.



'Robot building can be a fascinating hobby, combining the skills of the programmer with those of the model engineer, and it has considerable educational value too.'
(Richard Pawson, *The Robot Book*)

Some useful references and addresses

Make and Program Your Own Robots by William Clark (Beaver Books).
'All the fun of a Lego fair' by Richard Bennett (*Educational Computing*, November 1988).
The Robot Book by Richard Pawson (Windward).
'To build a robot . . .' by Simon Hill (*MICRO-SCOPE 28*).
Economatics (Education) Ltd., Epic House, Orgreave Road, Handsworth, Sheffield S13 9LQ.
Lego (UK) Ltd., Wrexham, Clwyd LL13 7TQ.



Getting it together with a Z88

Chris Robinson
Deputy Head, Horndean Middle School, Hampshire

I am a self-confessed Logophile.

Computers and software are expensive resources seldom used to their full potential. How frequently are we seduced with glossy advertising for massive Megabytes, hard discs and mice? How frequently do we feel persuaded that the next piece of software will answer all our prayers to make our jobs easier? How frequently do we use the computer because it's our turn and it keeps a group of children occupied, without really considering whether it is helping them learn?

Do we really consider the educational viability of these resources? Do children really need £3000 computers and a similar expenditure on software to enable them to learn effectively?

My original Spectrum (the seventh off the production line in June 1982) is still going strong and used in school nearly every day using just one piece of software: Logo. At my school, we use five BBC B computers, two A410 Archimedes computers, one IBM PC, one Amstrad 2068 occasionally, up to two Spectrums of my own and my Z88. (The last machine is the only one we don't have Logo for and yet it plays a very important role in our use of Logo.) Logo is used throughout the school. We use it to develop many mathematical skills through turtle graphics; we use it for control technology; and we use it for language development in writing adventure games.

Placing all the different machines next to one another, all using Logo, their screen output and operation can be made to look fairly similar. Spectrum turtle graphics can easily be scaled to be identical to Beeb and Archie Logo and with background set to black, pencolour white and Caps Lock on, the only difference will be conditional predicates ending in P or ?. (Apart, that is, from the extra facilities available in the former and the disc-based extensions available for the latter.) Side by side, original (LCSI) IBM Logo and Spectrum Logo are even more compatible – for screen scaling and primitives. However, we now have *LogoWriter* running on the IBM, the Amstrad and (occasionally, with the MS DOS emulator) on our Archimedes.

But operational compatibility is often insufficient. Occasionally, work started on one machine may be needed on another – to continue with it, or for another group wishing to develop an idea further, etc. That's where the Z88 is so useful. In a matter of moments, the Spectrum is joined to the Z88 and data and procedures sent to it. If it is likely to contain any conditional predicates, a 'CLI' file is automatically executed to search and replace them in the data copied into a *Pipedream* document before joining the machine to the Beeb and sending it on to work on it.

I wish the Z88 had a version of Logo that worked on it. I frequently have children using the Z88's wordprocessor, *Pipedream*. Sometimes, they use it to write Logo procedures, untested, which we have to send to a different machine to try out later. All this brings me to my 'ideal' classroom machine.

Each class would be equipped with a 'class rack' and up to eight portable machines. The portable machines would be little larger than a paperback book. Hinging open the postcard sized black-and-white LCD screen would turn the computer on. Resident within it (either permanently or uploaded from the class rack) would be a wordprocessor, simple database, spreadsheet, Logo (with text-handling capabilities and control primitives extension), calculator and communications software. It wouldn't need to be multitasking, 32-bit, have masses of RAM memory, nor have inbuilt permanent storage (apart from rechargeable battery maintenance of suspended work in progress). It might be nice to have a touch-sensitive screen to select applications from a menu, though function keys beside the screen (in the manner of bank autoteller machines) could serve. The main consideration would be cost. It would have to be below £50 (excluding VAT) to educational establishments.

The class rack would consist of a rack with slots for up to eight portable machines to plug in for automatic battery recharging overnight. It would also be equipped with permanent storage on MS DOS readable removable floppy discs (plus possibly hard disc) and a printer. All work resident in the portable machines could be backed up to permanent storage by pressing a single button (either on the rack or on the portable machine). It would not be necessary for the class rack to be a 'computer' as such in its own right. Again the main consideration would be cost. Excluding VAT, it must be less than £250 to educational establishments.

A special package of class racks plus six portable machines should be offered for £500.

The costs may seem suicidal but if DES/DTI could help out with R&D, costs should be manageable. There may appear to be negligible profit but with 27,000 primary schools able to afford at least one package, the market begins to look viable. If schools attempted to acquire one set per classroom, that would amount to around a quarter of a million sets (i.e. 1.5 million portable machines!).

The knock-on effect could be that there was a demand for 'home racks' (to hold one or two portable computers) and personal machines with no necessity for advertising costs – schools providing the 'free' advertising. This should make these proposals seem more interesting to a manufacturer.

The machine would need to be further capable of expansion, so modems, control interfaces, floor turtles, concept keyboards etc could all be attached. There should also be the possibility of linking a colour monitor to provide visible output to a wider audience than the groups of three that would usually be expected to work at each computer in a primary classroom.

Letters to the editor

The Orb of Zalibar programs

Here is a kid's view of the programs. As such it may not be what a 'professional' would write but it does show what some children felt about the programs. I certainly felt that the programs were excellent and all the children have both benefited from and enjoyed them, though some used the database more as a book than a database. Children benefited in different ways including some considerable arguing about mapping the labyrinth between children who had directions round their necks.

The two girls who wrote and typed (with minor alterations) this review were both first-year secondary pupils. They had apparently rarely used computers for educational purposes before this year (both being new here and from different schools) and neither had ever previously used a database.

In our school for a variety of reasons the computers stay in a computer room and children are timetabled there. This has certain disadvantages as well as some advantages. It does however mean that programs do not tend to be directly linked to work in other areas of the curriculum. In different circumstances a lot more could be made of links with art, creative writing etc. So far I have used the programs with these children and fourth-year juniors but I intend to use the programs with third-year juniors next time and follow it with the children making their own database to rival 'Rooms' as an alternative scenario. I personally use the computer with all children from first-year junior to first-year secondary level.

L. Catchick
Dagfa House School
Nottingham

The Orb of Zalibar Programs – a review

We enjoyed using this program very much. The story was helpful because it gave us a clue to where the Orb was hidden. The story booklet said that it was hidden in a room so bright, reflecting its image day and night. This told us it was in the Hall of Mirrors. The booklet also told us we had to recharge the Orb because it was losing its power.

Now we had to look at the computer database and look through the Orb file. This contained every living thing in Zalibar. One problem was that we were misled by some people's statements. A quick way to sort out the files was to use the searches, as if you were sorting evil from good or just looking for creatures with scales. We now know how to use the files on the computer. Searching through was fairly simple but sometimes it got a bit boring.

Next we had to find the Orb. The first thing we did was to sort out the rooms and make a map of Drogon's palace. Then we had to look through all the people again and find six people to help us to get through the hazards in Drogon's palace. One problem was that we had to find someone to get us through the Ice Room. At last we found Saltflid, a creature who sprays salt. He would be able to melt the block of ice which blocks the entrance to the Ice Room. Then we needed to find two more people to get us through the Pass of Boulders and over Fellows Deep where the bridge had fallen in.

We talked to each other when we were stuck and while one of us was making a map of Drogon's palace the other one wrote down the hazards we might come across.

The adventure was worth having but it would be better if it was longer. It might have helped if we had not got the right people straight away. The program could be improved by making the adventure longer, this could be done by adding surprise hazards.

Over all we enjoyed the program and we recommend it to children who like detective games. We learnt how to use the databases and other things in the program.

Debbie Revill and *Kelly O'Mahony*

Sentence Maker – Chuffer modified

I was interested to read Sheila Wilson's article in *MICRO-SCOPE 29* as I had a similar experience in trying to put Breakthrough words on to a *Folio* concept keyboard overlay – there was not enough room! The Overlay 1 overleaf – 'news' on *Folio* – is an adaptation using the most used or useful Breakthrough words with 'garden', 'tree' and 'park' added. Like Sheila I did not include the spaces after words because the children need encouraging to make spaces with their individual sentence makers; but I also wished to include the inflexions 'es', 's', 'ed' and 'ing' and these are easier to use without having to delete a space first.

I made the other two overlays using *Stylus*, which will support more words, but practice has shown that the *Folio* overlay has sufficient words for children to get started. With the slower groups that I work with I make sheets with only the words that at least one person in the group knows written on them. The other words are available 'underneath' and can be used if requested and added when recognised.

Some children have difficulty remembering and ordering words and before we had a concept keyboard I used to alter the data statements in Anita Straker's *Chuffer* to include sentences which we had made together, with the large 'Breakthrough', to give interesting repetition. (The same sentences can be used yet again with *Infant Tray* if more practice is needed.) Most children will not need this extra repetition; for them overlays containing phrases and harder words related to the current topic are more useful.

One day I went into school and the keyboard was not available. Few schools have one concept keyboard for each computer! This led me to make an adaptation of *Chuffer*. It took me much longer than I expected and it could still be improved by a facility to read the names of the sentence files on the disc from inside the program. Nevertheless it has proved very useful – even though the sentences cannot always be as long as the children suggest. I am happy to let readers have a copy if they send me a blank, formatted BBC disc, a self-addressed label and 32p in stamps.

The program allows teachers to discuss with the children what they want to say; then write up to ten sentences on the computer with them. Once the sentences have been entered into a file the words for each sentence are displayed on screen in a jumbled order. The child has to order the words to form the original sentence. The group can be left to play with ordering their own sentences. With the less able children I find that, when the words appear, a quick reminder of what the sentence says is helpful.

Alternatively the teacher can prepare a file, incorporating facts and vocabulary about the current topic, which will reinforce learning. Using the 'record' facility it is also often possible to assess whether learning has taken place.

Here is an example of a sentence file used with the children. The file was named 'Calenda', and aimed to reinforce day and month names and order. Other files included 'McKIVER' (when the children had learnt the song), and 'NUMBER' (to teach number words and ordering). The rest were made with groups of between two and six children about the topic of the moment.

A sample file for *Sentence Maker*

Sunday comes before Monday
Wednesday comes after Tuesday
Thursday comes after Wednesday
Saturday comes after Friday
March is the third month
June comes after May
December is in the winter
August is the holiday month
July comes after June
February is before January

The program always puts capitals at the beginning of each sentence when the sentences are ordered. Whether or not capitals are used at the beginning of sentences written for the file depends on the needs of the children who will be using it. With sentences like 'Bananas and lemons are yellow' which can be correctly ordered in two ways a capital is essential if the children are not sometimes to be unfairly deemed incorrect. With other sentences however capitals might give too great a clue.

Pearl Marriage
Windmill Pasture, Springfield
Chelmsford CM1 5TG

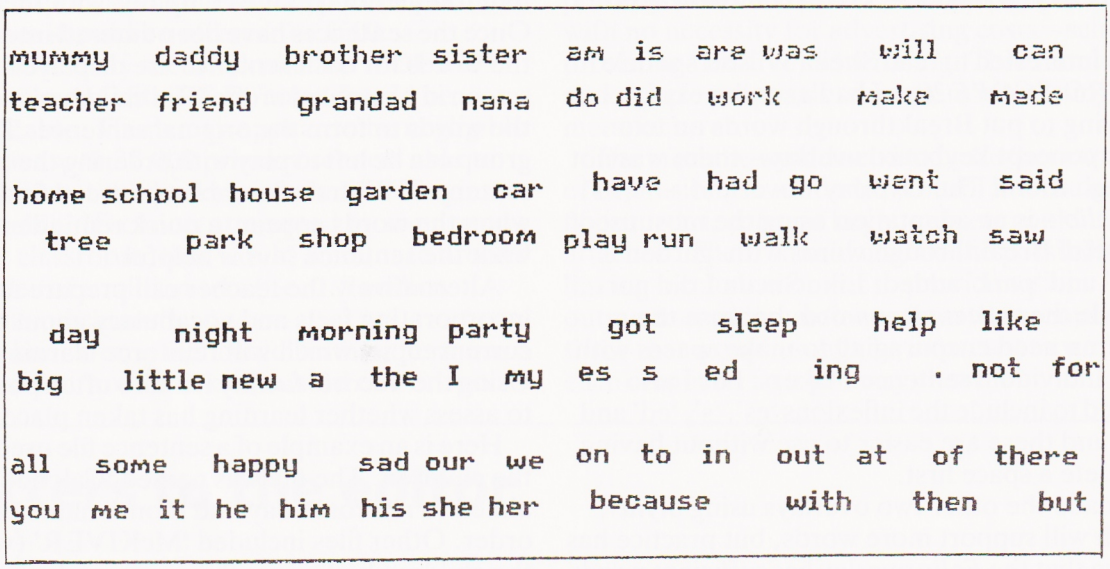


Figure 1 'News' on *Folio*.

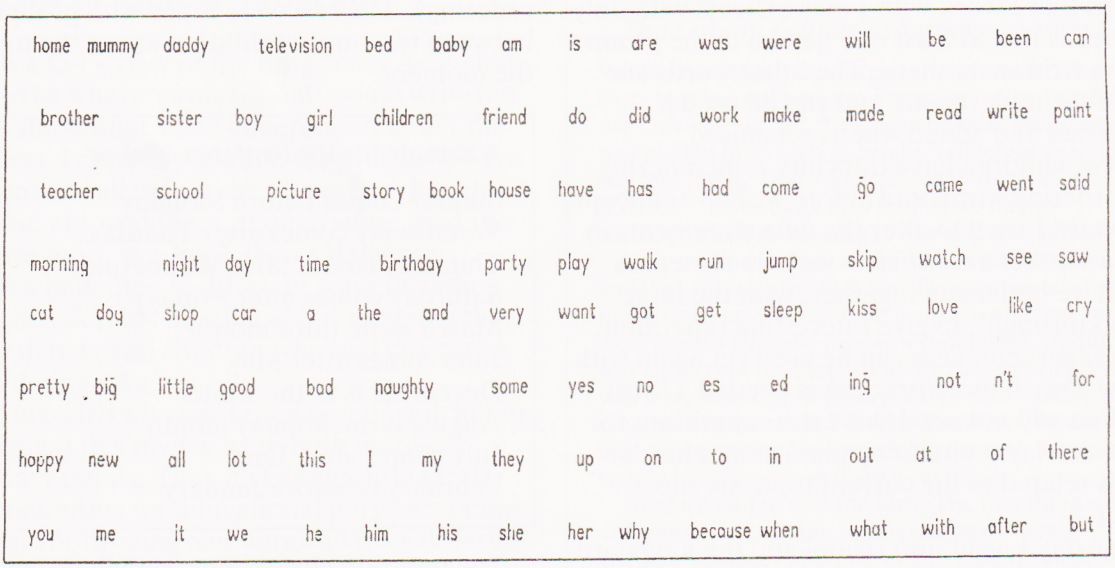


Figure 2 Breakthrough on *Stylus*.

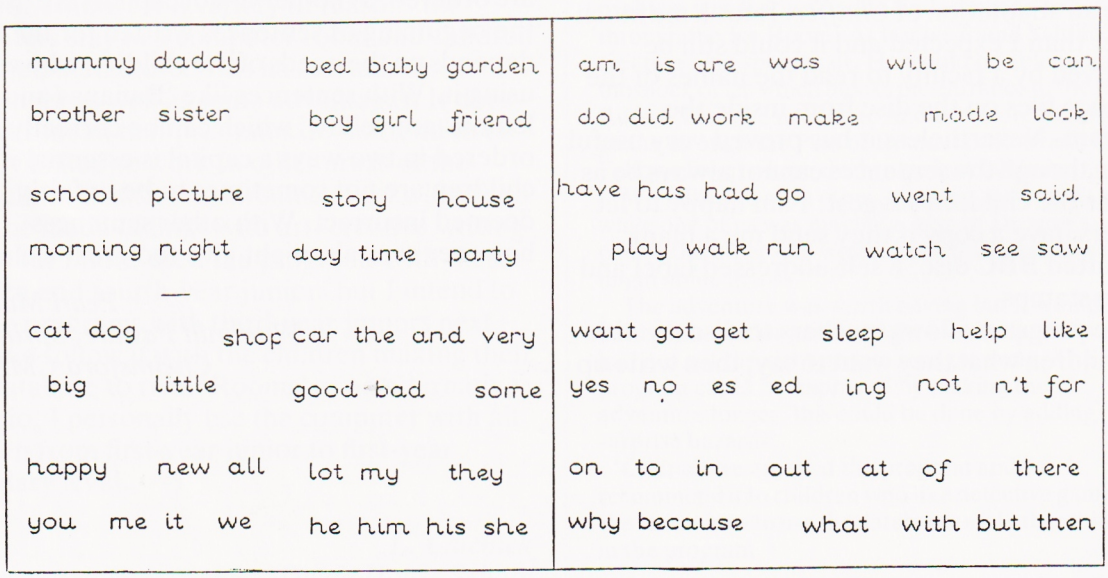


Figure 3 Breakthrough on *Stylus*.

Musings on the educational IT scene

Chris Hurrell
Advisory Teacher, Shropshire LEA

Word Processing versus Typewriting

Word Processing with a micro is not Typewriting even though they share a similar keyboard. The skills that go to make up Word Processing are very different from the skills that go to make up Typewriting. Typewriting may contain elements of Word Processing and vice versa but they are basically different. Typewriting is about the presentation of text whilst Word Processing is about the creation and manipulation of ideas in a textual form. The eventual audience for the text will influence its creation, but the need for an attractive product can overshadow the need for quality of content.

Into this field of Word Processing and Typewriting comes the notion of the Text Enhancer. These often go under the guise of Word Processors and are called as such by the publishers and teachers, but in my view programs such as *Folio* and *Concept Writer* are not Word Processors but Text Enhancers. Let me explain: with the two previously mentioned programs the text stays in the same order as it is typed in, the user can insert and delete but there is no basic manipulation or re-ordering of text available. What comes out of the printer is a product that has prettified the text that was entered and very little else.

Compare this with a real word processor such as MEP *Infant Writer* (a much maligned and underrated program) which does allow the movement of blocks of text, and has no pretentions of producing an end product that could be called attractive. This program addresses the process of text creation and allows real drafting and re-drafting of text to take place without the influence of quality presentation clouding the issue. I think that there needs to be a radical re-alignment of thinking to take on the different notions of product and process when talking about word processors.

The skill of Word Processing goes far beyond the mechanical trick of hitting the right key at the right time and producing hard copy out of the printer. Word Processing involves a different approach to the creative processes involved in writing: it is no longer a linear activity starting at the beginning and going on until the end, but more of a means for sorting out the jumble sale of ideas that wash around in the writer's head as the writing process unfolds.

Look back to the *MICRO-SCOPE Writing Special* and re-read Peter Hunter's excellent article on word processing and have a think. Using a proper Word Processor allows a different method of writing to take place. A Word Processor is not an electronic substitute for the pencil.

If it's new it must be . . .

Having attended the usual round of shows, conferences, INSET meetings, and sherry-laden presentations by slick young fellas in over-large suits, a thought has been growing in my mind about the pace of change. There seems to be a lot of '. . . It's new . . . therefore it must be better' going on. This is fine for those technofreaks up and running at the front of the pack, those without the ball and chain of a class of children to educate, but for those who actually have to deliver the National Curriculum, rather than talk about it, things are a bit different. How does the teacher with a micro, passing through the classroom as often as Halley's Comet, implement all this 'New' – the thought of the old Beatles' number, 'Eight days a week', comes drifting through my mind. While the 'New' fanatics zap off into hyperspace they leave a very large number of teachers clapping their hands to their ears saying, 'Go away (or something else), I haven't got to grips with the first stuff yet and there you are telling me it's old, out of date, and what I really want is *Megaword* from "Slicko Software".' What I really want is to know why the hell should I use *Megaword*? What will it do for the children in my class? How will it make my task of delivering an English AT, or whatever it is, any easier? Will it help Jason spell 'because' correctly, and will it ever stop Kylie from putting a full stop at the end of EVERY line? Like hell it will! Teaching children will always involve love and organisation. Into the gumbo that goes to make up a classroom the micro must come at first as a welcome visitor who is invited to stay, and not as a tolerated intruder who we can't wait to see the back of. The welcome visitor may be a bit like your favourite carpet slippers, useful, friendly and familiar. How would you like to have new carpet slippers every day?

Don't get me wrong, I am not a Luddite, but I think care needs to be taken or a lot of healthy babies will find themselves thrown outside into the drains.

Software review

Title: **Auntie's Gift Shop**
Publisher: Fernleaf Educational Software, Fernleaf House, 31 Old Road West, Gravesend, Kent DA11 0LH
Machine: Acorn BBC B, B+, Master 128
Price: £17.95

Auntie's Gift Shop is the first in a series of four computer programs which constitute 'The Fernleaf Drama Series'. The program is intended for ages seven to nine-plus. The package comes complete with one disc (40T), a Program Guide and a photocopiable Diary.

The program is designed to introduce children to the accessing of data in order to achieve a task. Its aim is to foster information processing skills through the presentation of a situation which involves facts and offers a structural approach to resolving a problem.

The package uses the idea of setting up a shop to introduce:

1. use of evidence;
2. use of menus;
3. evaluation of work done.

Background information

The children, working in small groups, take on the role of the eldest niece/nephew of their aunt who has died, leaving six shops in her will. The children can choose one of the shops for themselves. To help them make the 'best' choice, information is available on the location of the shops, the type of shop they can set up and the type of shop preferred by the local people in each location. The children have also been left a small amount of money by their aunt which is to be used for refitting and stocking the shop and for advertising.

The group chooses what kind of person they wish to be and their preferred interests. (An option is available which allows the computer to make these choices.)

The task is to choose and set up the shop which is best for everyone and marks are gained for re-fitting and advertising – the latter two aspects forming the evaluation part of the program.

Using the program

Auntie's Gift Shop is divided up into six Acts:

Act 1: How the story starts
Act 2: Choose your character
Act 3: Choose your interests
Act 4: Choose your shop
Act 5: Setting up your shop
Act 6: Your future

The early Acts are short. Acts 4 and 5 need careful consideration of the available data – accessed via D for Databank. Act 6 is an evaluation of the decisions made. A glossary is available from Act 2 onwards – accessed via W for Words you will need to know. A feature I'm sure most teachers will welcome and one which children will find invaluable.

For groups using the program it is essential to have a copy of Auntie's Gift Shop Diary. The children use this to keep notes and record their choices for each Act. This is another invaluable learning resource, especially for the teacher hard-pressed for time!

Act 1 sets the story/content for each group. Each time the program is accessed it starts at Act 1 Menu page, giving the group the option to start the program or to carry on from a previously saved position.

Act 6 gives an evaluation of the decisions made in the earlier Acts and comprises two sections: Suitability – which takes into account the consistency of decisions made, and Budget – which gives a score for actual expenditure.

The menus

The program is menu-driven in that information and decision elements are accessed via a series of menus – the object being to introduce this format of program.

Each Act has its own menu. The menus are in alphabetical order so that care must be taken to access the files in an appropriate order. This systematic approach to the resolution of the situation is the underlying purpose of the program. On all menu pages is Q for Leave the computer. This enables the group to leave the computer with work completed up to that moment stored on the program disc. It should be noted that there is also a Filesystem Menu (accessed only from the title page: CTRL F) which is for the benefit of the teacher only and self-explanatory.

Associated activities

1. Make a graph of the different types of shop in a given area.
2. Design and make the shops from the program.
3. 'Build' shops from the program in the classroom.
4. Conduct a survey to compare prices in shops within the same area: local grocery store/supermarket etc.
5. Survey local shoppers to find out what their ideal shopping centre would provide . . . then design it and make a model.
6. Display 'shops' with associated vocabulary.
7. Draw local maps showing the location of various shops.
8. Look at advertising.
9. Build up an Information Booklet for each of the locations in the program.
10. Draw a map of 9 and build a model village/town.

Auntie's Gift Shop is an easy-to-use program and one I'm sure that children will enjoy and get a lot out of.

Lynn Partridge
Christ Church C of E Primary School
Dudley LEA

Book review

Title: **Using IT across the National Curriculum**
Author: Sue Senior
Publisher: Owlet Books, 'Ballochantuy', Tunstall Rd, Tunstall, Nr. Sittingbourne, Kent ME10 1YG
Price: £8.95 (245 pp)

Sue Senior has a varied career background which culminated in advisory work followed by a headship in Kent. Sue got this book out phenomenally quickly by publishing it herself. She embarked upon it just after the MAPE Conference '89 and had a printed copy in her hand around October. The first thousand copies were sold by Christmas. Because she had to go to a reprint so quickly, Sue took the opportunity of revising the first edition in the light of the new technology documents so the book that is available now is completely up to date. Additionally, her general help and guidance should continue to prove valid for several years to come. Sue has used some fairly recent software as well as a bank of 'realistic' software (in that they are the programs found in a lot of schools) in a soundly educational way.

The book begins with a brief section that includes an overview of both the National Curriculum itself and the use of computers in education. It quickly moves on to make some valid and useful points about the classroom organisation of computer-related activities. It was pleasing to note that the problem of catering for a range of levels in the class had been addressed. This theoretical start soon gives way to solid practical ideas that anyone, once barely familiar with the software, could start to skim for ideas whilst planning a topic.

In the first section Sue relates a range of software to cross-curricular topics. The range comprises MAPE's *Lost Owl* software, (good old) *Granny's Garden, Puff, Dinosaurs, Fletcher's Castle* and *Cars – Maths in Motion*.

The second section deals with information handling. It was pleasing to see that so many related worthwhile 'off-computer' activities had been linked into the schemes. It promoted a balanced view of computer use. Examples from *All About Me, Data Show, Ourselves, List Explorer* and *Grass* are used to show how different data handling skills can be introduced early on by relating them to information about ourselves and developed later by the use of more sophisticated databases in conjunction with a simulation such as *Police – Language in Evidence*.

Chapter Two, on word processing, outlines how it can contribute to the five elements of the writing process identified in the National Curriculum and concentrates mainly on the facilitation of factual writing.

The section on programming, graphics and design covers Logo (mainly turtle graphics in fact), and the use of the Deltronics control box.

Lastly, there is a small section on pattern generation which explores simple computer-aided design programs including the new *Design a Castle* (with which Sue has considerable experience, judging by the theme she led at the 1990 MAPE Conference) and a mention of the use of *Compose*.

The book finishes with a concise bibliography, and a list of useful software and resource information.

Incorporated into each sub-section are topic flow diagrams and some particularly useful tables relating the suggested activities involved in each topic to the Attainment Targets in the subject areas of English, Mathematics, Science and Design & Technology at the appropriate levels. Even if you don't learn very much about computers you learn your 'ATs' off pat.

If as a teacher, trainer or student you feel that you would like to see how someone else has linked the worthwhile topic work they did reasonably recently to the National Curriculum requirements, this is a rather useful 'little' book.

Published alongside is *Data Handling Key Stage 1* (44 pages in a large format for £5.95) which covers what appears to be every aspect of the subject at this level in a completely cross-curricular way. It makes an excellent introduction to this area of work for both the new and experienced infant teacher. Although I have considerable experience of data handling, I thought that the activities and skills and concepts flowcharts built around the topic 'Shopping' and the related Attainment Target charts plus outlines for assessment and record keeping were exemplary and might help some schools get off the ground in this area.

Sarah Earl

Write for *MICRO-SCOPE*

The Spring term edition of *MICRO-SCOPE* will mark the tenth anniversary of its first publication. In order to mark this momentous occasion we are inviting readers everywhere to write in with anecdotes about MAPE, *MICRO-SCOPE*, and anything related to Information Technology. This current edition, number 30, includes two letters from readers, which is quite a record as I seldom get any letters to the editor. I've been reading about a teenage boy who asked people to send him postcards as he wanted an entry in the Guinness Book of Records. The unofficial count is 2,000,000 already received. Get in the MAPE book of records by writing to the Editor!

We are hoping to make the tenth anniversary edition rather special. It will be one that you will want to keep for at least the next ten years. The contents are going to cover the past, the present and the future. Take the opportunity to have your opinions included. We are hoping to get a range of sponsors but as this is in the early stages I can't promise rewards for letters or articles. The joy of seeing your writing in print will have to do.

The final copy date is December 1st 1990, but don't wait for that, pick up your biro/fountain pen/word processor and write to the Editor.

Senga Whiteman

Getting IT in perspective – Conference '90

Photo 1

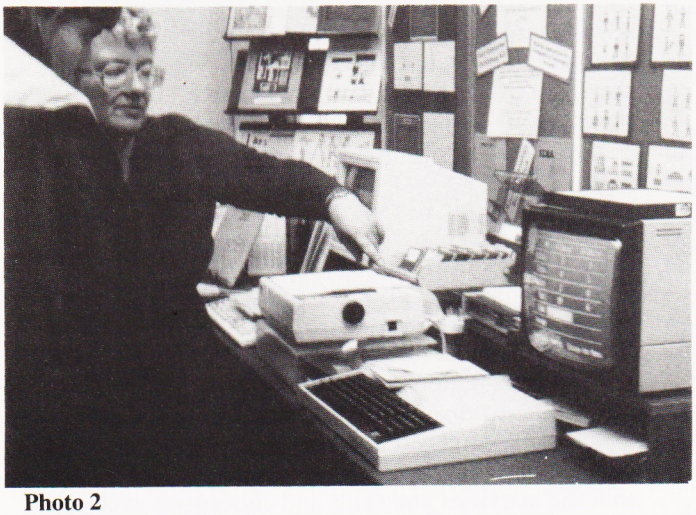


Photo 2

Mick Nadal

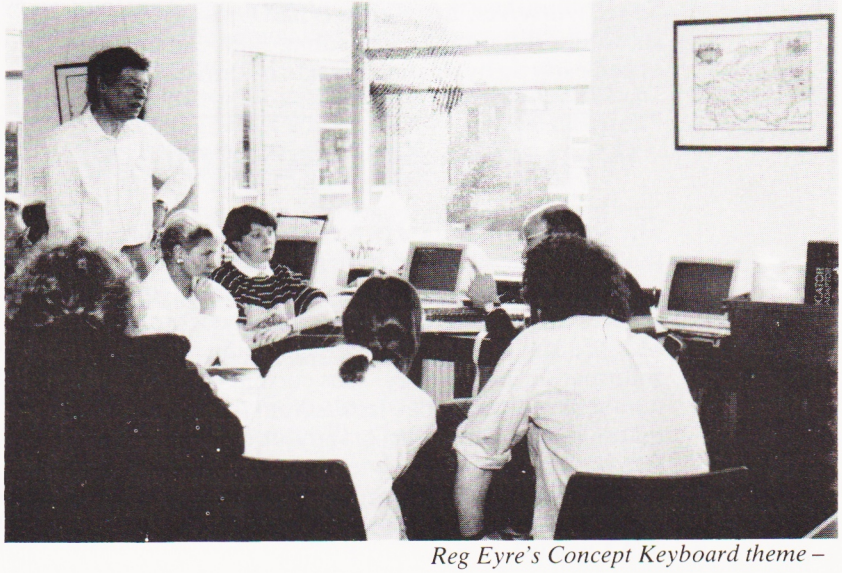
You know how it is! You promise to 'do something' about the Conference, but when it comes down to it, here I am sitting in front of a word processor wondering just what. In the past I have attended Conferences as a delegate and as a Theme provider. This year, being involved in the organisation, means that I feel I know less about what actually went on, than in either of the other roles. Well I do have the photographs to help, so here goes.

The 10th Annual MAPE Conference came and went and with the East Midland Region playing host, the venue was Nottingham University. Fortunately, the weather was kind to us, or the pleasant wander across the campus from one site to another might have been more of a dash (Photo 1).

With a decade of changes behind us and the National Curriculum with us, it seemed that now was a good time for 'Getting IT in Perspective'. The welcome letter in the programme reflected on some of the changes, not only in the hardware or software, but more importantly in the development of IT as a process across the curriculum.

The event, the largest of its kind so far, included many of the features of previous conferences. If you have not yet been lucky enough to attend one, the format includes short 'Presentations' on a wide range of topics, longer 'Themes' that can be followed for the duration of the conference, 'Keynote Lectures' by guest

Photo 3



Reg Eyre's Concept Keyboard theme –

speakers, hardware and software exhibitions (Photo 2). There were also a number of receptions hosted by manufacturers. One item though, the 'After Dinner Speech' by Gervaise (or was it Jervis) Finn, was the highlight for me. Although not about IT, it was a mixture of hilarious anecdotes and stories about children, education and school in general (Photo 3).

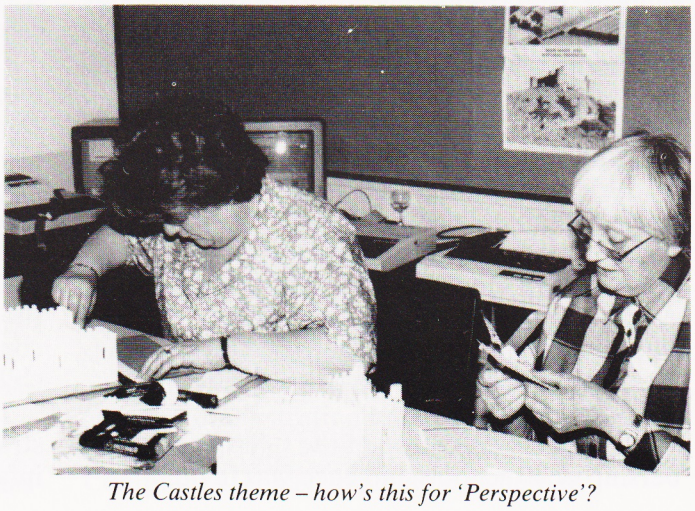
But it is not just the organised activities that make the MAPE Conference what it is. The renewal of friendships or the making of new ones, the enthusiasm for making education rich and varied, the interest in new developments – these are the things that really make it. The 'professional refreshment' that takes place in this atmosphere adds to the more obvious 'professional training opportunities'. It is hard to capture these things in words, so on these pages are a few photographs that make an effort to record a little more of the things that made Conference '90.

Not all of the varied aspects of the Conference are covered here and if they were, it could only be as a list. Certainly not all of the themes and presentations can be included in this record, but it is hoped that the ones that are, give some of the 'impressions' that I gained at Conference '90. Perhaps for those of you who attended, it brings back pleasant memories and for those who were not there, it raises interest in attending future ones. I for one, am looking forward to Conference '91.

PIP needs no other advert!

Design IT, Make IT – the enjoyment speaks for itself.

– obviously absorbing.



The Castles theme – how's this for 'Perspective'?

GSA Southern Region: Junior Heads Group IT, Computers and the National Curriculum

Lynda Woods
Headmistress: Burgess Hill School for Girls, Junior School
Chairman: GSA Southern Region Junior Heads Group
Committee Member: MAPE Southern

All the Junior departments of the Independent schools in the Southern Region of the GSA (Girls School Association) are keen to implement the National Curriculum but lack the access to support services and information which is available to maintained schools. It was decided therefore to hold a day course on Saturday 10 February 1990, at Burgess Hill School for Girls, to explore the application of IT and computers in the National Curriculum and the software available for this purpose.

As chairman of the Southern Region of the GSA it fell to me to organise the event, and as a long-standing member of MAPE I was able to call upon friends and acquaintances to help!

Having been a member of the Committee of the Chiltern Region of MAPE before I moved to Sussex I was aware of the value of separate workshops for people to have significant 'hands on' experience, from the events which we had organised there. I decided to arrange the day so that an introduction was given by a keynote speaker to be followed by as wide a choice of presentations as possible for people to attend.

Through contacts made in the past in the Chiltern Region and more recently from having become a member of the Southern Region Committee of MAPE I was able to arrange for seven separate workshops to be run. Betty Lumley from Chiltern came down to talk about data handling, Chris Robson and some of her colleagues from Berkshire also gave their services, giving presentations on language programs and data processing, and Peter Aitchison inspired many with a workshop on spreadsheets. Judith Matson came to run a workshop on Adventure Games and brought with her all the material published by 4Mation including the most recent programs for the Archimedes. A further session was run by Terry Thorne, a representative from Osmiroid who showed the uninitiated how to use Teko modelling equipment.

The Southern Region of the GSA has a membership of 40 schools and each was invited to send up to three staff members to the meeting. 93 delegates were expected and it is a mark of the interest and concern among the staff that despite the appalling weather all of them turned up! They were rewarded by an extremely interesting and valuable day.

The keynote speech was given by Chris Robson and she gave us all much to think about in terms of the implications of information technology in the modern curriculum for junior schools. As the representative of MAPE Southern on the National Committee, Peter was able to do a little PR work on behalf of the organisation, with an immediate response of two new members and a potential 'captive audience' of several more!

Following the introduction by Chris, each individual was able to attend three sessions, each of which lasted for an hour and a half. As is inevitable in such a large gathering of people, experience ranged from the 'non-existent' to the 'quite competent'. Everyone was able to gain value from the sessions, many meeting new software and many being able to exchange views on classroom application of material on display. With an average workshop group of twelve people, the interchange of ideas was as valuable as the opportunity to try things out.

Both data handling and language program sessions were divided into infant and junior categories.

Data handling programs included mainly those available from NCET such as *Our Facts, Data Show* and *Data Show* with the concept keyboard. The *Sorting Game, Branch* and *List Explorer* were also used to demonstrate the wide variety of programs available even at the infant end of the school. For juniors the session began with *Our Facts*; then *Grass* was demonstrated to show how the work could be extended to more complex investigative work for upper junior children.

The language program workshops demonstrated the use of the concept keyboard with infants, (totally new to some interested parties!)

with *Prompt Writer* the main program used. Programs such as *Folio, Stylus* and *Pendown* were used at the junior level, with the implications for Desk Top Publishing being explored.

Peter used *Grasshopper* for his spreadsheet session, taking the application of computer work in data handling a step further. People who attended this session first were a little bewildered if they had not met the concept of spreadsheets before, but if they then moved on to a Data Handling session the ideas fell into place, and many then wanted to return to Peter armed with a greater degree of understanding!

As mentioned previously, Judith Matson based her talk on the programs from 4Mation. She began by giving a short talk on the availability of programs from the beginnings with *Granny's Garden* and moving on to the more involved later programs, showing us how the genre had developed with the addition of more support material for classroom study away from the keyboard, and the inclusion of open-ended software which gave increased scope for the imagination. She then left the group to explore the programs and was available to help those with questions and problems, and also was able to show those more fortunate mortals with funds the potential of the Archimedes!

Mr. Thorne from Osmiroid had brought with him boxes of Teko and people attending the session spent a happy 90 minutes modelling with this exciting material. Some disappointment was expressed that the workshop did not include the use of computer control, but this, together with work on Logo and other Mathematical, Scientific and Technological applications, must give us the basis for a future meeting . . . !

The whole day was an enormous success, thanks in no small measure to the help I received from my colleagues in MAPE. I do sincerely thank them all. I would also like to express my gratitude to the Business Studies department of the Senior School at Burgess Hill for letting me borrow their equipment. We are fortunate in our Junior School in having computers in all our classrooms, but the additional hardware meant that there was a greater opportunity for the delegates to have practical 'hands-on' experience.

The value of such meetings as this one is very great. Not only do they supply the opportunity for people to get together and share their experiences and problems, but they help to fill the gap in information dissemination between the maintained schools and their equally concerned, but sadly uninformed independent colleagues.

Thanks are due to MAPE for making it possible.

MAPE news

MAPE sponsors

I had thought I might start this piece by using the dictionary definition of a sponsor. Well you have to start somehow! I only had the Chambers Mini Dictionary to hand and as it happens the entry which attracted my attention was the one above sponsor . . .

sponger – one who lives at others' expense

Well, I suppose it's all to do with perspective – one point of view might be that by persuading the 'educational computing' industry to sponsor MAPE activities, MAPE is more of a sponger than the industry is a sponsor. However, as five of the major hardware manufacturers have provided resources to support the work of MAPE – either we are a very persuasive sponger or we are such an obviously worthwhile cause that our requests for sponsorship are irresistible!

The first company to provide support was Microvitec who supplied a Microvitec Cub computer for the use of our treasurer. This has been very useful in the preparation and maintenance of the annual accounts; in fact Keith has proudly produced some very interesting pie charts at recent executive meetings – I don't know how we managed without them before.

This donation was then followed by a Desk Top Publishing system and laser printer provided by Research Machines, which resides at Newman College and helps to produce *MICRO-SCOPE*, as well as information sheets and occasional information sent to the Executive Committee.

A recent project has been to try and set up a Communitel database which members could use as an up-to-date source of MAPE information. Cumana have provided a 40 Megabyte hard disc for use with this system, and Acorn are in the process of donating a BBC Master computer to link to it. If this goes according to plan the system should be up and running in the next few months.

A major change in the arrangements for MAPE administration has meant that we have had to set up our own MAPE office. Apple Computer UK have been able to help by

providing a Macintosh SE/30 as the main machine to be used for holding the database of members, and for day to day administration.

In addition to these generous donations of equipment aimed at helping MAPE operate more efficiently, many companies provide sponsorship in the form of sherry or wine receptions at the annual conference. This all adds up to the fact that major companies in the field of educational computing value and respect the work of MAPE to the extent that they are prepared to put their hands in their corporate pockets and provide tangible and very welcome support for our activities – for which we are very grateful!

Les Watson

North West

MAPE in the North West continues to grow; we now have a solid and hardworking Committee who meet on a regular basis to devise workshops etc.

MAPE North West has now got a home base from which we run monthly workshops on a variety of topics. These workshops are not only led by visiting speakers but also by members of the group itself.

In the future we hope to lend support to interested groups in the more distant parts of the region, by helping them form cluster groups.

Fintan Bradley

South East

MAPE South East Region held a 'Desk Top Publishing' evening at Fullwood Primary School in Barkingside on Tuesday 6 March 1990. Members travelled from as far afield as Braintree and Southend in Essex, prepared to demonstrate a wide assortment but sadly few visitors took advantage of the occasion. As usual, the few teachers who did attend the event were very interested in the programs and said that it had been worthwhile giving up their evening.

Meanwhile, Mary Rooney, who has been our Regional Representative for over a year, has had to resign because of personal commitments. The Committee would like to take this opportunity to offer Mary many thanks and to wish her every happiness when she marries in October.

Now: all you readers who live in Essex, Ilford, Barkingside and Redbridge, how about joining our Committee? We meet about once a term. If you are interested, please ring 0702 558619 and leave your name and number. In particular, would any of you like to take on the position of Regional Representative?

Jane Sealy
S.E. Region Secretary

Editor's note: In fact the region covers virtually all of London, north of the Thames, with the exception of those areas included in the Chiltern Region (listed inside back cover). If you are interested, please give Jane a ring.

Southern

The main MAPE event in the region in the first half of the year has been the AGM. This was held at King Alfred's College, Winchester on Saturday 28 March.

Almost 50 members from around the region attended the meeting and heard Chris Robson speak about IT and the National Curriculum. This was followed by a short AGM that enabled members to identify their representatives on the Regional Committee and hear an overview of what is and isn't happening around the Southern Region.

The meeting concluded with a range of worshop sessions which supported Chris' talk by displaying ways in which IT can support cross-curricular work. These included using *Printbox*, spreadsheets, *Folio* with a concept keyboard, and some ideas on what you can do with an A3000!

Earlier in the Spring term MAPE members made a major contribution to a day conference entitled 'IT, Computers and the National Curriculum'. The day was organised by the GSA Junior Heads Group and was attended by over 90 teachers from private schools across Southern England. It was a very successful and stimulating day (see Lynda Wood's article for a full report).

Across the region things are very quiet for the summer term with some plans being made for events in the early Autumn. Watch your internal mail for news of MAPE events in your part of the Southern Region.

Peter Aitchison

West Sussex

If anyone is interested in forming an active group based at Burgess Hill please ring Lynda Woods at home on 0273 492373.

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MAPE CURRICULUM DEVELOPMENT FUND

To mark its 10th anniversary in 1991, MAPE will be setting aside a sum of money to provide a Curriculum Development Fund. It is hoped that this will enable MAPE members – either individual classroom teachers or small groups of teachers working in collaboration – to look at particular areas of the curriculum from an information technology perspective, and to produce materials to help both themselves and others to make effective use of IT across the curriculum.

Further details will appear in the next edition of *MICRO-SCOPE*, but members may find the following preliminary information useful in considering whether their particular area of interest might qualify them to take part, or to discuss with colleagues the possibility of a collaborative project.

Project outcome:	This may be software files to accompany existing programs, classroom resources, lists of ideas, or some other form of support materials which will then become the property of MAPE and be made available to MAPE members.
Minimum project funding:	£250.
Maximum project funding:	£750; payment to be made in stages.
Project duration:	Two terms.
Closing date for bids:	January 1st 1991.
Applications:	These will only be accepted on the official application form which will be included in the next issue of *MICRO-SCOPE*, and must be supported by the applicant(s)' Head teacher or line manager.

After consideration by the Curriculum Development Subcommittee, successful applicant(s) will be informed by the end of January, and will be assigned a MAPE Council member or Regional Representative as their project coordinator. The project coordinator will offer any advice and help needed, meeting the project member(s) at least twice a term and reporting back to the National Council.

We are not looking for grandiose, ambitious research projects, but hope that this Fund will give MAPE members an opportunity to develop some of the many practical, classroom-based ideas which we hear of around the country in a little more depth and to share them with their over-worked colleagues!

Chris Robson
Curriculum Development Fund Coordinator