MICRO-SCOPE

▶ Issue 46

▶ Autumn 1995

Can you see the dinosaur?

- I can do IT
- Teacher assessments
- Developing your school IT policy
- Integrating IT into a school garden project
- Making a multimedia educational resource pack

NEWMAN COLLEGE with MAPE

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MICRO-SCOPE 46

MICRO-SCOPE matters

Senga Whiteman
Editor

Read on, you're in for a treat. This edition of *MICRO-SCOPE* includes a wealth of articles which address a number of issues relating to IT and primary education. Heather Govier has written a tremendously valuable article about developing a school IT policy. This provides a supporting framework for the creation of your own school policy. As Heather says, it is a starting point. Think of it as a wise colleague who is prompting you with questions. You've still got to think things through but someone is offering guidance about the issues which commonly need addressing. We are hoping to distribute a software version of the IT policy template as part of the next software special. There will be news of this in the next edition of *MICRO-SCOPE*.

Those of you who have heard Yvette Blake talk about IT in her school will know that it's an experience to be treasured. Given that she can't continually criss-cross the country to give everyone an opportunity to benefit from her experience, I've persuaded her to write two articles for this edition of *MICRO-SCOPE*. The first explores the way in which she integrated IT into one of her projects. The children surveyed their environment and decided that an area of the school grounds was greatly in need of refurbishment. The story of what happened next makes an interesting read, and the way in which IT was naturally included offers signposts for all of us. Yvette's second article describes the way the children in her class record their IT skills and knowledge. This system has spread throughout her school now. I've been given a copy of an 'I can' book – everything about it, from the individually designed cover (using an art package and a colour printer) to the lists of skills reflects the thought that has gone into it, and the pride with which its (child) owner completes her recordings.

Howard Dodd offers a different perspective on assessing children's learning in his article. He has been exploring a system which uses hand sets for the pupils, connected by radiowave link to a computer. The children respond to multiple choice questions, designed by the teacher, and their answers are swiftly recorded, analysed and presented for review. We need to develop a range of recording processes for different situations and I'm really pleased to be able to offer Howard's and Yvette's articles in the same edition. Food for thought!

For some time now Barry Wake and Jane Nash have been working on the creation of a resource pack based on Sutton Park. Having been involved in similar types of activities, I know it's a bit like riding a roller coaster with an incredible number of ups and downs. Barry describes the process so far. We'll include information about publication date and price in a later edition of *MICRO-SCOPE*. Still on the theme of resources, Reg Eyre writes about Pixie and also about a mapping service offered by Ordnance Survey. If you've got a multi-media system and have been wondering about the potential of talking books, then Jane Medwell's article about her research will give you an overview of the evidence so far about what they can bring to the teaching and learning of reading.

Creating entries for the NEMA awards has become a regular feature of the school year for many children. Details about NEMA '96 are included alongside news from NCET.

In *MICRO-SCOPE 45* there was a centre pull-out which included activity sheets and a poster about the contents of that edition. This is going to be a regular feature but not, necessarily, in every edition. If you've got any ideas for activity sheets, or if there's something you've tried that worked well, please let me know. The pages will be developed by the Publications Group for inclusion in future editions of *MICRO-SCOPE*.

MAPE '96 National Conference will be at the University of Reading, from 29–31 March. For further details please contact Betty Lumley (address on inside back cover).

* * *

Chris Robson

We were all immensely saddened by the death of Chris Robson in September. She had worked tirelessly for MAPE for more than 10 years. Since the summer of 1991 she edited *MICRO-SCOPE* with commitment and enthusiasm. We extend our sympathy to her husband, John, and to her mother. We are all going to miss her. We are only just beginning to realise how much. As Henry Brooks Adams wrote in 1907:

> 'A teacher affects eternity; he can never tell where his influence stops.'

Chris was a teacher. She will always be alive in our memories and in our thoughts.

A tribute from her long-time friend and colleague, Anita Straker, follows this editorial.

A tribute to Chris Robson

Chris Robson was my best friend. Standing in the sunlight at her funeral I realised that she was probably the best friend of countless others as well.

I first met her in 1983 when she turned up for an interview in Winchester with Christopher Schenk (now an HMI) and me. It was the early stages of the MEP Primary Project and we badly needed an infants' teacher with an interest and expertise in work with computers. Chris had both. An even more crucial qualification was that she had passed her Advanced Drivers' Test. Up to then, either Chris Schenk drove us everywhere at 25 miles an hour, so that we failed to arrive, or I drove us at 90 miles an hour, when we got stopped by the Police!

With Chris we were in safe hands, and not just because of her driving skills or her good ideas. She had a wonderful way of making everyone's job easier for them and making them feel valued. She thought always of other people and rarely of herself. She would think ahead and sort out boring details of organisation before you had even considered them. She wrote personal notes to everyone who helped the Project, knew when everyone's birthday was, and turned up with tiny, unexpected presents on days that you felt glum.

My work with her continued when she was appointed as Berkshire's Adviser for Information Technology, another interview that I remember well. A colleague was wearing a musical tie which he set off accidentally during her interview so that her answers to questions were made to a rendering of 'The first Noel' and much laughter. Chris's job was demanding: she was the general adviser to a large group of primary schools and the sole adviser for IT for all the schools in a large county. In spite of all its pressures, she still found time to help colleagues to get to grips with new bits of hardware and software, to study successfully for a Masters degree in Education and to act as the editor for *MICRO-SCOPE*. Her introduction to the Queen, who visited one of her general schools on its 150th anniversary, was very well deserved.

I will miss Chris terribly: her sunny nature and infectious giggle, her sneezes when faced with an orange, her love of chilli con carne and chocolate mousse, her descriptions of the antics of her two large English setters, her red car and personalised CMR number plate drawing up at my front door with Classic FM at full volume and a back seat full of teddy bears, and her weekly phone call to find out which of us was doing better with *Forty Thieves*, an addictive game of patience on the Apple Macintosh. She was the kindest person one could hope to meet.

It was typical of Chris that on the day before she died, when she was too ill to see anyone, she sent me a message via her husband John to thank me for all I had done for her. My great regret is that I could not see her for one last time. I wanted to thank her not only for what she did for me personally but also for all that she did for many, many others. There must be thousands of young children in many different places, both here and overseas, whose lives are the richer because of the help that Chris gave to their teachers.

Anita Straker

Developing your school IT policy

Heather Govier

Are you happy with your school's IT policy?

Some schools, particularly those that have been OFSTEDed recently, may well have a set of shiny new policies for all subjects of the curriculum but others will not be so well advanced with their documentation. IT in particular has taken something of a back seat in many schools and you may be finding that your IT policy is looking somewhat dusty and out-of-date. Revising policy can be an onerous task especially when what is needed is more or less a complete rewrite. Although it is right that each school should develop its own policies which reflect its own unique ethos, there is much commonality between the aims and programmes of education of all primary schools and when it comes to policy writing it seems a shame to duplicate so much effort.

One approach is to work from a ready-made template and the following is offered as a starting point for development of your IT policy. It is important to appreciate that it is not meant to be a finished product, rather a draft or framework providing structure and much applicable content in a form that can be easily edited to suit the particular circumstances of each school. It is intended that the document will offer support for the INSET activities involved in policy development while allowing plenty of scope for each staff to 'own' the final product.

A fuller version of this IT policy is available as part of a set of policies for all subjects of the curriculum (and aspects of school management) from, FIRST & BEST in Education Ltd, 34 Nene Valley Business Park, Oundle, Peterborough PE8 4HL.

Policy for the use of Information Technology at any school

Introduction

- THIS DOCUMENT IS a statement of the aims, principles and strategies for the use of Information Technology at Any Primary School.
- IT WAS DEVELOPED (when?)
- IT WAS APPROVED by the governing body (when?)
- THIS POLICY WILL BE REVIEWED (when?).
  A schedule for the review of this, and all other, policy documents is set out in the Whole School Development Plan.

What is Information Technology?

- INFORMATION TECHNOLOGY (IT) comprises a variety of systems that handle electronically retrievable information. Computers are the most obvious of these but IT also includes programmable robots, tape recorders, calculators and video cameras.

Aims

- OUR AIMS IN USING INFORMATION TECHNOLOGY are that all children will
  - enjoy using IT and tackle all applications with confidence and a sense of achievement
  - develop practical skills in the use of IT and the ability to apply these skills to the solving of relevant and worthwhile problems.

– understand the capabilities and limitations of IT and the implications and consequences of its use.

Principles for the use of Information Technology

- INFORMATION TECHNOLOGY is important because
  – its use is widespread in the modern technological world and likely to continue to grow
  – it is an important medium for learning and study at all educational levels.
- INFORMATION TECHNOLOGY is a component of the Technology curriculum which has its own programmes of study and attainment target level descriptions. The fundamental skills, knowledge and concepts that children need to use IT effectively are currently set out in 'Information Technology in the National Curriculum' under three categories
  – applications and effects
  – communicating and handling information
  – controlling, monitoring and modelling.
- INFORMATION TECHNOLOGY is also seen as a cross-curricular strand in the National Curriculum and indications for its use are given in most subjects.

Strategies for the use of Information Technology

- INFORMATION TECHNOLOGY IS NOT TAUGHT AS A DISTINCT SUBJECT but is seen as a tool to be used as appropriate throughout the curriculum to support and enrich children's learning. In order to ensure that valuable areas of experience are covered
  – IT use is integrated into the programme of topics followed throughout the school
  – all classes (except Reception) offer children experience in each of the three areas of IT in the National Curriculum
  – IT use receives a specific mention in the policy documents for all subjects of the curriculum
  – computer use is carefully managed so that all pupils are given equal access opportunities (each child uses a computer at least once a week)
  – IT use is not seen as a stick or a carrot (to be withdrawn as a punishment or offered as a reward for good work or behaviour) but is offered as an entitlement for all pupils.
- THE PREDOMINANT MODE OF WORKING IN INFORMATION TECHNOLOGY is group work although computers are sometimes used by individuals for word processing or for the practice of basic skills (see section on Pupils with Special Needs below). IT is rarely used for class teaching. Groups of pupils using IT
  – vary in size from pairs (most common) to groups of 6/8 (for programs where discussion is paramount)
  – are usually of matched ability as this makes for more equal interaction
  – may occasionally be of mixed ability to enable more competent children to help those less able (for example in word processing activities in the early years)
  – are usually of matched gender in order to avoid the commonly experienced marginalisation of girls as boys monopolise the equipment
  – may be involved in teaching one another through a rolling program (for example when introducing a new piece of software).
- CLASSROOM HELPERS ARE USED IN INFORMATION TECHNOLOGY particularly volunteer parent helpers, who assist with
  – the reading involved in some early years activities
  – data entry for information processing work
  – problem solving work with LOGO, robots or control technology
  – desk top publishing activities.
- PUPILS WITH SPECIAL NEEDS have the same IT entitlement as all other pupils and are offered the same curriculum. However, in addition particular applications of IT are used for
  – pupils with difficulties in learning, who need to be motivated to practice basic skills regularly and intensively, and thus benefit from the use of programs in which skills practice is set in the context of a motivating game
  – certain pupils with physical or communication handicap who have their own specially adapted machines for use in communication and across the curriculum

  - pupils of high ability who may be extended through the use of programs which offer challenge and opportunities for investigation.
- HOMEWORK is not used to support IT work as access to home computers is very variable. However, we are very conscious of these inequalities in access and monitor school computer use carefully to ensure that children who do not have computers at home are given at least as much (if not more) opportunity to use them in school.
- THE EMPHASIS IN OUR TEACHING WITH INFORMATION TECHNOLOGY is on the use of computers as tools to support learning. Thus
  - all pupils are made familiar (at as early a stage as possible) with basic aspects of disc and printer management and efficient use of keyboard and mouse
  - word processing is the application most widely used throughout the school
  - most activities using IT are allied to other work carried out away from the computer
  - as pupils progress through the school they are given increasing control of their use of IT, gaining growing independence in their use of IT as a tool appropriate to any given activity and in their choice of software required
  - calculators are available in all classrooms.
- EXCELLENCE IN INFORMATION TECHNOLOGY USE IS CELEBRATED in demonstrations and display including
  - hands-on and demonstration sessions at parents' evenings
  - display around the school of text, pictures, graphs and charts which have been produced by pupils using computers
  - the use of a computer bulletin-board compiled and updated by Year 6 pupils. This may been seen as a fixture in the school reception/library area and offers up-to-the-minute information about school events.

Strategies for Ensuring Progress and Continuity

- PLANNING FOR THE USE OF INFORMATION TECHNOLOGY is a process in which all teachers are involved, wherein
  - suggestions for IT activities integrated with the two year topic cycle are developed by the coordinator in collaboration with colleagues
  - a termly staff meeting is used to discuss the use being made of IT across the curriculum and ensure consistency of approach and of standards
  - half-termly work plans (including detailed lesson plans) which are drawn up by individual teachers and monitored by the headteacher, all include proposals for integrated IT use
  - software use throughout the school has been carefully mapped out to ensure that pupils' experience of IT is continuous and progressive.
- THE ROLE OF THE INFORMATION TECHNOLOGY COORDINATOR is to
  - take the lead in policy development and the integration of IT into schemes of work designed to ensure progression and continuity in pupils' experience of IT throughout the school
  - support colleagues in their efforts to include IT in their development of detailed work plans, in their implementation of those schemes of work and in assessment and record keeping activities
  - monitor progress in IT and advise the headteacher on action needed
  - take responsibility for the purchase and organisation of central resources for IT
  - provide technical support to colleagues in their use of IT in the classroom
  - take appropriate steps to keep up-to-date with developments in this rapidly changing field and pass on information to colleagues as appropriate.
- FEEDBACK TO PUPILS about their own progress in IT is rarely formalised and is usually done while a task is being carried out through discussion between child and teacher.
- FORMATIVE ASSESSMENT is used to guide the progress of individual pupils in their use of IT. It involves identifying each child's progress, determining what each child has learned and what therefore should be the next stage in his/her learning. Formative assessment is mostly carried out informally by teachers in the course of their teaching. Suitable tasks for assessment of IT work include
  - small group discussions perhaps in the context of a practical task
  - specific IT assignments for individual pupils
  - individual discussions in which children are encouraged to appraise their own work and progress.

Strategies for Recording and Reporting

- RECORDS OF PROGRESS IN INFORMATION TECHNOLOGY kept for each child contain
  - a termly record of progress in each strand
  - a portfolio of work, dated and annotated with teacher comments and containing one item for each half term which shows achievement and progress.
- REPORTING TO PARENTS is done on a termly basis through interviews and annually through a written report. Reporting on IT use will focus on each child's ability to use a computer with confidence and competence across a variety of applications.
- FORMAL SUMMATIVE ASSESSMENT is carried out at the end of each National Curriculum Key Stage (ie in Years 2 and 6) through the use of non-statutory SATs and/or teacher assessment.

Strategies for the Use of Resources

- CLASSROOM RESOURCES IN INFORMATION TECHNOLOGY include
  - at least one computer in each classroom
  - a concept keyboard in each class at Key Stage 1
  - at least one programmable robot in each classroom
  - a set of calculators in each classroom
  - a set of documented software for each classroom, carefully selected so as to offer progression and continuity throughout the school.
- CENTRAL RESOURCES IN INFORMATION TECHNOLOGY are the responsibility of the IT coordinator who has a small budget available. They include
  - additional concept keyboards for the use of Key Stage 2 classes
  - a video recorder, cameras and tape recorders
  - master copies of all software in use throughout the school
  - a library of software likely to be used at all levels but infrequently by any one class
  - kits of hardware and associated software for control and measurement activities.
- INFORMATION TECHNOLOGY RESOURCES are valuable and sensitive to the environment in which they are kept. Strategies for the siting and storage of IT resources are given as an Appendix.
- STAFF ARE ENCOURAGED TO TAKE COMPUTERS HOME in order to prepare resources and develop personal competence and confidence in the use of IT.
- CLASS MONITORS in the form of self-selected pupils who are eager and interested in the use of IT are used in many classrooms to set up equipment and as 'experts' in various applications able to advise peers if they encounter problems. Year 6 pupils also act as monitors for infant classes. Care is taken to involve girls equally in this role.
- IT IS USED IN THE LIBRARY to hold a database of all available books. A specific computer is dedicated to this task and also runs the bulletin board. Both are maintained and updated by pupils in Year 6. A separate machine with CD-ROM is sited in the library and is used for reference by pupils from Year 3 to Year 6.
- HEALTH AND SAFETY ISSUES IN INFORMATION TECHNOLOGY include taking care with
  - setting up and moving equipment
  - establishing appropriate working conditions
  - general electrical safety.

Appendices may include

- list of centrally held resources for IT
- details of the topic cycle showing IT applications
- software catalogue
- map of distribution of software and hardware throughout the school
- strategies for the siting and storage of IT resources
- guidance notes for teachers on various aspects of IT use
- lists of available reference books for teachers on teaching and learning with IT.

Integrating IT into our school garden project

Yvette Blake and **Ian Shackleton**
St Philip's Church and Community School, Westbrook, Warrington

It is the policy at St Philip's to use the immediate environment in our work, wherever possible, and so last Autumn, we decided to focus our work around the theme of 'Gardens', because our own school garden had gradually deteriorated and was becoming an eyesore (see photographs in Figs 1 and 2). The aim, therefore, was to redesign the garden and money was allocated to implement the agreed design.

As the children returned in September they were greeted with classroom displays that resembled Mr McGregor's potting shed (from Beatrix Potter), Monet's Waterlilies and a Victorian Garden, and so the scene was set! Initially we discussed the task with the children and formulated a plan of action.

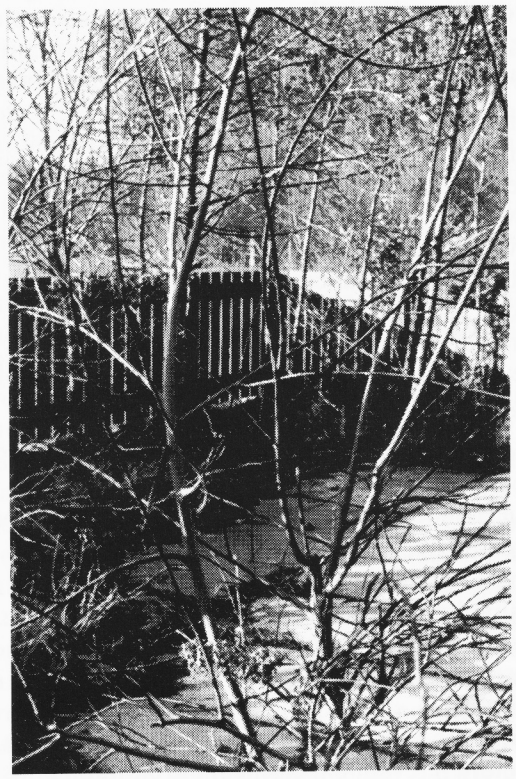


Fig. 1. *The undeveloped garden. ('There are 66 slabs with tufts of grass growing up through the cracks.')*

Fig. 2. *The undeveloped garden. ('You can trip in a hole and get all muddy.')*

Our plan of action included:

Task: **To redesign the school garden**
Design considerations:
Who will use the garden?
What would it be used for?
Who will maintain the garden?
The budget.
Timescale.

For this it was clear that we needed to find out information about:
other gardens (designs, styles and purposes),
flowers and plants,
growing conditions,
cost and maintenance,
garden accessories,
more about our own garden including size, current layout and plants, orientation and soil conditions.

We decided that this could be implemented through an exploration of the children's own gardens, by visiting other formal gardens (including a focus on historical influences), by writing to and visiting garden centres and by collecting and researching gardening books, catalogues and magazines. We also decided to grow our own plants from seed, measure, sketch and investigate in detail our garden plot.

In order to involve every child and make this a completely relevant experience, the children organised themselves into companies in order to produce their own garden plans and ideas. The headteacher, governors and some parents agreed to form a panel, to consider the children's proposals. These would be delivered through a formal presentation by each company. Obviously this theme would develop the children's work in language, mathematics, science, the humanities and art, particularly the application of both their knowledge and understanding. Thus our next consideration was the integration and relevance of technology.

At St Philip's, co-operative teaching is valued and encouraged. This year the opportunity to combine the Year 6 classes arose for the first time. All 45 children were taught in the same classroom but with two teachers. This enabled us to use the resources of two classes, including three computers, with all of the children, all of the time. As this included a BBC, an A3020 and a PC, we needed both to find a range of software and develop the software we already had, to support and enhance our theme. We were also fortunate in having the use of two technology kits.

One of the first tasks, after forming their companies, was to agree on a company name and positions. Names such as 'Gardens 'R' Us', 'Construct a Garden' and 'Westbrook Gardens' were suggested. The children then investigated other company logos, business cards and company notepaper in order to produce their own. The program *Print Master* on the PC was used to design headed notepaper and the children soon realised its limitations in terms of the small number of graphics suitable to a garden theme. Some children, therefore, used the typesetting but drew pictures of their own, while others used their own computers at home for this task.

As an initial stimulus for their investigation into garden design and layout the children visited Biddulph Grange and Bridgemere Garden Centre. At Biddulph, the National Trust is restoring the garden to its former Victorian splendour using original plans, gardeners' notes, order forms and stock lists. At Bridgemere the children had the opportunity to explore a range of small, themed gardens such as cottage, rock, rose and water gardens. They were also able to discover the availability and price of plants and furniture. Many of the children were very inspired by the topiary they saw and would have included this in their garden designs until the price discouraged them! They used *Encarta* to explore further the concept of timelines and historical development.

In their art work the children looked at the work of the Impressionist painters, particularly Monet, as they were interested in his comment, 'My most beautiful work of art is my garden'. As we had the program *Art Gallery* on the PC, they were able to review his work in the National Gallery, select their favourite picture and write about it before printing it out for classroom display. Some companies, inspired by the work of Monet and another artist and gardener, Gertrude Jekyll, chose to develop the theme of colour in their garden designs.

The classroom environment was steadily flourishing with a variety of plants and seeds in various states of germination and growth as the children researched and recorded seed reliability and ideal growing conditions. On the BBC they used *Wildlife Garden* which allowed them to apply their ideas and understanding by developing a garden where mini-beasts could flourish. Here they manoeuvred blocks of garden including a pond, a log, shrubs and plants into different positions, watched their garden grow under various conditions and then compared the results. This allowed them to consider problems relating to shade, overcrowding and the availability of water. Reflecting on his garden Chris commented, 'When I designed my garden I rushed it and placed my pond in a silly place. It was under the trees and this made it too dry and shady to support much wildlife. Also I put the shade-loving plants right under the trees but the soil here was too dry for them.'

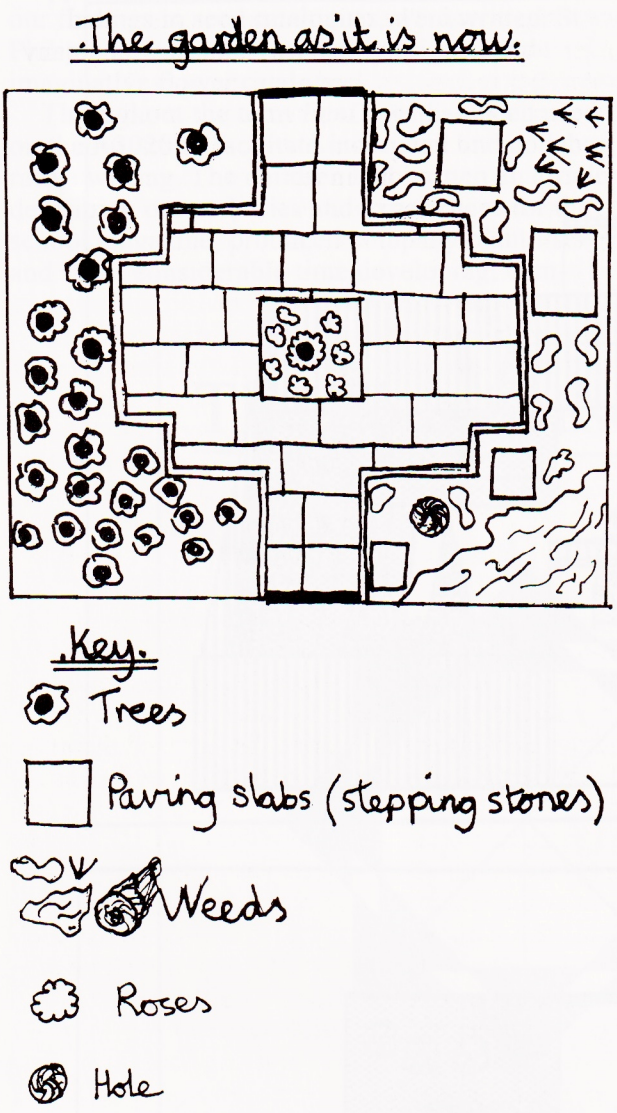


Fig. 3. *Plan of the garden as it was at first.*

The garden as it is now

There are 21 over grown trees blocking the pathway and acting as a trip-wire. You can trip in a hole and get all muddy. There are 66 slabs with tufts of grass growing up through the cracks. There are 11 roses around the tree in the middle of the garden.

Fig. 4. *A written description.*

Before they could make worthwhile proposals for our new garden, the children needed to produce detailed plans and descriptions of the existing one. They needed to test the soil, determine wind direction, and establish areas of shade and strong sunlight. The children were therefore applying their knowledge of measurement and area to produce scale drawings of the garden as it was (see Fig. 3). These were then transferred to the program *3D Garden* on the PC. This was a more sophisticated design and data-handling program which allowed the children to draw the school garden using the 'real' plot dimensions. They were then able to experiment with a variety of garden furniture, plants, shrubs and trees which could be positioned and viewed from different directions both above the ground and by walking into their garden. They could observe the garden over a period of time, including years, and through the different months of the years. Another advantage to this program was that it allowed you to add plants to the database. This again gave relevance to the children's research in other areas. Many of them had collected information about plants from a variety of books and catalogues. They were producing their own A to Z of plants, for reference and display, which was honing their reading for information skills. Information required included planting and flowering times, soil conditions preferred, height of growth etc. The children were then able to include their favourite plants on this database for inclusion in their garden design.

Again valuable lessons were learned through a consideration of the program's limitations. The children were very amused to learn that it snows every January in Warrington. Well, according to *3D Garden* it does – although we could only remember it snowing briefly three times in the last eight years! As the plants were limited to certain shapes they never looked completely real which the children found initially disappointing (see an example in Fig. 5). Yet frequently it is through mistakes or unexpected outcomes that we learn the most. Garden City wanted to grow some vegetables in their garden and Nicholas was very busy typing in the details of a carrot, including size, colour and shape. Imagine his surprise when an orange, conical shape, pointing upwards, appeared growing above the ground! He realised then that he should have been describing the leaves. However, we were able to turn his initial disappointment into success as he decided to include his carrot as a new type of plant – an Australian variety!

This important discovery – designing your own imaginary plants – led to other children inventing new flora (see example, Fig. 6). We decided that it would be inappropriate to include imaginary plants in this database because the garden designs had a serious purpose and needed to be as realistic as possible in that different companies intended to 'walk the panel' around their gardens during their presentations. However we did not want this discovery to die out and so we used *Crystal Logo* from *Crystal Rainforest* to design flowers based on the rotation of regular shapes. These were then

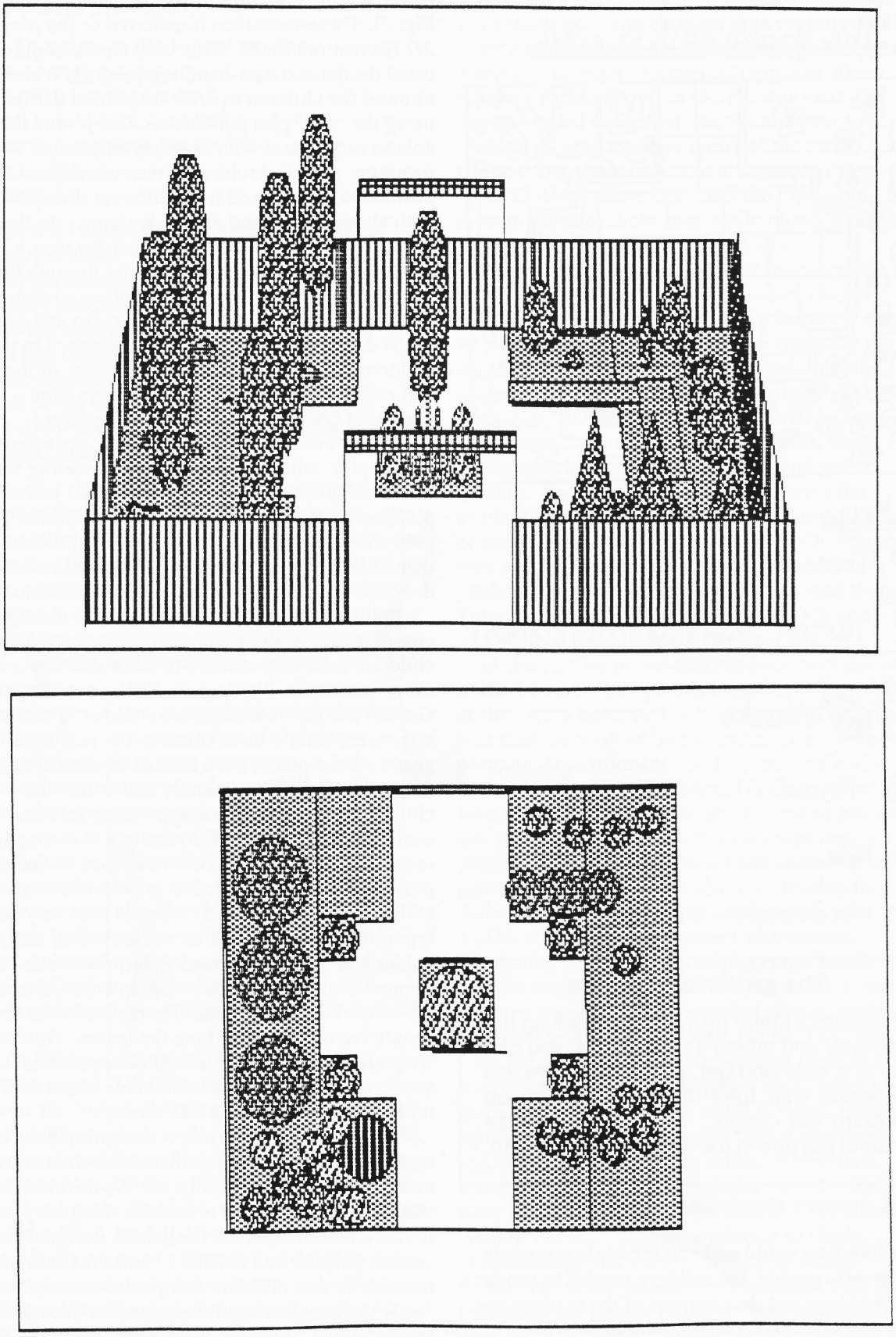


Fig. 5. *Garden design using* 3D Garden.

dropped into *PenDown* and descriptions, based on our findings in seed catalogues, were written. St Philip's now has its own highly original and imaginative flower catalogue!

Throughout the term *PenDown* had been used on the A3020 to facilitate individual and collaborative writing. The children had written an article describing our activities and experiences for the school magazine, produced company plant lists and spent considerable time developing, composing and refining their presentation speeches. They had also written (by hand) to different garden centres asking for their help and advice, particularly to ensure that their plans and ideas remained within budget (see Fig. 7). They wrote on their company headed paper although we sent an accompanying explanatory letter also. We were delighted with the response of many garden centres who completely entered into the spirit of the occasion.

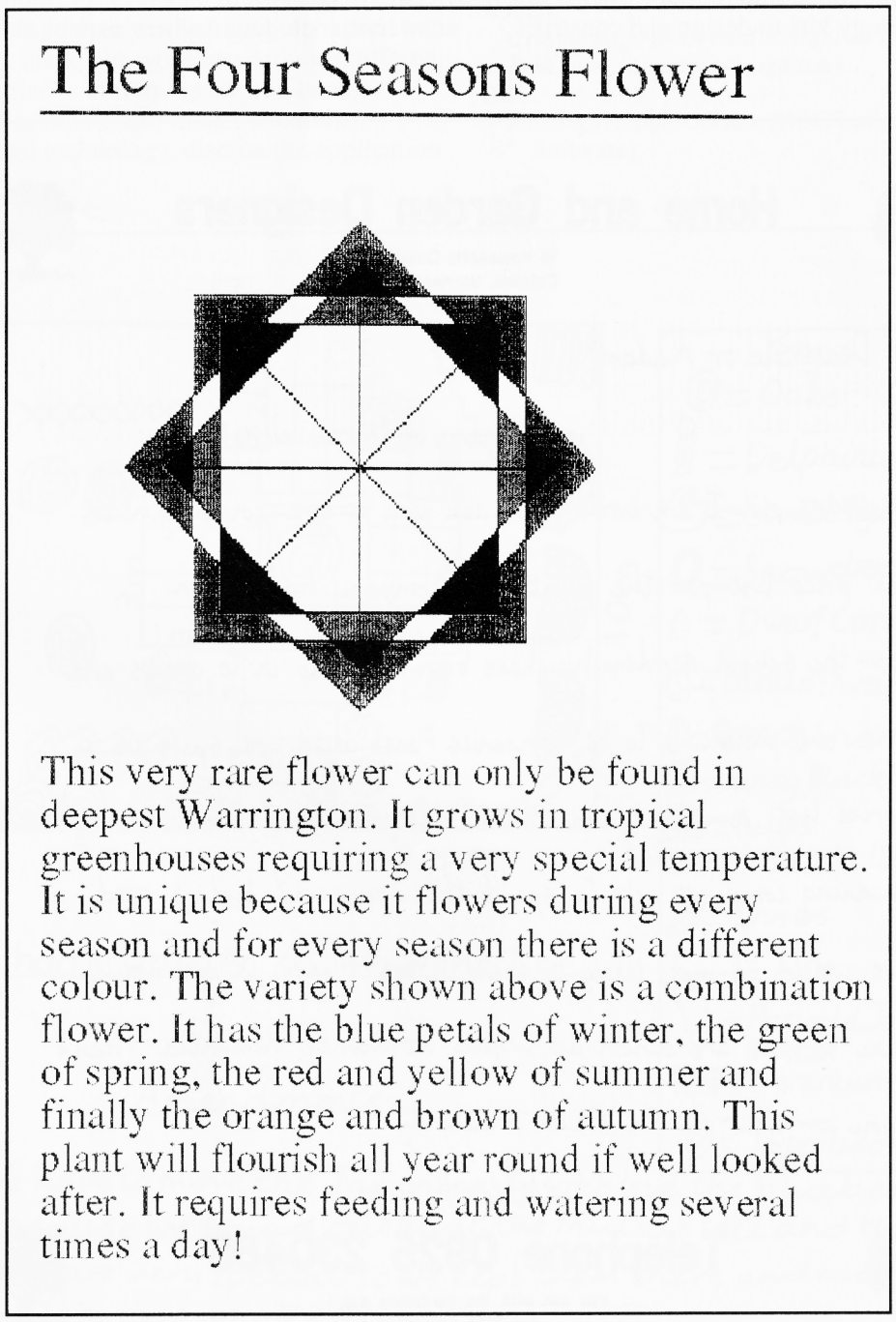
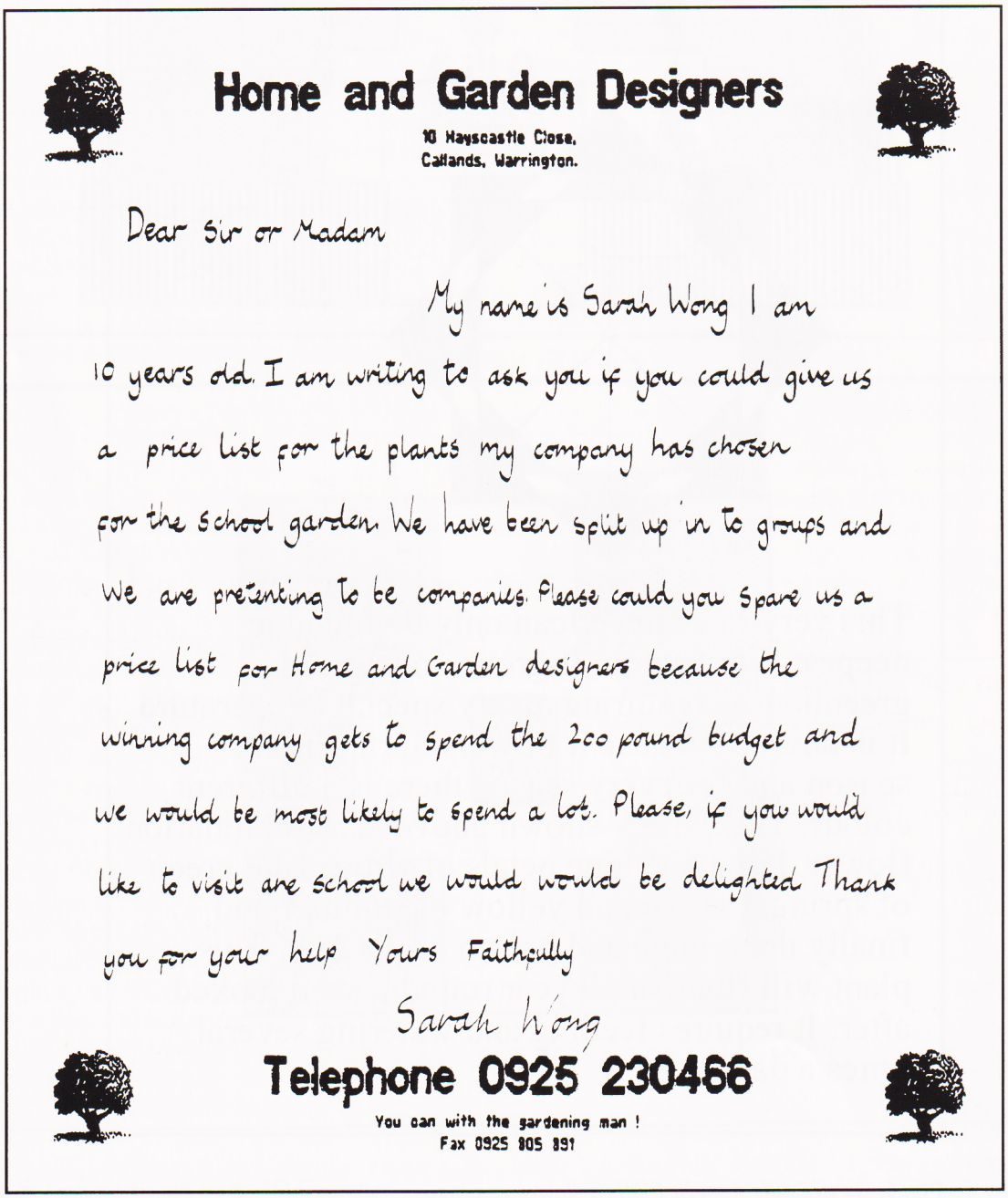


Fig. 6. *An example from St Philip's flower catalogue.*

Both parents and children gave up a Saturday morning, just before Christmas, to dig the garden, remove the rubbish and prune back the trees. Their involvement, enthusiasm and interest in this project was complete and so everyone was devastated when we began to experience vandalism. Inspired by the garden protection measures observed at Biddulph Grange we discussed security systems in general and the children began to design measures of their own. These involved electrical circuits with a range of switches including pressure pads that were integrated into model gardens. They also used technology kits to design and construct labour saving devices including water irrigation systems and garden machinery.

By now the plans were almost complete, the presentation folders made, artists' impressions drawn, garden calendars and timetables produced, commercial jingles and adverts were recorded and polished. All that remained was the dreaded presentation to a live audience! The children displayed their work and wheeled the computer trolley into the small hall where the group of ten adults was waiting. However the presentations went extremely well, all tricky questions were answered, including Andrew's quick thinking



Home and Garden Designers

10 Hayscastle Close,
Callands, Warrington.

Dear Sir or Madam

My name is Sarah Wong I am 10 years old. I am writing to ask you if you could give us a price list for the plants my company has chosen for the school garden. We have been split up in to groups and We are pretenting to be companies. Please could you spare us a price list for Home and Garden designers because the winning company gets to spend the 200 pound budget and we would be most likely to spend a lot. Please, if yow would like to visit are school we would would be delighted Thank you for your help Yours Faithfully

Sarah Wong

Telephone 0925 230466

You can with the gardening man !
Fax 0925 805 891

Fig. 7. *An example of a letter written by a member of the 'Home and Garden Designers' group.*

reply, 'Of course we've thought about slugs and Delphiniums . . . and Sarah will tell you.' (poor Sarah!)

All that remained was for the selection panel to choose between insect, vegetable, allergy-free, scented gardens and those with a colour or seasons theme.

Of course this was an impossible task and so they reached a compromise – a garden that included one aspect from each company's design. A happy ending for everyone.

The IT we had experienced throughout the term had inspired us, driven our learning, enhanced our presentation, made our work less arduous, offered us opportunities to communicate and handle information, simulate and model situations, sample control technology, discuss the application and effect of IT and given us a snap shot of the real world, in a meaningful and relevant situation. But above all, IT was FUN!

Product information

PC:
- *Art Gallery* – CD-ROM (Microsoft).
- *Encarta* – CD-ROM (Microsoft).
- *Print Master Plus* – (Unison World).
- *3D Designer – Gardener's World* (Europress Software).

A3020:
- *Crystal Logo in Crystal Rainforest* (Sherston).
- *PenDown* (Longman Logotron).

BBC:
- *Make a Wildlife Garden* (BBC/Longman Software).

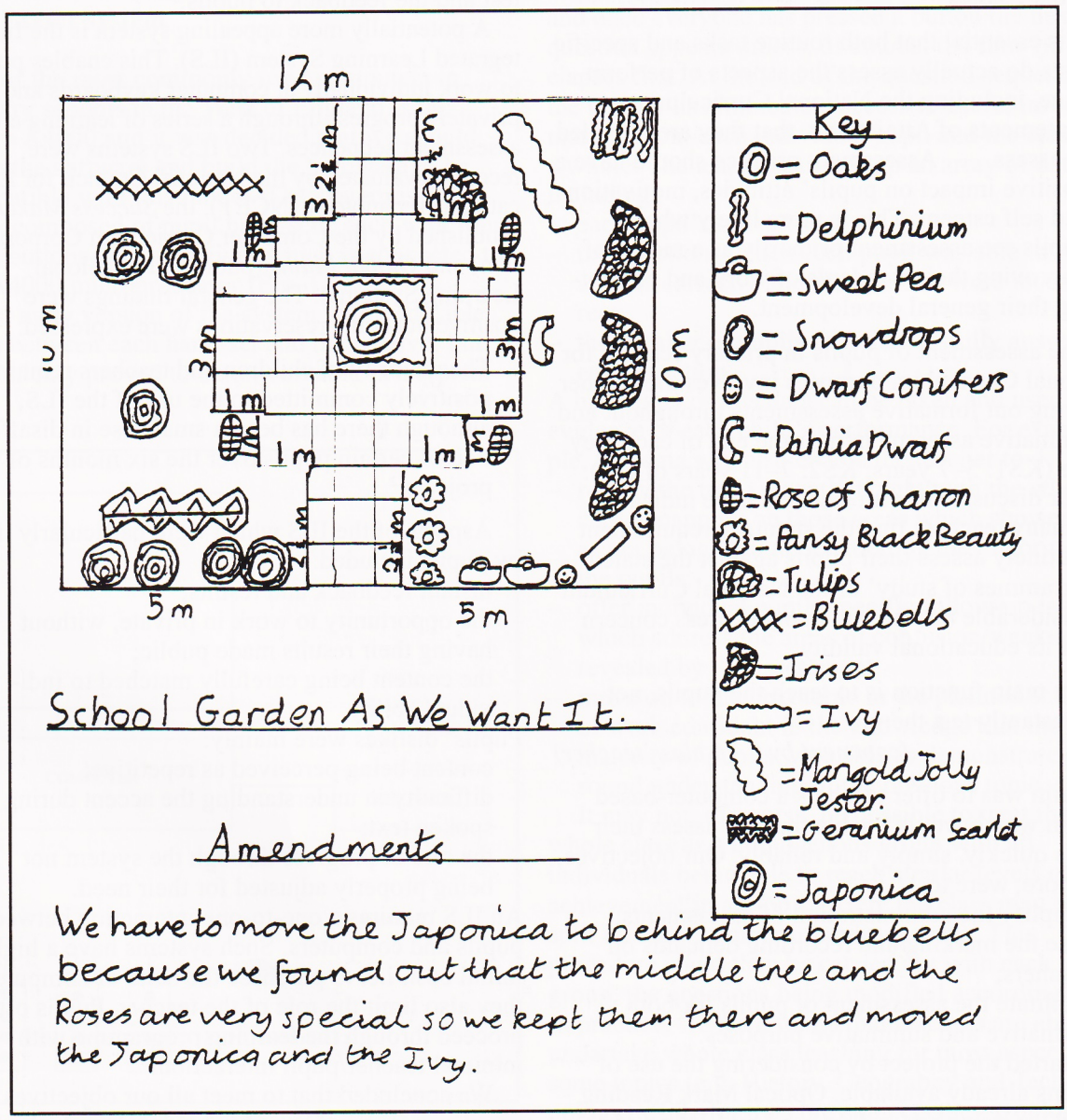


Fig. 8. *Final submission for a garden design from the 'Home and Garden Designers'.*

Teacher assessments: a user-friendly computer aided system

Howard Dodd
School of Education, University of Exeter

The introduction of the National Curriculum in England and Wales has brought with it a statutory obligation on the part of teachers to regularly and reliably assess their pupils. Their ability to do so will, among many other things, be monitored by the Office for Standards in Education (OFSTED) who, in its *Handbook for the Inspection of Schools*[1], states

> It is essential that both routine tasks and specific tests do actually assess the aspects of performance, including the National Curriculum Statements of Attainment, that they are intended to assess. . . . Assessment practice should have a positive impact on pupils' attitudes, motivation and self esteem. This is more likely where pupils see assessment primarily as a means of improving their standards of work and promoting their general development.

The assessment of pupils in primary schools for National Curriculum purposes involves the teacher carrying out formative assessments throughout and a summative assessment near the end of each Key Stage (KS1: 5–7 years; KS2: 7–11 years of age).

Our discussions with teachers have indicated that many teachers find the statutory requirement to routinely assess their pupils against the stated 'programmes of study' of the National Curriculum a considerable burden and many express concern about its educational validity.

> My main function is to teach the pupils, not constantly test them
>
> *(comment by a Y6 class teacher)*

Our aim was to offer teachers a computer-based system which would enable them to assess their pupils quickly, simply and reliably. Our objectives, therefore, were to:

- simplify the administration of assessments;
- ease the marking and recording demands on teachers;
- facilitate the assessment of pupils for both formative and summative purposes.

We started the project by considering the use of systems already available. Optical Mark Reading (OMR) systems are widely used by LEAs and Examination Boards but are of very limited value in individual schools, the initial purchase cost being prohibitive for all but the largest schools. Moreover, the procedure of sending pupil responses away to be marked and analysed is more likely to increase than to reduce the overall administrative demands on individual teachers. It would also create an unwelcome delay between the test and the feedback to pupils.

A potentially more appealing system is the Integrated Learning System (ILS). This enables pupils to work individually at computer keyboards and privately progress through a series of learning and assessment sequences. Two ILS systems were recently evaluated by the National Council for Educational Technology (NCET): the *Success Maker* (published by the Computer Curriculum Corporation) and *Global Maths* (published by Global Learning Systems). The general findings were positive but some reservations were expressed:

> The majority of children and teachers remained positively committed to the use of the ILS, although there has been a small rise in disaffection of certain pupils over the six months of the projects.[2]

Aspects of the ILS which were particularly liked by pupils included:

- instant feedback and results;
- the opportunity to work in private, without having their results made public;
- the content being carefully matched to individual ability.

Pupils' dislikes were mainly:

- content being perceived as repetitive;
- difficulty in understanding the accent during the spoken text;
- the rate of progress through the system not being properly adjusted for their need.

An ILS requires a one-to-one interaction between pupils and computers. Such systems have a high initial cost, i.e. to purchase the suite of computers; they also limit the role of the teacher. Pupils often proceed through the learning programme with minimal teacher/pupil interaction.

We concluded that to meet all our objectives a novel system would need to be developed which uses a single computer and places the class teacher

at the centre of the assessment/learning process. Assessment would be carried out in the normal classroom using the classroom computer which may need to be connected to a large monitor if work with the whole class is intended. The teacher would write or select the questions to be used and subsequently identify the most appropriate follow-up work for each pupil or each ability group. We also hoped that our system would offer an interesting and enjoyable experience for the pupils and that the data collected would play a valuable part in the diagnosis of pupils' misconceptions or simple lack of knowledge. We are fully aware that the system which we have developed will not solve all the assessment problems faced by teachers but we believe it provides a valuable additional assessment technique which is simple to administer and interpret.

The Exeter system

One of the most commonly used computers in primary schools in the West of England is the Acorn A4000 and it was decided that we should write the software and build the hardware to be compatible with this model. The system is essentially composed of pupil hand-sets, each with four push buttons, and a receiver which is connected to the A4000 microprocessor (Fig. 1).

An early version of the system involved cable links between each hand-set and the receiver but this quickly proved to be unworkable in a typical primary classroom. The change to the radio-linked version was not straightforward and many weeks were spent perfecting a reliable system. Interference between signals from the hand-sets or erroneous radiowaves in the vicinity of the receiver were eventually cured by using matched pairs of crystals and completely redesigning the receiver circuits.

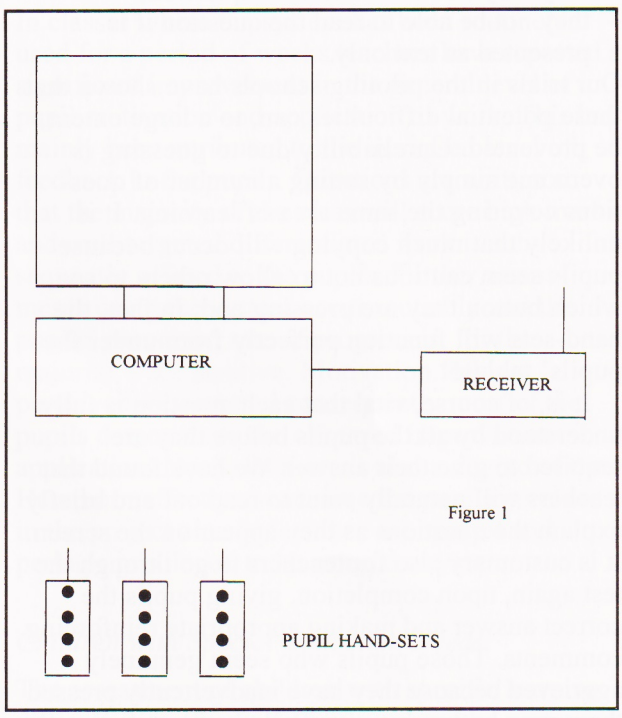


Fig. 1. *The Exeter system*

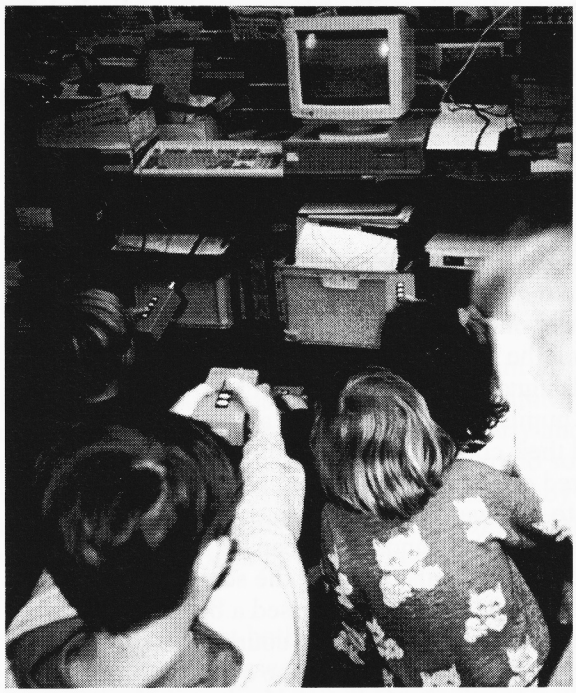
Used in its simplest form, questions of a four-option multiple-choice type, or a true/false nature appear on the screen and pupils select their answers using the handsets. Each handset has a number and is designated to an individual child. The names of the pupils to be tested, up to a maximum of 32, and their corresponding number is entered and stored on the computer's hard disc. A time limit is set to receive responses from the pupils. This is typically 20 seconds but it can be varied by the teacher. As pupils respond, the screen registers this and once everyone has pressed a button the next question appears unless, of course, the time limit elapses first. At the end of the question sequence the teacher has immediate access to useful information about each individual pupil and the class as a whole. The teacher can call up an array of data, including:

- each pupil's overall score;
- the questions which each pupil was able to answer correctly and those which were incorrect;
- the number of pupils who successfully answered each question.

A hard copy of this data can be taken and used as evidence of each child's performance. For example, this data will also enable the teacher to

- review the topic recently taught with the whole class recapping on those areas which showed up as not being well understood by the majority of the pupils;
- offer individual pupils specific follow-up tasks which address the areas of confusion/weakness revealed by the assessment;
- move on to the next topic in the planned scheme of work confident in the knowledge that the majority of pupils were able to demonstrate a sound understanding of the previous topic.

It may not, of course, be possible to treat the whole class as a homogenous group with all individuals being able to reach similar levels of achievement in all topics. Here the class may be split into any number of ability groups. This procedure could then be carried out with each group, the questions being modified accordingly. In practice, we have found that teachers are able to undertake whole class teaching for most aspects of some topics (e.g. History, Geography and Technology) while for the core subjects they would opt to teach pupils in ability sets.



The use of the computer lends itself to the presentation of questions in a variety of forms and our strong belief is that as wide a range as possible should be used if the assessments are to have maximum reliability for all the pupils. The different modes of presentation, used to date, include :

- text only;
- text with voice-over;
- graphics with or without text and voice-over;
- images taken from a CD ROM or video-image grabber, with or without text and voice-over;
- purely oral questions which refer to an artefact, piece of equipment or phenomenon being demonstrated to the class.

Over a period of time, a great amount of useful information can be collected from which individual pupil progress can be closely monitored. This enables the teacher to set appropriate future work for each child. Those tests which reveal a poor level of performance for the class as a whole will highlight the necessity for additional work to be done on that topic. Afterwards, the class can be re-tested to confirm improved understanding and mastery of the concepts involved. Also, at the outset of a topic a quick test to establish what the pupils already know may save time and suggest a suitable starting point for coverage of the work for the majority of the pupils.

Reliability and validity of the questions

The benefits of using the system rest, to a large extent, on the integrity of the questions. Writing suitable questions is not an easy task. Reliable questions have been published (by NFER and SCAA) in the National Curriculum core subjects. Most teachers will inevitably want to write their own, however, and the software has been steadily modified to facilitate this. The system itself enables the reliability of such home produced questions to be verified. Clearly, if no pupils, or a very small number, opt for the correct answer to a question which the teacher regards as being straightforward there must be some flaw in the question itself. The 'stem' of the question may be ambiguous or one or more of the incorrect options (the 'distracters') may also be a valid answer. The proportion of pupils giving the correct answer to each question is automatically calculated by the computer and available for scrutiny by the teacher.

The validity of a question (i.e. whether it actually tests what it is intended to) can be gauged by comparing pupils' responses to this question with the answers to other, proven questions testing the same concept/fact/process.

By carrying out such checks, a bank of reliable and valid questions can be established and further refined and improved. Naturally, the political correctness of the questions and the lack of any cultural or gender bias must also be ensured.

It has to be admitted that there is a degree of unreliability associated with the use of multiple choice or true/false type questions:

- pupils may guess;
- they may copy the response of their neighbour;
- they may accidentally press the wrong (or right) button;
- they may not understand the question;
- they not be able to read the question if is presented as text only.

Our trials in the piloting schools have shown that these potential difficulties can, to a large extent, be prevented. Unreliability due to guessing is overcome simply by setting a number of questions covering the same area of learning. It is unlikely that much copying will occur because pupils seem cautious not to allow others to see which button they are pressing and, in fact, the hand-sets will function perfectly from under the pupils' tables!

It is, of course, vital that each question is fully understood by all the pupils before they are required to give their answer. We have found that teachers will naturally want to read out and briefly explain the questions as they appear on the screen. It is customary also for teachers to go through the test again, upon completion, giving pupils the correct answer and making appropriate reinforcing comments. Those pupils who seem genuinely aggrieved because they have inadvertently pressed the wrong buttons can normally be identified during this process although the teacher may feel

inclined to search the pupil's knowledge a little further before accepting that a genuine error has occurred.

Other uses of the system

As the trials have taken place in schools, teachers have been able to identify a number of alternative classroom uses for the system. They have also raised a number of important issues concerning its use.

Whole-class teaching

A large monitor connected to the computer provides a natural focus for all the pupils in a whole class teaching situation. Images can be produced on the screen from a variety of sources: simple graphics software; recorded video material using an 'image grabber'; pictures and/or text from a CD-ROM player or simply using very large text. Various 'games' can be played which involve the pupils responding using their hand sets. Such games can provide enjoyable sessions involving the whole class which can help to reinforce work in, for example, sequencing, pattern recognition, mental arithmetic, reading and spelling. The system also lends itself to the consolidation of work in those subjects where there is a heavy body of knowledge to be acquired by the pupils e.g. Science, History and Geography.

Pupil motivation

In classes where the system has been routinely used for a period of weeks teachers have reported a significant improvement in the general level of pupil motivation and application to work. This has mainly been attributed to the increased level of feedback to the pupils. Questions are written so that the majority of the class will score high marks and well-targeted differentiated work is subsequently offered to the pupils. Further assessments using the system occur routinely and the pupils' perceived rate of progress is, for the majority, very positive. Motivation follows perceived success and consequently most of the pupils demonstrate the observed improvement in application. No doubt there is also a degree of the Hawthorn effect present since the pupils involved in the project clearly feel they are special and perhaps privileged to be using the system.

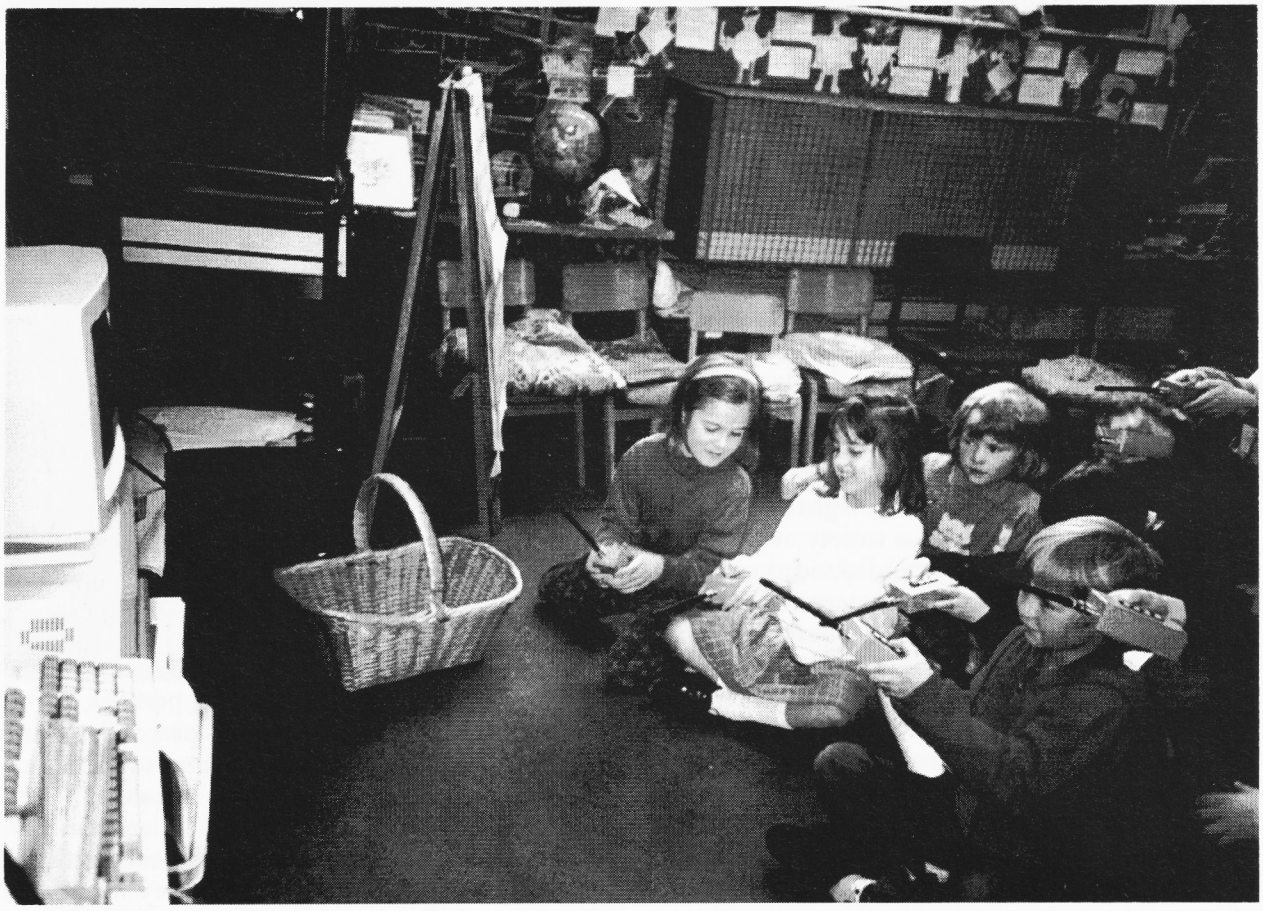
Children with Special Education Needs

The assessment of children with specific learning difficulties is always difficult and can be very time consuming. Many of the teachers felt that this system could be advantageously used with their SEN pupils. These children frequently have difficulty reading and writing although when communicating in a purely oral way they may demonstrate an encouraging level of knowledge and understanding. How can such children be fairly and reliably assessed? There are some positive early indications that the use of the pupil hand sets enables these pupils to indicate more reliably the extent of their understanding of a given concept or topic. Provided the teacher reads out the questions as they appear on the screen the normal reading requirement is removed. These pupils clearly appear to be more relaxed and seem almost grateful to be allowed to be assessed in exactly the same way and at the same time as all the other (more able) members of the class. The likelihood that assessments will be carried out more regularly and become part of the normal daily routine is also likely to be of greater benefit to these pupils who often have poor retention and need repeated exposure to ideas before any real mastery is achieved.

Another category of learner who, perhaps, is also inadvertently penalised by the preponderance of paper-and-pencil tests includes those who demonstrate an agile mind in class but suffer from a specific reading and writing disorder and are often referred to as dyslexics. Observation of these children shows that they hesitate as they write and often reject their original choice of word and replace it with an inferior one which is easier to spell. They are also liable to misread words which may completely change the meaning of a phrase or sentence. Paper and pencil tests clearly disadvantage such pupils, and while not advocating that we ignore their inability to accurately read and write, we must strive to be as fair as possible to all children when we are assessing them.

Pupils writing their own questions

Many teachers already expected their pupils, often the more able ones, to carry out self-assessments. The problem of monitoring the validity of these self assessments often leaves teachers feeling uneasy. During the coverage of a topic pupils could be encouraged to think of questions which may be suitable for inclusion in a mid-topic or end-of-topic test. In this way pupils would naturally be required to draw on the knowledge already acquired. In fact, such a task may be a useful form of differentiation for the most able members of the class but no one should be excluded from having the opportunity to produce a question. If the pupils could also be encouraged to enter the questions into the computer and perhaps orchestrate the test itself – bringing the questions up on screen, reading them out and conducting the post-test review – their IT



capability (an essential requirement of the National Curriculum) would be significantly enhanced.

The revisions made to the National Curriculum

The Dearing revision of the National Curriculum which is due to be implemented from September 1995 will, to some extent, alleviate the pressure on teachers since there is a significant reduction in the amount of content to be taught at each key stage. A more radical change is the replacement of the Statements of Attainment (SOAs) – the specific pieces of knowledge or skills which the pupils need to demonstrate – as the main focus of assessment by Level Descriptors. These are statements which[3]:

> . . . describe the types and range of performance that pupils working at a particular level should characteristically demonstrate.

The use of the level descriptors may, to begin with, cause added anxiety amongst teachers because of the inevitable ambiguity in the way they are written. There were certainly problems associated with the 'Statements of Attainment' but at least these statements were, in the main, free of ambiguity and therefore confidently interpreted by teachers. Over the coming months we will be trying to establish reliable banks of questions to be used to assess pupils' level of achievement as defined by the Level Descriptors. These will need to be carefully trialled and it will take some time before all of the National Curriculum subjects will be covered.

We will be pleased to hear from anyone interested in finding out more about the project and playing a part in the future development of the system. Contact should be made with the author at the School of Education, Exeter University, Heavitree Road, Exeter EX1 2LU.

References

1. OFSTED, *Handbook for the Inspection of Schools,* HMSO (1994).
2. NCET, *INTEGRATED LEARNING SYSTEMS: A report of the pilot evaluation of ILS in the UK,* NCET (1994).
3. DFE, *Science in the National Curriculum,* HMSO (1995).

I can do IT

Yvette Blake
St Philip's Church and Community School, Westbrook, Warrington

Over two years ago I found myself sitting in a MAPE meeting discussing Dearing's latest recommendations concerning the National Curriculum's requirements for the learning and teaching of IT within Primary education. The subject under hot debate was the suggestion that children's entitlement to IT should amount to 35 hours a year.

It was at this point that I became somewhat hot under the collar as I realised that the suggestion amounted to something in the region of one hour per child per week of meaningful, relevant IT experiences, at an appropriate level, for each child in the class. I don't remember much else about the meeting but I do remember very vividly the thought that I had to assess and re-think (fairly quickly) what was happening in my own classroom. It was probably fortunate for all M6 motorists that I had travelled by train on that occasion!

I had always considered my class to be very IT literate, well at least very enthusiastic about the use of computers in their work. However I was beginning to realise that in terms of *every child* possessing the IT skills that would allow them to use a variety of programs with confidence and increasing independence, I had fallen into the trap of relying on a few class experts. It was far easier to say, 'Get Fred to show you,' in response to a child's plea for help, but was this enough to ensure that meaningful learning was taking place?

Over a cup of tea, as the train sped towards Warrington, I thought very carefully about who used the computers, why they were used and for how long. Fortunately by the time I reached Crewe the germ of an idea was beginning to emerge and I managed to remember to get off the train at the right place!

As a member of Cheshire's 'Writing Research and Development Group', I had, along with other teachers, considered ways in which we could help children grow in maturity and independence in their writing. We had discussed ideas for making the drafting process more accessible to the children. By making each part of the process visible, the writers would know what was expected of them, what possibilities existed and would come to realise that the process was valued equally with the end product. One member of the team, Carol Archer, had shown us some 'I Can' sheets that she had used with young children. These contained simple statements like, 'I can use full stops' or 'I can write a poem'. The children put a coloured dot by the statements when both the teacher and the child felt that this statement was consistently true of their writing.

My idea was to develop this format and apply it to IT. I decided that each child would make a Computer Journal in which to record their use of a program along with the IT skills necessary for using it effectively. The 'I Can' tick list would ensure that record keeping would be less demanding in terms of time or writing ability, but would provide evidence, both to the child and to his/her parents, of achievement.

Back at school, on Monday morning, we set to and began to design our special book, using the program *Tiler* to design the cover. I discussed the use and purpose of this book with the children and we drew up a checklist to remind them of the information required, each time they recorded a program used. We produced a program record sheet which was stuck inside the front cover.

Program Record Sheet

In your computer book you need to record the following information about each program you use:

Name of the program,
Name of the computer it was used on,
What kind of program it is,
What you used it for,
How else it was used in the classroom,
Any other comments you think appropriate.

So for each program used the child answered the above questions, completed an 'I Can' sheet and included an example of their work if possible. This was usually a piece of their writing, a map, an example from a database or a picture. Our first 'I Can' lists were fairly simple.

For example:

Prompt Writer

I Can . . .
Load the program,
Use the menu,
Save my writing,
Load my writing,
Change my writing,
Print out my work,
Use the main menu to change the print size.

As we began to use *Phases* we could extend this list to include ideas such as, 'I can use a border.' With some lists we became more adventurous. This was a list that one child wrote for *List Explorer*:

List Explorer

I Can . . .
Load the program,
Use the menu,
Choose an overlay,
Explore the database,
Answer some questions,
Change the information in the database,
Write a new database,
Make a new overlay.

Only a few children could tick off the last three activities but not only did I now have a record of who they were, but the rest of the children knew that there was something more they could do with this program the next time they used it.

By the end of the year the IT books were a great success and were especially helpful at our IT evening for parents. Along with displays demonstrating the range of programs used to enhance children's work in other curricular areas, these books helped to show all the skills their children were acquiring. This was particularly useful as we were trying to encourage the 'Friend of the School' to buy more computers. I am delighted to say that they did!

During this last academic year we have extended this idea to include the whole school. Every class had their own 'I Can' Book which children signed and we are working towards all the children having their own books to keep throughout their school life.

Our 'I Can' lists have continued to develop in complexity as the range of machines has increased to include BBCs, A3020s and more recently a PC with a CD-ROM drive. As this next list demonstrates, the necessity to use appropriate IT language is becoming increasingly important.

Art Gallery

I Can . . .
Start up the PC,
Load *Art Gallery*,
Use the index to find Monet,
Look through his paintings,
Choose my favourite,
Save it by using the option 'copy',
Load *Write*,
'Drop' my picture into *Write* using the command 'paste',
Write about my choice of painting,
Save my work,
Load my work,
Change my work in some way,
Print out my work.

The lists have gradually become more individualised, in that we have written them to include not only the program itself but also to incorporate some of the tasks set when using the program, for example:

Grasshopper

I Can . . .
Set up a spreadsheet,
Collect information for the spreadsheet,
Enter the data.
Update or change the data,
Save the spreadsheet,
Load a spreadsheet,
Move from one spreadsheet to another.

I have
Sorted the data.
I sorted the data according to . . .

Printed a spreadsheet, chart or graph.
My graph showed . . .

Compared two items of data.
I compared . . .

Drawn a scattergraph and printed it.
Investigated a correlation between two variables.
My scattergraph compared . . .

Found the average and range of a piece of data.
I found the average and range of . . .

Compared boys' and girls' spreadsheets.

We have used the 'I Can' lists to demonstrate the progression between year groups, for example:

Roamer

I Can . . .
- Move forwards,
- Move backwards,
- Turn left,
- Turn right,
- Make Roamer go on a journey using all four commands,
- Draw a square on the floor.

Roamer again!

I can . . .
- Use all the main controls,
- Follow a set of instructions,
- Put in my own program,
- Use Roamer to draw certain shapes,
- Make Roamer turn 360 degrees,
- Use the repeat key,
- Explore a set track and investigate a variety of possible programs,
- Play music using Roamer.

And finally, this format was used to write instructions for our most complicated work of the year, producing a class book (written and wordprocessed by the class) complete with a border on each page (designed by every child). This involved using three different programs and a vast number of discs. I am hoping to use this experience to persuade the school to upgrade all the machines to hard disc now!

I Can Use *PenDown* to:

Load the final version of the story,
Find the part I wrote,
Highlight the text and copy it to the bin,
Start a fresh page,
Set the page length,
Load the border files,
Drag my file onto the page twice,
Position each border,
Set the Tab position,
Set the font style and size,
Open the bin,
Insert each block of text at the appropriate point,
Position each line of text using the Tab key,
Proof read my page,
Save my page,
Print it out.
My file is called:–

The 'I Can' lists have highlighted the skills and processes used with each program and have demonstrated the possibilities within, and limitations of, each program. They have encouraged us to identify and talk about the different kinds of programs available, while at the same time considering the differences between programs of the same type. This can be very important, for example, when you consider the range of data handling programs that children may experience during their primary years.

We used two different garden design programs during one theme. The 'I Can' lists enabled us to discuss in detail the more advanced features of the second program and we were able to compare these.

Wildlife Garden

I Can . . .
- Load the program,
- Design my garden,
- Save my garden,
- Load my garden,
- Watch it grow,
- Print out my garden,
- Compare the results of normal growth with that of either wet or dry growing conditions.

3-D Garden

I can . . .
- Load the program,
- Explore the existing garden,
- Change the existing garden,
- Design my own garden taking into account the size, soil type, and orientation of the plot,
- Add features to my garden,
- Add plants from the database,
- Add my own plants to the database,
- Watch my garden grow through the year,
- Walk through my garden,
- View my garden from above,
- Save my garden,
- Load my garden,
- Change my garden,
- Print out my work.

These lists have shown all of us (both teachers and children) how much IT we have covered and we have been able to use this knowledge to plan where to go next. They have helped us think carefully about the experiences offered, particularly the tasks set when using a program. They have

provided children with targets to achieve and have highlighted the teacher's expectations of them. For example many children who could not tick off 'I can load the program,' made sure that they could do so on the next occasion. Recently we have introduced a code for the ticks especially for the younger children. They tick their list in consultation with the teacher and a green tick means, 'I can do this with the teacher's help,' a blue tick means, 'I can do this with a friend,' while a red tick (or should it be gold!) means, 'I can do this confidently all by myself.' This has also encouraged children to write their own versions. I recently worked with a group of young children who were adamant that their 'I Can' sheet should begin with, 'I can help Alf the Elf find Woz the Wizard.' Finally this method of recording has demonstrated to everyone that both the end product and the process involved in achieving that end product are equally valued.

The children were, quite rightly, very proud of their books. These are just a few of their comments on the subject:

'I thought the computer "I Can" books were brilliant. I enjoyed keeping a record of all I did on the computer. In these books we were allowed to draw pictures and things to make it look good. I also learned a lot about computers and how they work. My favourite program was *Make Your Own Garden* because I did loads of work on it and put some new plants in the database.'

Chris

'I was dreading going into Mrs Blake's class because I had heard she was mad on computers and I thought I was no good. But I've learned a lot about computers and it has been a good year.'

Julie

'I now feel confident to use all the computers in our class. I can choose my own programs and I have written some of the 'I Can' check lists too.'

Laura

'To me the computer books were very important as a record of work we had done over the year. They enabled us to look back and see how much we had improved as we got older. I tried to make mine as neat as possible. I liked doing the computer books because the programs were fun and we tried to make the recordings fun with lots of printing out and colourful illustrations. I liked the cover work a lot as you could design your own patterns. My favourite program was *Make Your Own Adventure* because you did your own ideas again.'

Andrew

I think Andrew's last comments are extremely important. The pieces of work he remembers the most are those in which he had maximum ownership and that is what independent learning is all about!

Talking books for teaching reading

Jane Medwell
College of St Mark & St John, Plymouth

Despite computers in every class, and in many homes too, it is probably true to say that computers have failed to make a major impact on the teaching of early reading. I suspect that many of the reasons for this neglect stem from misunderstandings about the nature and the teaching of reading and about the types of software which have the potential to be really useful in schools.

When I discuss reading, I mean the construction of meaning from texts. As such, reading the words backwards (Ó Dúil, 1995) is not the sort of goal I have in mind. The processes of creating meanings from texts are what teachers aim to teach their classes and I believe that this is where there is the greatest potential, and need, for technological help.

One reason that computers have hitherto played a limited role in this teaching lies in the type of software which seems to have been designed especially to teach reading. The apparent aim of many software authors is to break reading down into component parts and teach elements such as word recognition or matching sounds to letters, often out of any meaningful context. This approach is based upon very old fashioned views of how reading works, views which no longer underpin the teaching techniques used by the majority of teachers. To be really useful in teaching early

reading, we need software to fit in with teachers' views of reading and their ways of teaching it.

Teaching reading

In the last two decades the teaching of reading has undergone enormous changes. Despite continuous controversy, a number of developments have been generally recognised and have become part of teachers' understandings of what they are doing when they teach reading.

The idea that narrative is a 'primary act of mind' (Hardy, 1977) lies behind the almost universal approach of beginning the teaching of reading with stories. The past decade has seen a major change in the quality of the literature used to teach reading. Authors such as Meek (1988) have made the teaching world aware that the structure of children's books is very sophisticated and actually helps the young reader. The complexities of syntax and cohesive devices, literary features, variety of genres and story structures in 'real books' do more than help children enjoy stories. These features support them in reading such texts.

This realisation been reflected in concern for quality literature from teachers and publishers. Old style reading schemes with limited, simple and often meaningless text have been replaced by a wealth of gorgeous books in natural sounding language which reflect the conventions of their genres. Almost all publishers of major schemes are at pains to emphasise the quality of their books – teachers require it of them!

Another important factor affecting the teaching of reading has been the widespread recognition of what Donaldson (1978) called 'child sense'. This refers to the need for children to be able to make sense of an activity in order to be successful at it. Instead of teaching small parts of the reading process before involving children in books, elements such as word recognition or phonics are now taught in contexts which make sense to the child – such as stories.

A great deal of attention has also been paid to the nature and role of interaction between the child, adult and book. The notion that all the teacher does is administer a reading scheme has gone forever. In reading with children teachers are making skilful diagnoses of the child's strategies and confidence, taking more control when necessary, and gradually passing the responsibility onto the child.

Computers and reading

Given these changes in teachers' thinking about reading, there may be a number of reasons why computer software seems to have had little impact on the teaching of reading to very young children. One problem has been the nature of the software. Much of this has been based upon models of the teaching of reading which are not used by the teachers in schools. Many programs adopt a logical but unsatisfactory approach to the task of reading: they break it down into component parts, and attempt to teach the parts. For most teachers, this is not the way to start with young readers.

Another reason for the lack of impact of computers in teaching reading has been technological. Until recently the computer has been limited by difficult interfaces and poor sound quality. Intonation has an important role to play in the creation of meaning for young readers and 'Dalek' voices just do not support young readers enough.

Some software which adopts a 'bottom-up' model of the reading process also creates management problems because it is designed for use by individual children. Most computers in UK primary schools are placed in the classroom so that their use will be a seamless part of the curriculum. Group, rather than individual, use is favoured for pedagogic, not merely logistical, reasons. Whatever the pros and cons of this, it means that software designed for individuals is unlikely to be immediately useful in the classroom context of the UK infant class.

The problem

In 1985 and again in 1995 *MICRO-SCOPE* printed the following quotation (*MICRO-SCOPE 15*): *'We're starting from the wrong point. It's not "I have a micro – what do I do with it?" but "I have a problem – could a micro help?" The answer to this latter question may be yes or no.*' In teaching young children to read, one of the problems is that large classes and the demands of the National Curriculum make it difficult to teach in the best possible ways. Teachers need ways to support young readers in making sense of texts, especially the texts they choose to use to teach reading. It may be that disc- and CD-ROM-based electronic books are one solution and offer an approach which builds upon what we know about the teaching of reading.

Electronic Books

Electronic books on disc are now widely available for all types of computer. They offer children's literature which is made accessible to the child through real voices, and which allows the child full

control over the level of responsibility they take in reading the text. Children can have independent access to simultaneous aural and visual stories, at their own pace.

An important aspect of talking stories is the lessons they teach about reading. When a text is read each word can be illuminated as it is spoken. This emphasises basic aspects of reading such as which parts carry meaning, which way the print runs, and the patterns of words which appear repeatedly. Most importantly, the child can begin to develop a concept of word. When we speak there is no temporal pause between spoken words to match the spaces in writing. Instead intonation and meaning signal the ends of words. The child who sees words highlighted as they are read can begin to understand the role of the spaces. Far from telling children 'precisely nothing about what the printed word represents' (Ó Dúil, 1995) these electronic books can use the engaging text to teach not only the purposes of reading, but also some of the features. As children talk about the story they may also develop their metalinguistic awareness, which plays a part in developing as a reader.

CD-ROM-based story books have many more features, such as the ability to read in a number of natural sounding voices or languages, the ability to offer repetition and definitions of unknown words, and the possibility of heavily animated graphics to accompany written text. However, offset against this is the access problem. CD-ROM players are commonly found in schools, but still quite rarely in early years classes.

The real attraction of electronic books is that they can fit into the way teachers teach reading, rather than forcing teachers to change to accommodate the technology. Pairs or groups of children can work together on the sort of texts which the teacher would like to use more often. In this way the technology is a useful part of the curriculum. It would be ludicrous to suggest that a talking book could give children the sort of support and teaching an experienced teacher offers, but they may be a useful addition.

Research

The possibilities of electronic books as part of the teaching of traditional reading are clear, but their use still requires research. Do electronic books help children to read traditional texts? Miller (1993) reports a study which suggests very strongly that the four children involved made much greater reading gains using CD-ROM-based books, than using their traditional hard cover counterparts. This was a laboratory study of junior aged children. The issues we are trying to address in a Plymouth based study are slightly different. We want to know whether, and how, electronic books support young children learning to read in ordinary classes. A pilot study involving 32 infant children in four classes has been completed and a wider study will be completed very shortly.

The preliminary results of these studies are encouraging (and will be reported in more detail elsewhere. See Medwell, forthcoming.) The children using the electronic books (the Sherston *Naughty Stories* and *Talking Stories*) showed significantly greater increases in word accuracy than those who did not have access to the computer. Some of the children showed increases as great or greater than when they read the books with the teacher. Those children who had both the computer and the teacher made the greatest gains. One finding which will be particularly interesting in future is that the boys showed greater increases in word accuracy when using the computer than the girls. Given that most struggling readers are boys, this will interest teachers everywhere. These are findings from a couple of small studies and much more work needs to be done, but discussion with the teachers of the four classes involved is interesting in itself. They report favourably on the programs: they were easy to use, the children worked in pairs or threes, and none of the children declined to use the computer. These teachers identified a number of different ways that these electronic books were used, depending on how experienced at reading the children were.

There are indications that this software can offer young readers a chance to use text independently, and that it supports them using book texts. The opportunity for children to experiment with stories at their own pace, without risk of failure, seems to be valued by teachers. At the very least these books may be the earliest computer experience some children have in school. For teachers, these are more than edutainmennt; they are programs which fit into good practice in teaching reading.

Electronic books are not ready to take over the teaching of reading. They do not have the ability to generate the supportive relationships and diagnostic skills necessary to teach reading to very young children. However, our studies suggest they do teach children valuable lessons about reading, in ways which teachers can feel comfortable about. *Talking Stories* may serve children and teachers precisely because they do *not* challenge the curriculum.

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The programs used in the study are the *Naughty Stories* published by Sherston Software.

Mapping IT

Reg Eyre
Curriculum Support Teacher for IT, Wiltshire LEA

Please imagine that you can hear me as a Michael Caine voice! 'Did you know, that a man in a tweed suit, who works in an LEA school can obtain, free of charge, all the Ordnance Survey (OS) maps for his Authority. Free of Charge!' That isn't quite true but there is sufficient truth to investigate further. Each Local Authority now holds all the OS maps for its area in digitised form. As a part of the Authority, you are entitled to use such maps. They may make a small handling charge, details later.

Assuming that you have got hold of the OS digital map for the area around your school, you will have noticed that it has arrived on an IBM DOS formatted disc. (You may need to request that the data comes to you in unzipped format.) The next problem is accessing this data on the school computer. You will now need to convert the data into some form which is recognisable to a drawing program that you use. Since we use Archimedes computers in Wiltshire, we use a program called *Map Importer* from Minerva Software.

Figure 1 shows the software called *!OS-NTF* and the files from the DOS formatted disc e.g. ST9962/NTF. The Archimedes can read DOS-formatted discs so that is not a problem. The program is loaded onto the icon bar in the usual manner and the file dragged onto the program icon. After a short while a draw file icon is displayed, Fig. 2, which can be dragged onto a saving disc, Fig. 3. Double clicking on the draw file icon will now load the *!Draw* program and display the file selected, in this case, the centre of Devizes, Fig. 4.

!Draw allows you to zoom in and enlarge areas of the map so that you can clearly pick out the school and the homes that the children live in.

At this stage you can get the children to colour in their own homes and draw lines that represent their routes to school. Once all the class have done this, it should be easy to see where all the accident blackspots might be and where Lollipop persons might be sited.

Alternatively, the class could take a small section of the map and identify features such as bench marks, types and names of shops, etc.

The data that is supplied is very comprehensive and *Map Importer* allows you to deselect features that might cause confusion. You can include items such as railways, major and minor roads, landform markings, coastline features, water features, towns and buildings, names, boundary lines, etc.

When starting to work with these files I have found that it is a good idea to 'group objects'. In *!Draw*, when the users click on an object, they have effectively selected it, which means that they will often 'drag' it around. In the current context, that means that the children could reposition their

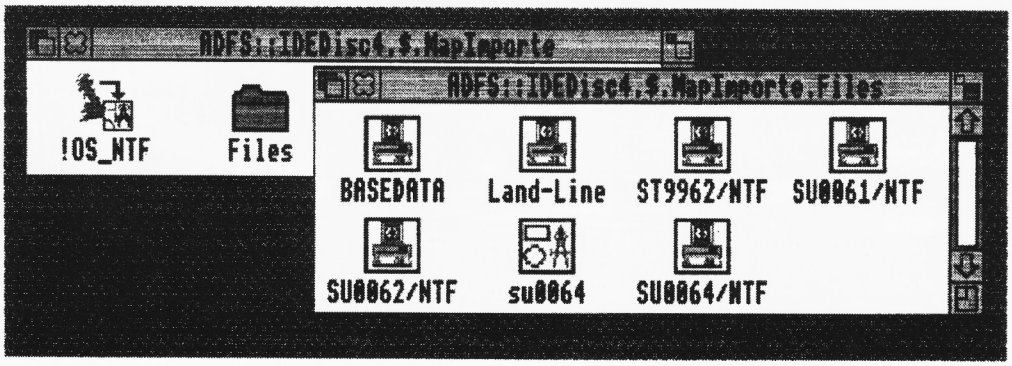

Fig. 1.

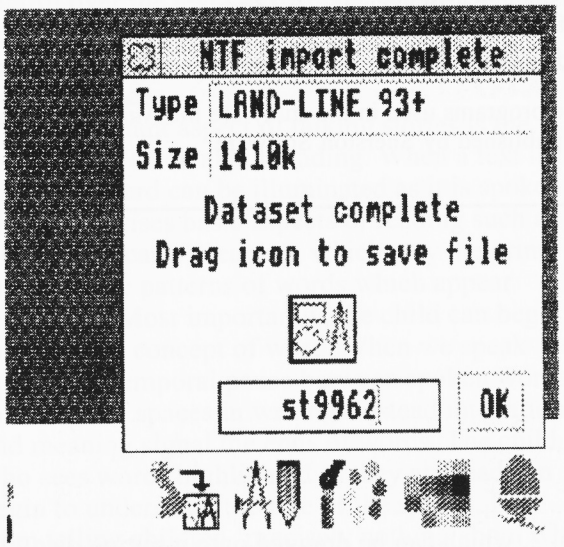

Fig. 2.

homes accidentally. Only after they have experienced moving around the map, locating known places by using the window slider bars, do I let them loose on a map which does not have the objects grouped. Ungrouped objects, such as the school or a house can be selected and coloured in as well as lines added to the map. At the end of the session, all objects should be selected from the menu and then grouped before saving the file for later work.

Since the file is of *!Draw* format it can be loaded into all other Risc-OS applications such as *Phases, PenDown, Genesis, Impression*, etc.

'So how do I get hold of this, Reg?' I can hear you say. I would recommend that you go through your local IT Advisory Team who will then work through the County Surveyor's Department who will provide the maps you specify for a small charge, currently £7.00 per disc for four OS map titles in Wiltshire. The contact person will not want to deal with a multitude of requests and would prefer someone to provide them with a list which can be dealt with in one session. The IT Team will probably prefer to run courses in conjunction with the Geography Advisor and distribute the discs through such courses.

What happens if you are not funded by the LEA? You will need an Ordnance Survey Licence from the OS Copyright Department, Tel: 01703-792684 or 01703-792703, and then you can order your discs of data from the Ordnance Survey direct.

A future possibility – we can now obtain, from various sources, aerial photographs. These can be loaded into drawing software packages and modified or compared to OS data. Watch this space!

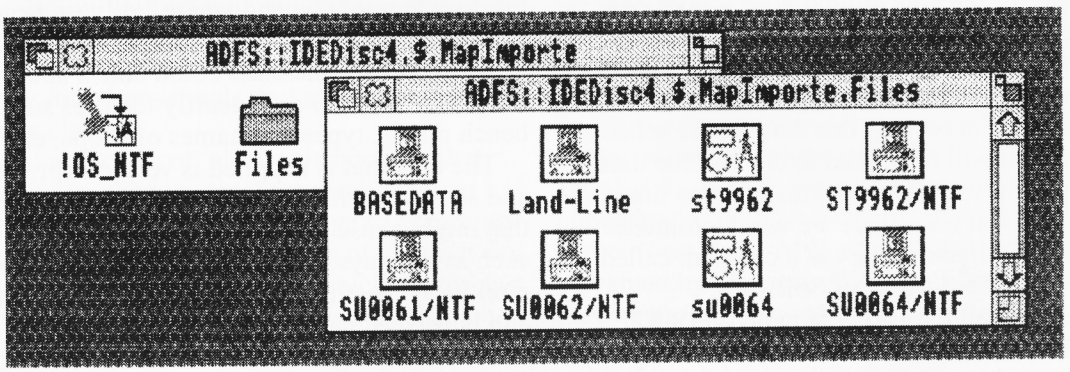

Fig. 3.

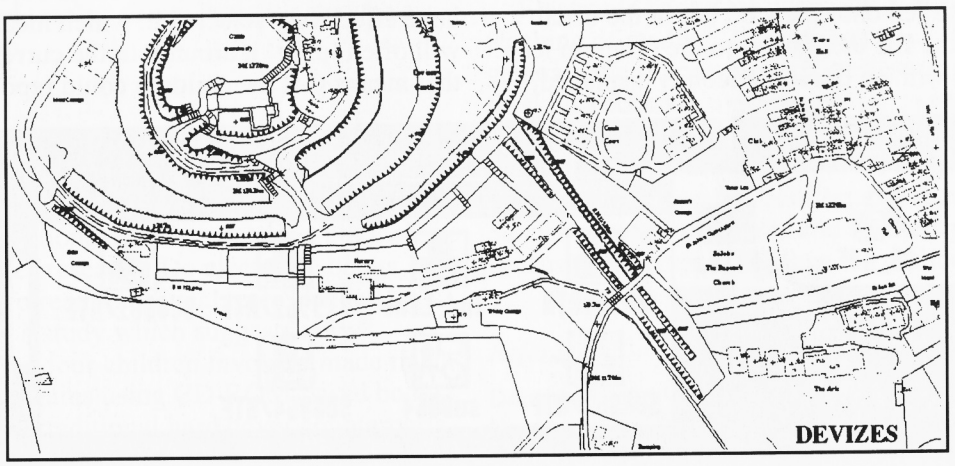

Fig. 4.

Making a multimedia educational resource pack – from inactive paper to interactive CD-ROM

Barry Wake
Educational IT Consultant

It was Jane's idea really. She lives very near to Sutton Park, which is situated on Birmingham's doorstep, and, with an area of nearly 1000 hectares, the biggest urban park in Europe. It is a very popular place for a whole variety of leisure activities from walking to model aircraft flying. Historically, there is evidence of Druid and Roman occupation, and it was a royal forest for Henry VIII. Nowadays, children from the local schools are frequent visitors because of the easy (and relatively safe) access to a wide variety of different habitats, including woodland, heaths, pools and streams, so there is an abundance of plant and animal life. But what it really needed, thought Jane, was an IT-based educational resource pack for primary schools to give teachers and pupils ideas and starting points to make their visits to the Park more effective.

This was round about the period, some two years ago now, when those of us over a 'certain age' were offered early retirement from the teachers' centre, which seemed a good idea at the time to both Jane Nash and myself who were in the IT team. We managed to talk two other retiring advisory teachers into joining us and their experience and expertise proved invaluable, especially Sylvia Winchester's in English and Brian Hirst's in Science.

The first brainstorming sessions were exciting and full of enthusiastic notions of what we could do. We discussed all kinds of possible ideas for starting points and follow-ups, pre- and post-visit activity sheets, a whole variety of formats, including a multimedia presentation, database files, concept keyboard overlays, sound clips, teacher guides, study notes for the 'walks', a parents guide for use with young children, colour photographs

Fig. 1. *Town Gate, Sutton Park.*

and drawings, all related to the relevant National Curriculum programmes of study, and with as much as possible on disc so that children and teachers could access and use what they themselves needed.

We very soon realised, however, that this project would need very careful planning, with realistic objectives and deadlines. And it would need money to get it off the ground! In effect, it had become a small business enterprise. So we toned down a lot of the more grandiose ideas. We dismissed the thought of making a CD-ROM as impracticable, arranged meetings with the Sutton Park Rangers at the Visitors Centre, and sent out an informal questionnaire to some of the local schools to find out what they felt they really needed. We also had to look very seriously at the possible cost implications and wrote off to all and sundry for sponsorship, though as you might expect, everybody was 'very interested' in our project but nobody had any money to spare.

However, the survey of the local schools gave us a lot of very useful information and further encouragement that such an educational resource would be really welcomed. The meetings with the Rangers were also very productive, partly because we caught some of their own enthusiasm for the Park itself and partly because they had been wanting to update their educational materials, too. So it was agreed that with their help we would produce both a schools resource pack and one for the visitors centre. At their suggestion we also contacted and managed to receive a grant from a local municipal charity, which meant we could now at least get started.

One of the first decisions we made was that the pack would not be a complete reference guide to all the Park's flora and fauna. Instead, using local advice, we would concentrate on the most common trees, birds, butterflies, mini-beasts, etc. – those that the children would be most likely to see on their visits. From the 60-plus varieties of trees identified in the Park for instance, we would offer information on say, 12, and from the 120 species of birds seen there we would use say, 30. Even then there was so much information that we needed to group the animals and plants into three areas of wetland, heathland and woodland types. There would be a further section of maps to cover general geographical, and historical features.

Then began the painstaking identification and collection of the resources. We allocated ourselves various jobs and one of mine was to investigate the multimedia side. *MM Box2* seemed to be a fairly common authoring package for the PC so I started a mock-up of screens and the linking structure. The underlying aim was that by navigating between various decision points, based on an accepted classification system, the children could identify for instance the butterfly they saw on the heathland, and at the same time begin to appreciate

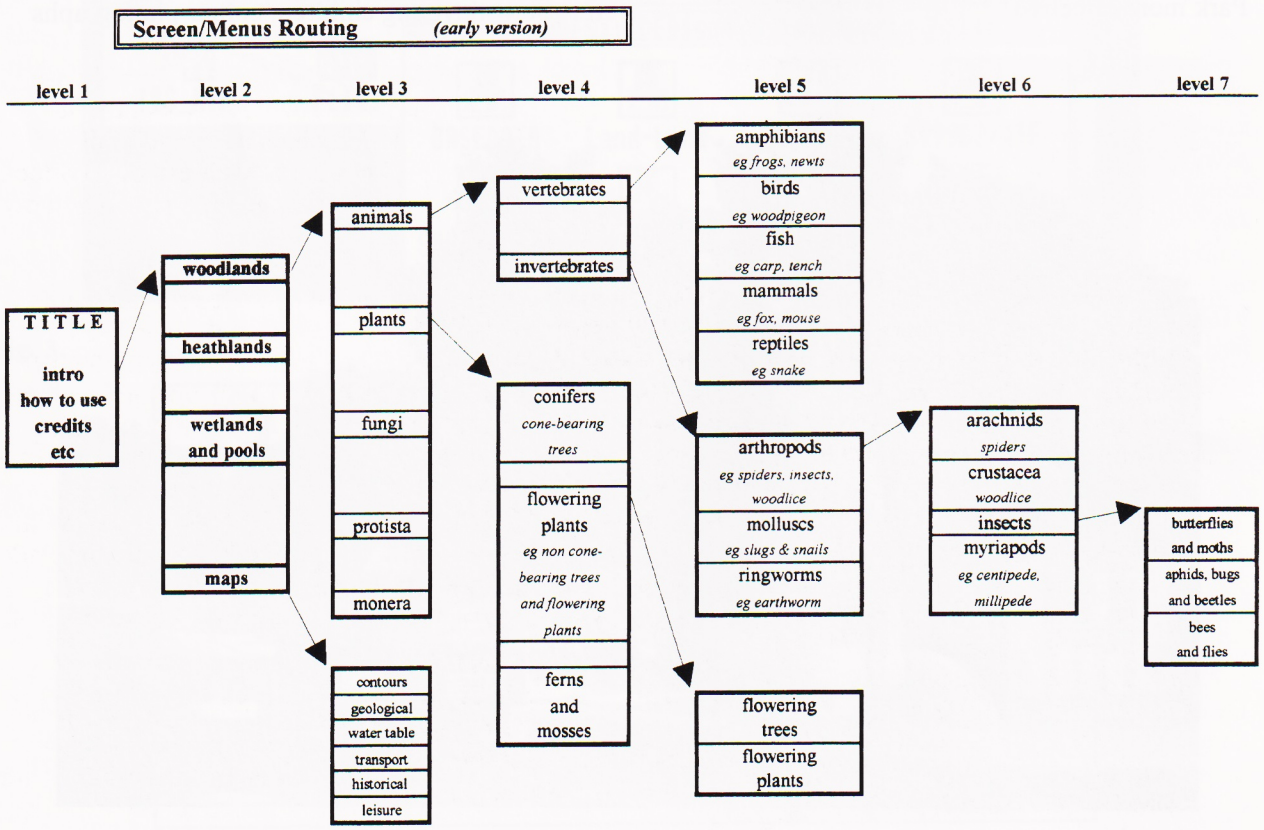

Fig. 2. *Data structure showing path of search for a butterfly.*

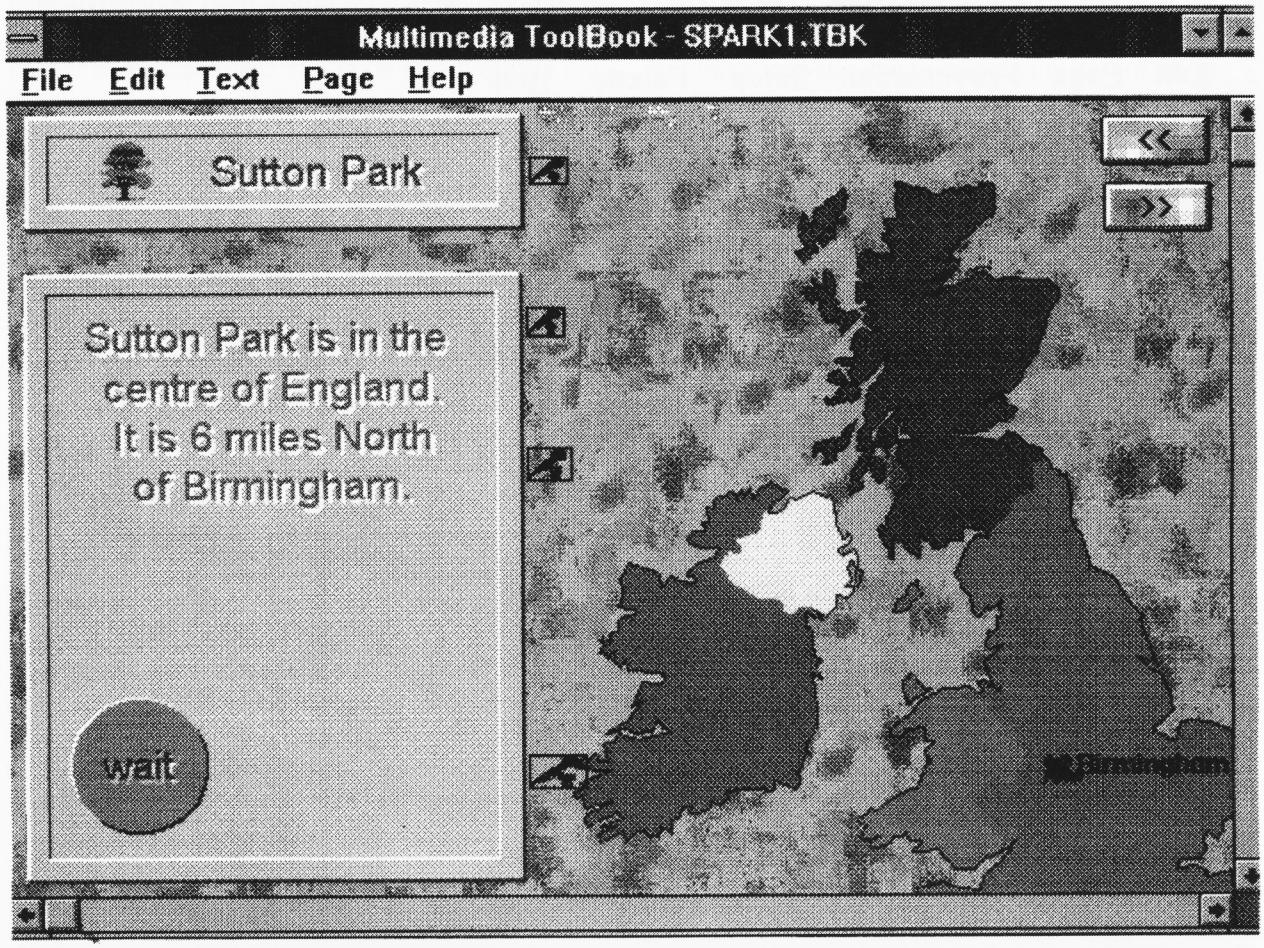

Fig. 3. *Early sample screen: location map.*

which plants and animals prefer which habitats. I soon realised that I was no graphic artist so we bought some expertise in. We also needed a clear, easy way of seeing not only where you were in terms of screens or pages, but also how you got there. After a late night session, we came up with what we thought was a brilliant solution, only to find soon afterwards that Dorling Kindersley's *My First Incredible Amazing Dictionary!* and Anglia's *Garden Life* CD-ROMs do the same sort of thing!

After a few months, we realised that the Project was getting bigger and bigger, and constantly being re-tuned and refined. At roughly the same time, four things happened which had a major impact on its development. Firstly, we had all found it hard to keep up with the deadlines particularly with other commitments (such as volunteer work at the church, and earning money supply teaching, lecturing, assessment moderation etc. often on a irregular consultancy basis). Secondly, Ron Dearing was 'slimming down' the National Curriculum so we were in danger of being out of date. Thirdly, we got involved with the Primary CD-ROM Initiative and the NEMA multimedia awards at NCET which opened our eyes (and how!) to what was happening in terms of presentation and educational resources. And fourthly, we began to have access to some really wonderful paintings and sketches which demanded full colour, from well-known and well-established local artists and friends. Clearly the only way to go now had to be with CD-ROM.

So a major re-think followed. Luckily we managed to get our grant extended for another year. To date, a lot of the materials have been collated and are being transferred onto hard disk ready to go onto CD-ROM. We have upgraded our software to *Multimedia Toolbook v3*. Everything seems to be falling into place, though there's still a lot to do, particularly in finding the best way to transfer our data on to the CD-ROM format. With any luck – and you do need luck – our Sutton Park Multimedia Resource Pack will be ready by the time this article reaches you. If it is not ready, well, that will be another story. . . .

We would have to say, finally, that the main thing that has kept us going has been the amazing warmth and enthusiasm of so many people connected with Sutton Park. Their willingness to share expertise and knowledge has been really inspiring, and we can only hope that the final result comes up to their expectations as well as ours.

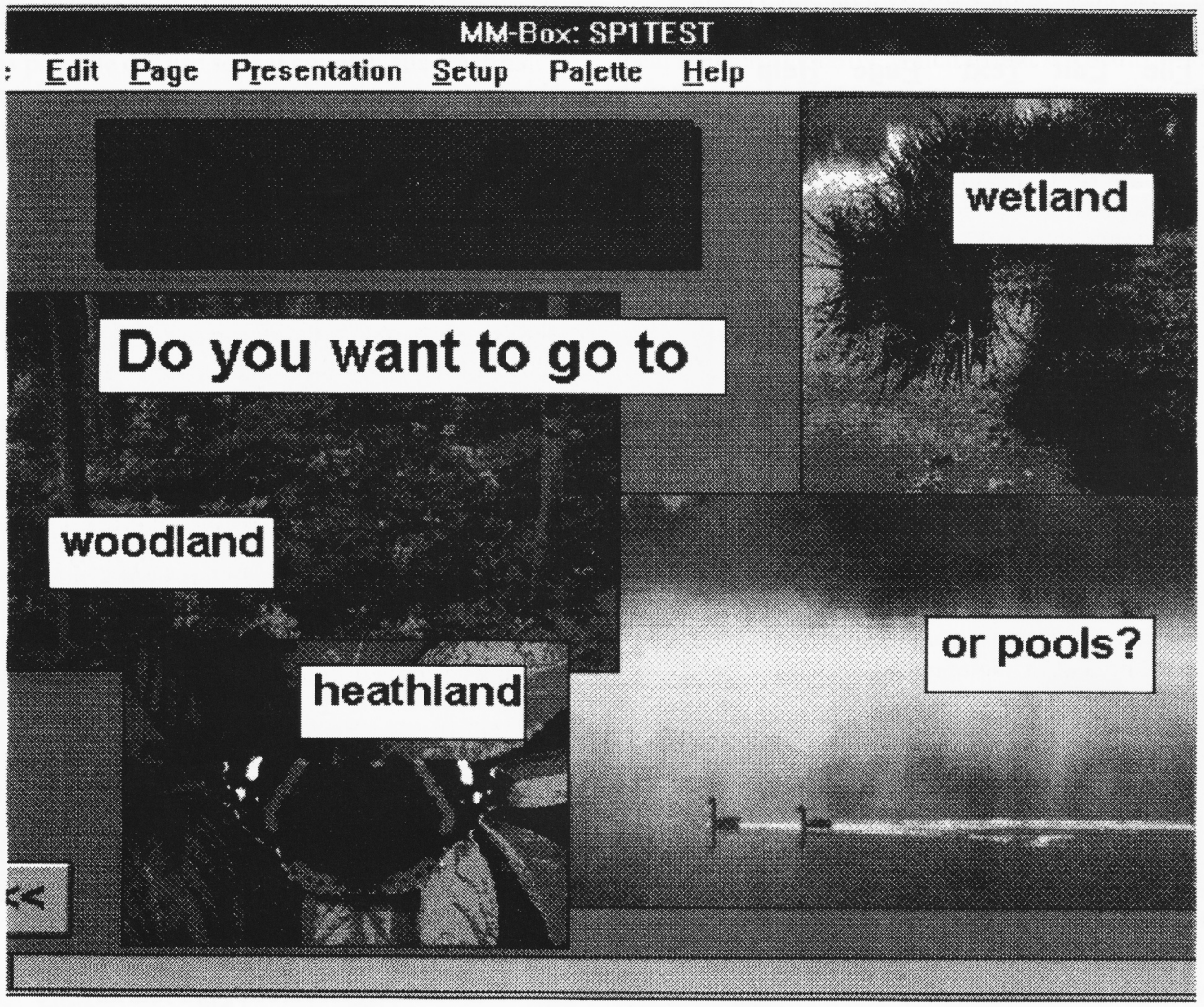

Fig. 4. *Early sample screen: starting a search.*

A look at a Pixie

Reg Eyre
Curriculum Support Teacher for IT, Devizes, Wiltshire

Do we need another floor robot? Why isn't the Roamer or Pip enough? Who is the Pixie for?

There are many questions that can be asked of Swallow Systems, the makers of the new Pixie table top robot. For example, as the maker of the successful Pip floor robot, why are they going into competition with themselves? Perhaps one should start by examining the new machine and what it can and cannot do.

For a start, Pixie is about half the price of a Pip, (£99.95 compared to £189.95), about half the size and has about half the number of buttons to control it. Pixie is intended to be used on a table top as opposed to on the floor and be used by the very youngest children in school.

One of the drawbacks I had found when using the Pip or Roamer with reception children was the problem of having to follow a command by a number. These children seemed to take a while to grasp the concept of movement being a two-stage process, i.e. to move forward, the machine has to be told to move forward *and* by an amount. In the past, I guess, I fudged the issue and let the randomness of the choice of numbers by the children

happen because they would soon grasp the idea that the number was actually an indication of how far the robot travelled. The Pixie removes this problem in one go. If the forward arrow is pressed once then the robot moves one body length, if three times, then it moves three body lengths. The turns are automatically set for 90 degrees.

It is possible for the teacher to alter these units of distance and turn but I would suggest that they be left alone and to make further progression in control activities, the school should consider moving the children on to the Pip or Roamer machines. If the school does not have one of these latter machines, then some altering of units might be necessary. The distances can be set for whole numbers from 1–50 cm and the angles in multiples of 5° between 5 and 360°; both these operations are done while the Pixie is on charge. Another nice feature of Pixie is that if the machine is turned off, accidentally(!) or not, the set of instructions and any changes to units are remembered. Pixie, like Pip, has an integral rechargeable battery with an automatic cut out so that it cannot be overcharged, but unlike Pip, I don't think it would survive a crashing fall since the casing is made of panels and not the sturdy one-piece moulding of the Pip.

All the activities that teachers have designed over the years for floor turtles and floor robots can be scaled down and reused with the Pixie. Grids scale down to an uncomfortable 11 × 11 cm. It would have been ideal to have had 10 cm squares but industrial standard components do not allow such niceties. All the children and their teachers who have used the Pixie have been delighted with its operation and charge life, which is long enough for the working school day. I feel sure that Swallow Systems have found a gap in the progression of control activities and produced a worthy machine to fill it.

P.S. Pip is no longer to be made because of European regulations! Swallow Systems are to produce a Mark Two Pip which will look like the old Pip but cannot now be used with sensors through a control interface. The charger socket now appears underneath the machine with the charging light and a hole has been put in for holding a pen. The new Pip also gains the Pixie's non-volatile memory so that all the instructions previously entered are remembered when the machine is switched off. This does mean that children have to remember to clear the memory before starting a new sequence of instructions.

Product information

Swallow Systems, 134 Cock Lane, High Wycombe, Bucks HP13 7EA. Tel: 01494 813471; Fax: 01494 813552. Pixie costs £99.95 + VAT + P&P.

NCET news

Teaching and Learning with IT

Here comes NCET TV as part of BBC2's Focus TV night-time broadcasting! We will be broadcasting a new magazine-style programme each month on Wednesdays 4–4.30 am starting on 4 October. The first programme has a focus on portable computers and IT in the National Curriculum. For those of us who always forget to set the video, each month's programme will be repeated in the same weekly slot for the rest of that month, so there are lots of chances to catch it!

Later programme topics include 'Making multimedia', 'Teacher training', 'Primary IT ideas' (in January) and 'Home–school links'. There will also be extra 'special broadcasts' in November, February and May: November's is *Portables in Action*. Look out for more information in BBC and NCET mailshots and publications, and in TV 'trails' and press.

Special Needs Co-ordinators

Every school has a special needs co-ordinator. NCET has been exploring the use of electronic communications as a means of providing access to support and information to help SENCOs in their work. In the project SENCOs had e-mail links to their peers in other schools and learning support centres in their LEA, to SENCOs in other LEAs and, through the World Wide Web, to other SEN information providers.

This is what the participants said.

'It is better than a letter, it's not so formal; better than a phone call, you have time to think; better than a meeting, you don't have to identify yourself personally in the same way.' ' I can send a request for information down the line instead of waiting until the support teacher comes in next week.'

The feasibility study was so successful that it is now being extended. Now, any school with Internet access may join. They will receive regular newsletters about what is available, they will get on-line support in the use of e-mail and the Web, and will get the names and e-mail addresses of colleagues in the project. If you have Internet access, or are thinking about it, contact NCET for a free information sheet about the project.

Primary IT courses 1995/6

A two-day course, *'Managing the Development of Information Handling in the Primary Years: a whole-school approach'* will be run at eight venues around

England. The courses will be for Primary heads with their IT co-ordinators and will focus on developing higher-order information handling skills and developing strategies for implementing and managing change in information handling. Course attendance will be free to state-maintained schools. Further information will be sent out by the course providers and NCET in its news updates, or contact Ruth Bourne at NCET.

Training Today's Teachers in Information Technology

We have now issued some 20,000 copies of this useful leaflet on request; if you still have not had a copy and would like one please contact Margot Martin at NCET. This professional development tool describes key areas of IT competence for teachers along with sources of help and practical advice. (Copies free while stocks last; over 50 copies, postage and packing charges apply.)

Communications

There's lots happening in the comms field, including the Whitby videoconferencing project, where three primary schools are using videoconferencing via ISDN to teach French. (Project supported by BT, Apricot, North Yorkshire LEA and NCET). More information from the Comms team or Information Officer at NCET.

Advance notice

We are planning a joint conference with the BBC for primary advisers looking at uses of content-rich resources (TV, radio, CD-ROM, Internet etc.) which is likely to take place in December or January. Look out for further details via usual routes or contact Margot Martin at NCET to register an interest. The address is: NCET, Milburn Hill Road, Science Park, Coventry CV4 7JJ Tel: 01203 416994; Fax: 01203 411418; e-mail: Enquiry_desk @ncet.org.uk; e-mail for named contacts: Firstname_ Lastname@ncet.org.uk

NEMA '96

NCET is launching the third year of the National Educational Multimedia Awards for original and creative multimedia compositions from pupils and students.

NEMA '96 is sponsored by Acorn Computers, Apple Computer, Anglia Multimedia, Microsoft UK, Ordnance Survey, Research Machines, the Times Educational Supplement, and Toshiba.

Prizes, including hardware, authoring software and CD-ROMs, have been donated by sponsors and a wide range of other companies in the multimedia field.

NEMA '95 attracted 110 entries from pupils and students working as individuals, small groups, computer clubs or whole classes. Eleven Award winners and 26 Commended entrants received awards in a ceremony at Birmingham Repertory Theatre hosted by Dominik Diamond.

Work by primary age pupils was strongly represented, constituting 72 of the entries. Many of these programmes were of a particularly high standard and attracted eight of the 11 awards.

Award-winning stories included 'I Hate School!' from Inverkeithing Primary School, Fife which follows the events of one girl's school day. Six pupils aged six and seven created the programme using *Amazing Animation* on a Macintosh. Original graphics were developed using a variety of techniques, and enhanced using graduated colour backgrounds and simple animation. Sound effects and audio acting by the pupils are used to tell the story in conjunction with short sentences of written text.

Non-fiction winners included 'A Guide to Islam' from Brookhouse County Primary School, Lancashire. Twenty-four pupils aged 10 and 11 used *Genesis* on a PC to create this guide to the history, customs and beliefs of Islam. The sections on Islamic culture are particularly well organised with a rich mix of spoken commentary, photographs, drawings and text. The programme also includes a sophisticated quiz, where the aim is to build a mosque on screen . Each right answer adds another element to the mosque; while answering incorrectly leads you back to the relevant portion of the programme.

A number of games also won Awards. 'Mad Mansion' from Stephenson Way Primary School, Durham is a branching adventure game created by a special needs group as part of language development work. The haunted house is full of surprises and unexpected events. Escaping is not as simple as it might appear. Twenty-one pupils aged 8–11 created the programme using *Magpie* on an Acorn system.

For NEMA '96 we are looking for entries from pupils and students of all abilities. Entries will be accepted on Archimedes, Macintosh and PC.

A full entry pack including a CD-ROM showing entries from previous years will be available from 31 October 1995. The closing date for entries is 31 March 1996. Please address any enquiries to NEMA Office, NCET, Milburn Hill Road, Science Park, Coventry, CV4 7JJ.

Ruth Bourne
NCET

Chiltern region news

Our next session will be entitled 'Managing IT in the classroom' when two very experienced classroom teachers will tell us how they manage IT at Key Stages 1 and 2. Come along and find out how it's done without having to learn from bitter experience – remember 3 February 1996 at Hatfield – for further details ring Betty Lumley on 01923 823411.

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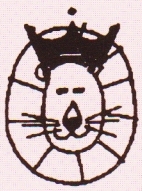
MICRO-SCOPE



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FORWARD WITH IT!

at the University of Reading

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Prices held at 1995 levels!

For further details, contact:
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