MICRO-SCOPE

SPECIAL — SUMMER 90



NEWS OF THE WITCHES 67p

Sunday May 25th 1989

DANGER! WITCHES!

by Richard Joyner

Witches have been seen jumping from cliffs near Ogmore-by-Sea.

Witches have for the last few days been using spells in the area.Two people have been turned into frogs!

One was Mr.Jim Toy,a 25 year old milkman.The other was Mr.Tom Broke a postman who later said "Ribbit.Ribbit."

WitchyCola...The wizard drink.

NEWMAN COLLEGE WITH MAPE

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Acknowledgements

The editor is indebted to the colleagues who have willingly shared their experience and expertise for this MAPE Special on Special Education and to Reg Eyre (College of St. Paul and St. Mary, Cheltenham) for his constant and patient encouragement which has ensured that this issue has finally appeared.

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MAPE (Micros And Primary Education) is open to individuals and institutions. The current subscription of £12.00 p.a. UK, £16.00 p.a. overseas, includes direct mailing of **MICRO-SCOPE**. Application forms from: Mrs G Jones, 'The Old Vicarage', Skegby Road, Normanton on Trent, Notts NG23 6RR.

Introduction

Peter Fowler, NCET National Co-ordinator (Special Needs)

There is now a substantial body of evidence to support the hypothesis that children with special educational needs can be helped by using Information Technology. Because of this, it is not surprising to see references to using IT with children with special needs so liberally made in both the NCC documents and in HMI's "Information Technology from 5 to 16" booklet. Readers should, perhaps, particularly note the relevant sections in "A Curriculum For All", the first published result of NCC's Task Group on special needs (NCC, October 1989).

The articles in this MAPE Special Edition are particularly pleasing because each of them is rooted in classroom experience; and each of them teases out different aspects of using the computer in special needs teaching. We have here children with very different needs, and work in very different areas of the curriculum.

Katie Pester, for example, looks at the use of IT with young children with hearing impairments. The important message of her article lies in the meticulous preparation with the children before they used the computer: instead of launching into the use of databases (needed to be tackled to allow her children to access the mainstream curriculum), Katie and her assistant concentrated on the concepts of information gathering and retrieval: on accurate descriptions, on definitions and on sorting. Having spent what was clearly a considerable amount of time on getting the children to understand such important aspects of pre-database work, she can write, honestly and without exaggeration:

> *It was an easy step from here for me to introduce the idea that we could store the same information much more easily on the computer and to show them "List Explorer".*

It hardly needs saying that this "easy step" was only made possible by the thoroughness of the teaching programme described in the article.

Carol Jarvis and Wendy Watchman both refer to the use of IT in the Core Area of Mathematics - though the activities their children engaged in necessarily (and intentionally) straddle other curriculum areas. Their contributions serve to remind us of one of the cruel paradoxes of computer use with children with learning difficulties: If IT has been linked, as it has in the past, with mathematics (after all, many IT advisers began their careers in maths), why have so many children with learning difficulties in this area been driven to distraction by a concentrated and interminable diet of drill and practice computer programs in The Four Functions and Beyond? Carol Jarvis, in using and extending Marie Buckland's "Touch Explorer" work on patterns; and Wendy Watchman, in using DART to control a Turtle, show us how to use IT within the mathematics area to help children with special needs "handle number and solve problems without fear". In this way, the computer is singularly well suited to help these children develop that "feel for number" seen as so important in the Cockcroft Report.

IT also has an undoubted role in tackling what Professor Mahesh Sharma, one of America's leading authorities on numeracy learning difficulties, called "the essential pre-skills a child needs to master mathematics. These, which Sharma calls the "anchoring skills" (because "mathematical concepts only get anchored if they are present"), include sequencing, orientation and patterns - all dealt with in the work described in the two articles here. When Wendy Watchman notes how the use of the Turtle "fused mathematics and movement into a single learning process", she is describing precisely this process of anchoring a necessary skill; and doing it, moreover, within a fear-free context of fun.

Jane Arnold's article discusses using the particular use of the Overlay Keyboard to help develop reading skills. The illustrations show some of the marvellous overlays Jane has designed; and I am sure it is at least partly their attractiveness which motivates her children to work so hard, Her packs are now available from the Bristol SEMERC. In contrast, Andrew Wood taking a popular book and a related software program as his starting point, demonstrates how he used Information Technology as a tool within a theme that spanned all areas of the curriculum for his group of children with special needs and resulted in work which earned the respect and admiration of both adults and peers.

Judith Stansfield touches on the large issue of assessing children with physical and sensory impairments to see if an appropriate purchase of hardware and software may be made to allow the child access the curriculum. HMI noted, in their Curriculum Matters booklet:

> *Increasingly, specially adapted IT systems offer an unprecedented degree of individual access to the curriculum for pupils with severe visual or physical impairment.*

I call it a "large issue" because this liberating potential of IT for children with such impairments is now officially recognised in some of the published Orders for the National Curriculum; and the need for hardware and software purchases certainly should, logically, fall within the protective parameters of a Statement of Special Educational Needs.

Judith is now often involved, as part of the Cleveland LEA multi-disciplinary team, in helping draw up a child's statement. Other LEAs follow a similar procedure; but too many shy away from the financial consequences of such an action. It hardly seems fair, given the economic consequences of LMS, to accuse the LEAs of too often side-stepping this issue: but, given that the authority retains its legal duties in statementing; and given that the LMS formula is meant to be "flexible enough" to cope with such additional funding as may be necessary to help children with physical and sensory impairments access the mainstream curriculum, we can but expose this present tension in the system and hope, somehow, the type of work Judith can do in Cleveland is eventually standardised across the country.

Finally, we include a contacts list for those involved in IT and special education. At NCET, as Special Needs coordinator, I have seen my prime aim as maintaining and nurturing the network originally developed by the SEMERCs: without this infrastructure, most of the development work which has resulted in the types of good practice described in the articles would not have happened.

SNAG is the NCET Special Needs Advisory Group, which consists of representatives from 12 regions, together with the NCET team, the ACE Centre managers and the manager of the Special Needs Software Development Centre (now based at RESOURCE, in Doncaster). In turn, each of the regions host meetings and the points of contact for these meetings are listed.

Finally, the "Blue File contacts" - originally so-called because they were, at one time, the recipients of freely-copiable software from the SEMERCs - are those we at NCET use as focal points for gathering information from, and passing information to, at LEA level.

Do feel free to get in touch at any of these levels.

Peter Fowler

USING TOUCH EXPLORER AND TOUCH EXPLORER PLUS TO PROVIDE SUPPORT MATERIALS

Jane Arnold works as a support teacher with the Dudley Learning Support Service. Though she has been using a computer for a relatively short time her pack of Concept Keyboard overlays supporting the O.U.P. 'fuzzbuzz ' reading scheme has proved very popular.

Two years ago I was working in a support situation in a Dudley school when a child I was teaching repeatedly came to me with the same request - to use the "pewter". This child exhibited traits that after two years of teaching her I had never previously seen. A persistence and a determination to be equal to the rest of the class and "use the pewter". I realised then what a vital motivational tool the computer could be to develop reading skills. I wanted to develop material that would be relevant and purposeful and extend beyond the screen experience (but first there was a slight problem - I had to learn to use the "pewter" too!)

Content free programs and the Concept Keyboard gave me the opportunity to create material for very specific needs. So with the help of colleagues and staff the first few 'fuzzbuzz' overlays developed into a support pack. The overlays are designed to enhance the word learning situation for the first 100 words of the 'fuzzbuzz' scheme.

The skills of drawing, colouring, writing, cutting and sticking have been combined to develop a screen-directed, holistic activity. This encourages good concentration skills and work habits. The children have the opportunity to work independently on specific word learning activities at their level and produce work that is of a high standard. The importance of "independent activities" for the child with special needs in a mainstream class is not to be undervalued. It gives the opportunity to acquire self-esteem and confidence and often changes the perception of these children by their peers. To present language of a chosen reading scheme and/or language from story books in any I.T. capacity I believe is of paramount value. It is important that the screen activity is specific, but open-ended to allow for the teacher's adaptations and ingenuity.

The pack itself is divided into two:-

Part A consists of 60 overlays for the Concept Keyboard, in A4 or A3 size. Each overlay is scripted and the specific word learning situation and task recorded so that the teacher has accessible material that is specific for the child's needs. There are twelve overlays to support each book. (The overlays can be photocopied for use with the child so that further developments e.g. books, folders, or word games can be produced from the overlays.)

Each overlay presents the child with a simple task which is designed in keeping with the scheme's 'colour, write and draw' instructions. The activities can be extended as the child requires. Originally the material was designed for Touch Explorer but it has been revised and extended for Touch Explorer Plus. With the program's start-up conditions set for optional message printing, the child has the additional facility of a touch / print response from the Concept Keyboard. If a Master 128 is available the Notepad facility can be accessed by typing 'N" on the computer keyboard. This is particularly useful for the teacher scribing sentences and stories at the child's dictation. The printouts can then be inserted into the child's records and can be used to illustrate the child's acquisition of language.

At the end of each group of overlays there is a set of overlays that present the child with the instructions 'draw, colour, write". These can be used diagnostically. An overlay record sheet is included in the pack along with a full script of the contents of each overlay file. The overlays can be stored in plastic wallets as a central resource and used accordingly.

Part B consists of a further 20 overlays (in A3 size ONLY, because of the fineness of the detail), and a Touch Explorer Plus user disk.

These overlays are designed to encourage sequencing skills and the story pictures could be utilised to illustrate the child's writing development.

The pack is not a word processing pack. It is designed to "enhance" the author's scheme, to develop good concentration skills and work habits and give the child with special needs in a mainstream class the opportunity of working with the "pewter".

The pack is also significant because it was produced by many professionals with different abilities and strengths working together, sharing and incorporating their skills into a viable classroom resource. We are grateful to Colin Harris, originator of the fuzzbuzz scheme, and to O.U.P., for their foresight and support and hope that there are many support packages around in your classrooms that we can share.

REFERENCES

The 'fuzzbuzz' support pack - (see teachers' comments below). The pack of 5 disks, booklet and 60 overlays, in plastic wallet, is available only from Bristol SEMERC, Department of Education, Bristol Polytechnic, Redland Hill, Bristol BS6 6UZ. The A4 size costs £18 and the A3 size£20.

The additional disk of sequencing activities is accompanied by 20 overlays IN A3 SIZE ONLY and costs £5.

TOUCH EXPLORER is freely copiable and available from LEA coordinators or from SEMERCs.

TOUCH EXPLORER PLUS is available from NCET, 6 Sir William Lyons Road, Science Park, University of Warwick, Coventry CV4 7EZ or it maybe available at reduced (bulk purchase) price from your LEA adviser or I.T. Centre.

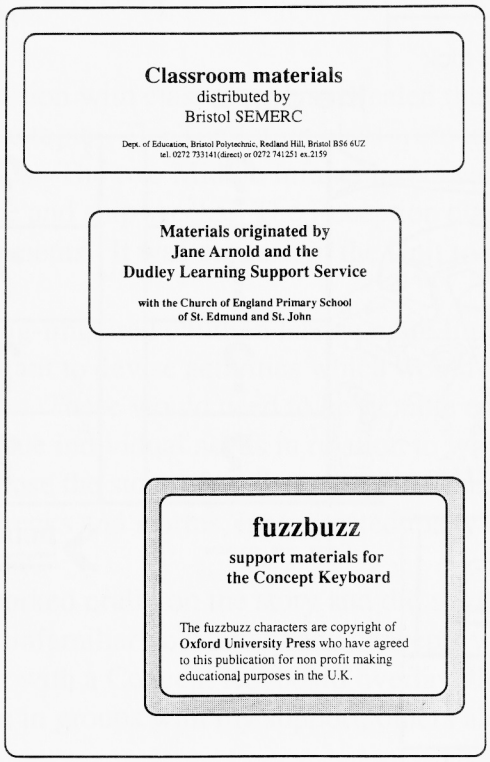
Comments on fuzzbuzz support pack offered by Sue Smith, Teacher in the Dudley Learning Support Service.

I have used the overlays to reinforce the vocabulary of fuzzbuzz Level one. Some children can take a long time to learn the first 100 words and this pack is an excellent resource to aid word recognition. The overlays can be used selectively, so making the pack easily adaptable to an individual child's specific needs. The overlays may be photocopied making the pack a very economical buy.

A nine year old boy with whom I used the pack was having difficulties in retaining Book 4 words. He was very quickly motivated by the overlays. The activities developed concentration skills and focused his attention on word recognition and sentence structure. The question sheets had activities which encouraged his use of comprehension skills. Some sheets were used as a game with a partner. I would recommend this pack for any teacher needing an adaptable resource to reinforce the first 100 sight words of the fuzzbuzz reading scheme.



Photograph taken at the Bristol SEMERC exhibition, Swansea.



Booklet and sample page

the black box - sentences
These sentences can be photocopied to make flash cards etc.

this is a black box

buzz buzz buzz goes the black box

stop the buzz

an egg is under the

buzz buzz goes the egg

crack goes the egg

crack crack crack

up jumps the fuzzbuzz

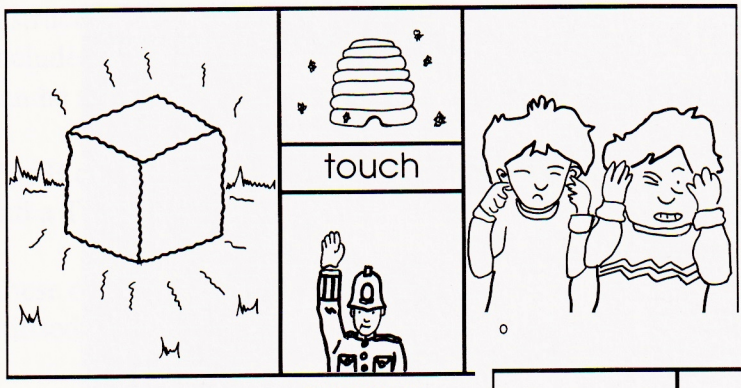
this is the fuzzbuzz

the fuzzbuzz jumps up and up

this is the fuzzbuzz and the egg

the black box

f.b.b.2



Touch Explorer

Touch the pictures
Find the words
Colour, write and draw

Sample overlays from the fuzzbuzz pack.

the garden

f.t.g.3



Touch the pictures
Find the words
Colour, write and draw

DUDLEY
Metropolitan Borough
Learning Support Service

the slinx

f.t.s 4

find the things the slinx needs for his trick

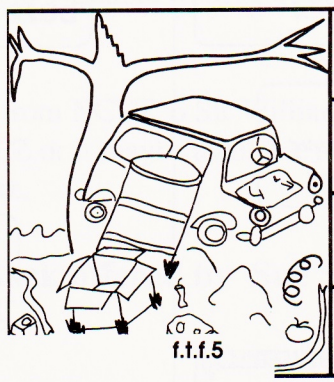
draw them write the slinx needs these things for his trick

Touch Explorer

Touch the pictures
Find the words
Colour, write and draw

the dump

f.t.d.2

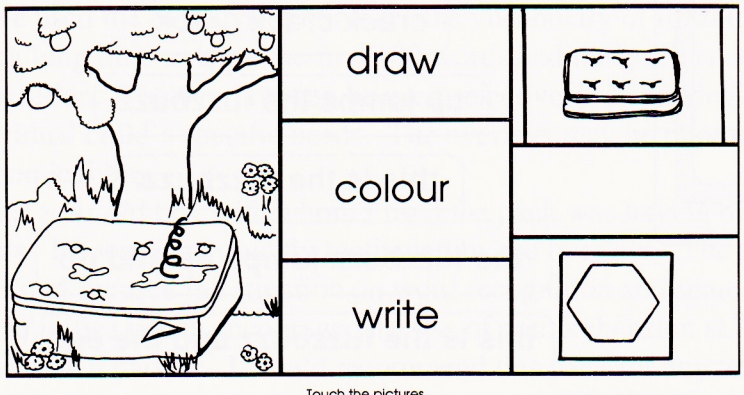


Touch the pictures
Find the words
Colour, write and draw

DUDLEY
Metropolitan Borough
Learning Support Service

the fuzzbuzz

f.t.f.5



Touch Explorer

Touch the pictures
Find the words
Colour, write and draw

DUDLEY
Metropolitan Borough
Learning Support Service

Using the Microcomputer to Give Hearing Impaired Children Access to the Mainstream Curriculum

Katie Pester is a teacher of the Hearing Impaired, currently on secondment as Inservice Training Manager at Bristol SEMERC. She has provided this account of work done in a unit for hearing impaired children within a mainstream infant school.

The work described in this article was undertaken in a Partially-hearing Unit attached to a Nursery/Infants School. The children in the Unit ranged from 5 -7 years old and have a variety of hearing losses from partially-hearing to profoundly deaf. All these children are a part of their mainstream class for some time in every day, although the amount of time spent there and the extent to which they undertake the mainstream curriculum varies according to each child. Both I and the full-time assistant spend a proportion of time in the Unit and some in mainstream support. Work with the children in the Unit is therefore to some extent one of support and follow-up related to the mainstream curriculum, and also one of anticipation and preparation for activities which will be encountered in the mainstream class.

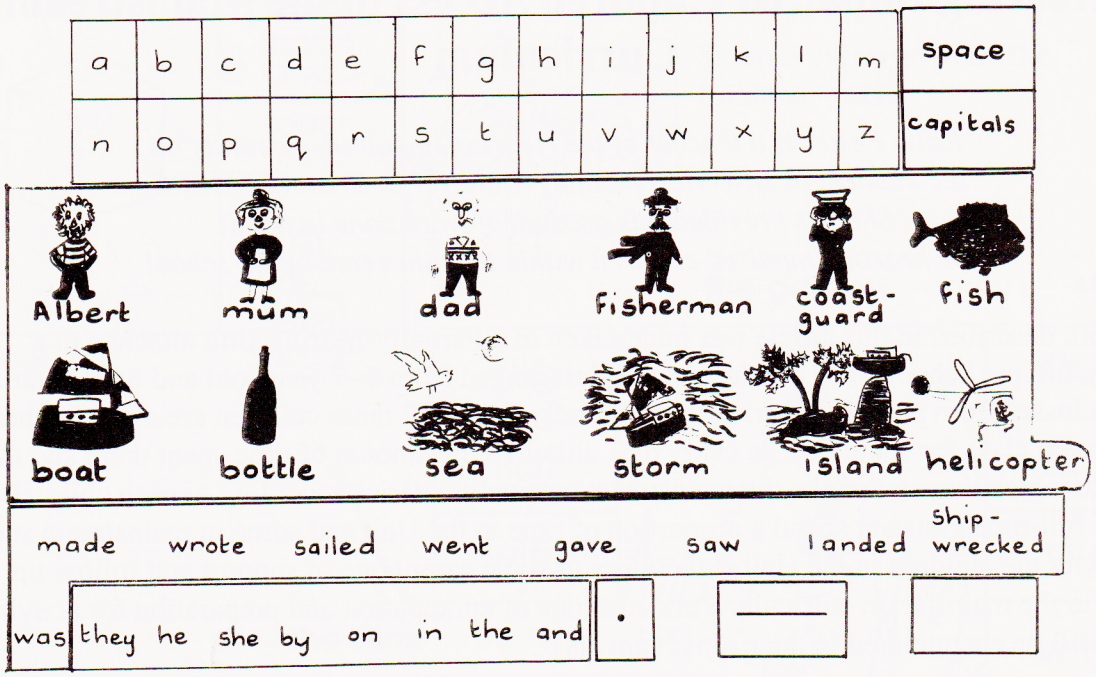
During the Summer Term last year, the whole school undertook a topic related to the seaside. The emphasis for the term was to be one of a scientific approach leading to a Science Fair towards the end of term to introduce Science and the National Curriculum to parents. In addition, the school project for I.T. for the term was to begin to tackle the use of databases as this had been identified as an area which we had so far neglected. The Unit work therefore needed to address itself to both of these slants if it was to support the children effectively in their mainstream classes.

Discussion with class teachers revealed that they were planning a variety of approaches to the seaside topic. The Top Infant class were looking at safety at sea and the role of the Coastguard services. The two Middle Infant classes were looking at seaside amusements and Robinson Crusoe and shipwrecks. The Reception class was looking at floating and sinking and water experiments. It was our task in the Unit to try to tackle all of these aspects!

Hearing-impaired children have a more limited vocabulary than their hearing peers, so it was important to devise activities which would introduce them to a core vocabulary related to the seaside. These would need to be flexible enough to allow diversification from the central theme to pursue individual needs in relation to what was happening in their particular mainstream class. We chose the story of "Albert and the Green Bottle" which, apart from being an exciting one of shipwrecks and storms, incorporated many of the aspects we wanted to cover.

We worked orally on the story and did some drama and story telling sessions, but it contained a lot of unfamiliar vocabulary and concepts which required further reinforcement. Using Prompt/ Writer with a Concept Keyboard overlay, the children undertook to write the story for themselves - some in groups with my support, others alone.

FIGURE 1 : ALBERT OVERLAY



The pictures on the overlay meant that the children could include unfamiliar vocabulary in their work and thus slowly assimilate it. The overlay included an alphabet for them to attempt words which did not appear, but they were also encouraged to use the 'word line', (a feature of the National Writing Project which is used extensively in Avon). This is a particularly useful feature for the Hearing-impaired who have a poor verbal memory and often forget the end of the sentence before they have recorded it. The word line does not interrupt the flow of ideas and leaves space for later editing of the draft copy. Children enter any sounds they feel confident of in the word they want to write, and indicate any missing portion, (or even the whole word) by a short line. Word processing is additionally helpful with hearing-impaired children as it allows for language teaching related to the child's own text and for the addition of 'function' words and word endings which they so often miss out and also for the reshuffling of word order - so often a problem for the Hearing-impaired.

Each child did not have access to the computer when adding to its writing, so the first draft was a mixture of handwritten and word-processed episodes. The final draft, however, was completed on the computer. A few of the children created their own "Albert" books from their final draft.

FIGURE 2 : EXAMPLE OF A CHILD'S WORK

the bottle floated in the sea and the
big fish eat the bottle and then the
fish got tummy ache the fisherman get
big fish out of the sea Albert mum cut
the fish and then she saw a bottle

Some of the younger children also worked with the "Going Places" suite of programs from Widgit in which the seaside features in a variety of pre-reading activities related to a day's outing.

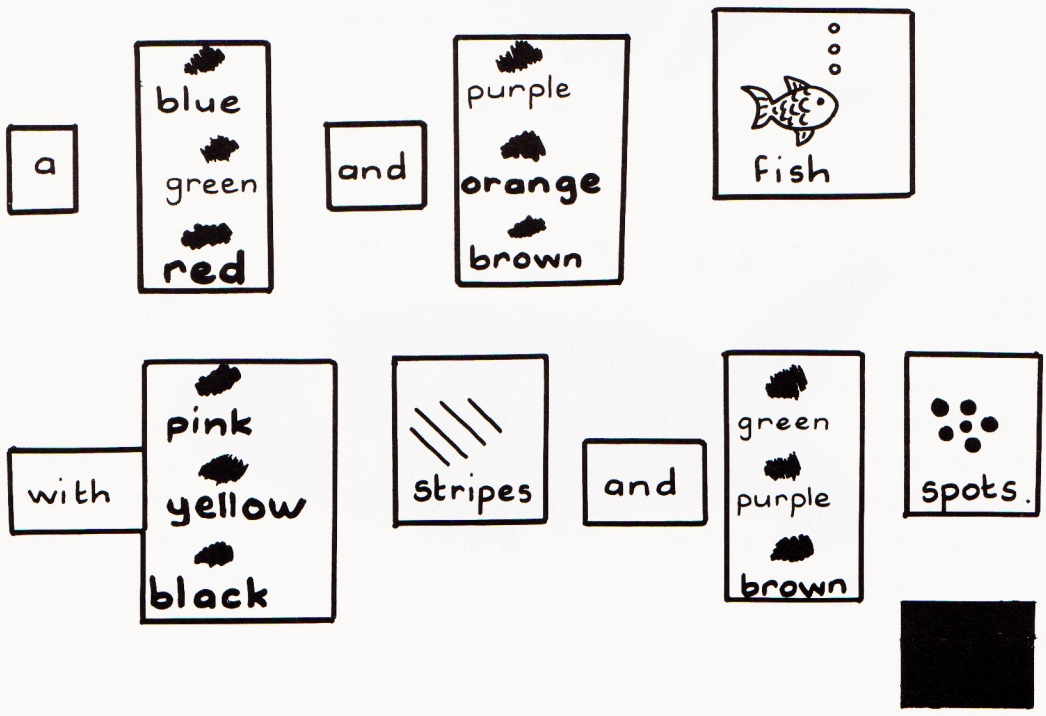
My second area of concern was to introduce the children to databases. The school initiative to investigate databases was using Our Facts, Branch and Sorting Game. I felt there were potentially two problems for the Hearing-impaired.

1. I knew that the children had not had any previous experience of databases and my concern was that they did not have sufficient language to understand what exactly a database was.

2. I knew that some of them could not be involved in the databases being used in the mainstream classes as the language was too complex. However, I was anxious to give them the tools needed to take part in the related activities which would be going on in the classes to support the use their peer group would be making of the databases on the computer - sorting activities, guessing games, information gathering etc.

All the hearing-impaired children had problems with the very detailed definitions and descriptions required by databases. They found it quite difficult to define the difference between, for instance, two puppets, as one class were doing with Sorting Game, because the parameters were too many. We started work, therefore, with a set of brightly coloured fish made from wrapping paper which all had spots and stripes and could be uniquely identified by the various colour combinations of those. For some of the children games describing and finding these were sufficient for them to begin to "tighten up" their descriptive language and define something accurately. For others, I devised a Prompt/Writer overlay which gave them the language and the structure for those descriptions so that all they had to do was decide on the details of colour etc.

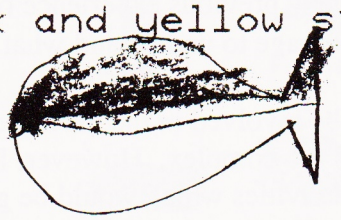
FIGURE 3 : FISHES OVERLAY



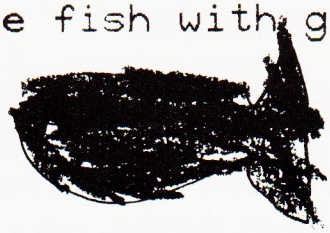
The overlay was in fact highly structured but, once they were confident with the language, the children used the simple structure in a great variety of ways. The descriptions the children produced were all individual.

FIGURE 4 : CHILDREN'S FISHES

G S
a fish with pink and yellow stripes



a black and purple fish with green spots.



a yellow and brown fish and black spot



N T
a red fish with green and purple stripes



Two of the older children, I felt, were able to tackle the database idea. Their mainstream class were using Sorting Game to sort a set of felt puppets they had made for the Punch and Judy Show. The hearing-impaired children were experiencing problems with the idea of creating a question which required a yes or no answer to differentiate two puppets. Sorting game is very much text based so there were no visual clues to help them (we were not at this stage using the Concept Keyboard version later created by our Advisory Teacher for I.T.).

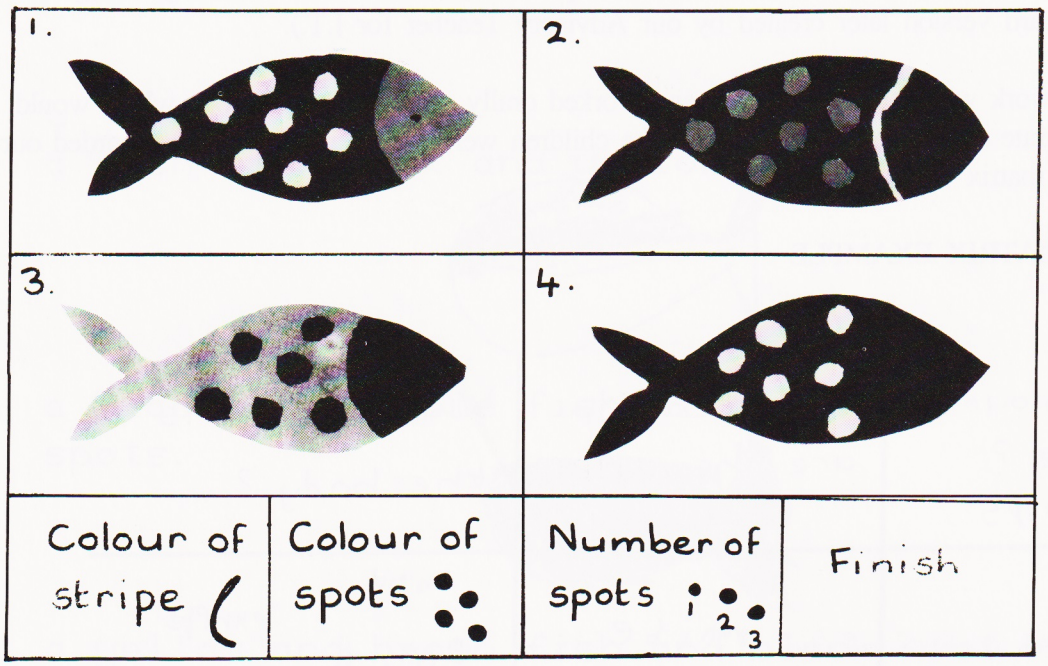
We continued work with our set of fishes and worked orally on creating questions which would lead to an accurate definition of them. Once the children were confident at this, we recorded our information in matrix form.

FIGURE 5 : MATRIX EXAMPLE

What colour is his face ? NICHOLAS	What colour are the stripes?	What colour is the body ?
red	white	and green purple
yellow	pink	purple
pink	green	orange
orange	white	red

The children devised the headings for the matrix and used them to define some fish they had chosen. They then swapped matrices and used each others matrices to identify their friend's fish. Once we had worked with these, the children were becoming aware that there are efficient and helpful ways of storing and retrieving information. It was an easy step from here for me to introduce the idea that we could store the same information much more easily on the computer and to show them the program List Explorer. Together, we decided on our field headings and used our matrices to collect information and enter it into the program. Finally, the program became the basis for much oral work as the children used the database to retrieve information in answer to my questions, and then to answer their own and each others questions.

FIGURE 6 : LISTS EXPLORER OVERLAY



It appeared to me that these hearing-impaired children had to go through these processes themselves in order to comprehend the purpose and the uses of a database. By the end of the term those children were ready to tackle more complex databases with much less limited use. Now they could begin to use the databases which they would encounter in their mainstream classes.

Using Information Technology to Support the Child with Special Educational Needs in Cleveland Primary Schools

Judith Stansfield: Special Educational Needs IT Advisory Teacher, Cleveland

Cleveland has a policy of supporting the integration of children with special educational needs in mainstream schools wherever this is feasible. This support is provided in a variety of ways:

- unit provision
- sensory peripatetic support
- intensive reading classes
- non-teaching assistants
- satellite class
- learning support
- behaviour support
- hardware loans

Hardware

As part of my role as Advisory Teacher for IT (Special Educational Needs), I administer the loans scheme and assess children for suitable equipment.

This may be all or part of a **BBC system,** a **Canon Typestar electronic typewriter,** a **Z88** or **Tandy laptop** computer or a handheld **voice recorder.**

Sometimes a complete BBC system is loaned to a school, so that the class will have a computer all the time. With this extra provision the child with Special Educational Needs can have more, but not exclusive, access than would be possible otherwise.

Other schools may need a **Concept Keyboard** or a **printer** to enhance the learning of a particular child with Special Educational Needs.

Some children with **poor co-ordination** or **extreme literacy difficulties** benefit from the use of the **electronic typewriter** and a **voice recorder.** Older children with similar problems have the use of a **Tandy 102** or **Z88** laptop. The larger screen size of the Tandy and more obvious way of handling files, make it slightly more useful for Primary children, even though it is heavier and more expensive than the Z88. Both of them need access to a serial printer or a BBC for producing hard copy.

Each child with a Typestar is provided with a mains power supply plug, a Nicad battery and a roll of thermal paper. If the child is near a power point the mains supply can be used, but the Nicad battery will last all day for all but the most prolific writer, provided that it is charged up overnight. The thermal paper is provided because the acetate ribbons are costly at about £3.00 for 6 pages of printout.

The Typestars seem to be robust and reliable, but I do tape up the flimsy carrying handle on the Typestar90, so that the children will not be tempted to carry them with one hand. They are also encouraged to use a small rucksack or sports bag to take them home.

Software

Wherever possible the children should be using the same software as their peers. This is important for their own self esteem, even if they need to have special files made for their use, or they take longer to complete the work. In many instances software that has been introduced to the teacher because of the presence of a child with Special Educational Needs in the class, proves to be of use to the rest of the class. Increasingly, programs which were designed for children with Special Educational Needs are becoming firm favourites in the primary classroom:

- TOUCH EXPLORER PLUS
- CAPTION
- EARLY FINGERS SUITE
- PROMPT/WRITER
- BLOB
- MOVING IN and other SCENARIOS
- PICTURE PLAY
- INTRO TRAY
- WINDOW
- WORDWEB

Some mainstream software is very useful for the child with Special Educational Needs, often needing only a Concept Keyboard overlay to allow the child to use it independently or for it to be introduced at a slightly later stage than usual.

- word banks or pictures on the Concept Keyboard allow the child to word process and complete matching / sequencing activities on FOLIO, MAKE AND USE or CONCEPT PODD;
- the speech facility on STYLUS to tell the text and provide humorous aides memoires for poor spellers;
- ALBERT'S HOUSE or WORLDS WITHOUT WORDS for problem solving;
- ALL ABOUT ME in conjunction with PICTURE PLAY or the FAIRY TALES family for stimulating reading and writing and spoken language development.

INSET and Teacher Support

Having identified a need and provided a child with a piece of equipment, it is necessary to give some training to the adults who support the child.

Sometimes the child has a non-teaching assistant for part of the day; others have support staff who are members of the local Learning Difficulty Service or of the Cleveland Learning Support Service; and then there are the child's teacher and parents.
At the time of assessment I explain to the child how the machine works and to at least one of the adults who will be concerned.

The machines have reasonably good manuals and I provide a one page "Getting Started" sheet. I suggest that the teacher takes the machine home before the child has full use of it, and if the parents are willing, the child takes the machine home to practise.

The children are not formally taught touch typing, but from the start they are encouraged to use at least two fingers from each hand. If they have poor co-ordination, it is stressed that the machine is not to be used exclusively, as they need to continue trying to do some handwriting, especially the younger children.
As more children acquire machines, the Support teachers are becoming more familiar with the technology and its potential. Several of them have also taken the opportunity of using the machines in INSET days.

Case Studies

A was beginning his last year in the Primary School, when it was realised that his poor hand co-ordination was causing problems with the speed and legibility of his handwriting. In the Primary school he could just about keep up with the work, but this would become increasingly difficult at the Comprehensive. He had one session a week with a Learning Support Service teacher, so this session was used to help him with his spelling and to learn how to use the machine. He also practised at home and has now made the transfer to Comprehensive School, taking his Typestar90 with him.

B moved into Cleveland from anther LEA. Her Statement of Special Educational Needs indicated the necessity for an electronic typewriter / word processor to help overcome poor hand co-ordination and some means of amplifying her speech. She is a bright 8 year old and was beginning to find the typewriter limiting, so it was replaced with a Z88 and a serial printer. The walkman-sized voice amplification unit was provided by the speech therapist.

C has a visual perception problem that made writing and spelling difficult for him He was loaned a Typestar which made some improvement, but he still needed to be able to scan across several lines of text, so he is now trying a Tandy.

E is an 11 year old who has spent 4 mornings a week at the Intensive Reading Class for 2 terms. The class has a BBC system and he also has his own at home. Each pupil has his/her own Folio disc with a preferred colour combination for the screen text - his is dark blue writing on red paper. He is now an avid writer and quite adept at editing his text with the aid of his ACE dictionary.

D has some disability from cerebral palsy, but went to the village school with her twin sister. She has some learning difficulties, as well as poor hand co-ordination, but has gained in self-confidence and made progress from using the Concept Keyboard on programs selected by her Support teacher.

F is a reception infant with malformed fingers. He will probably need to use a keyboard for writing later, although he uses a crayon and pencil. He has been loaned a system and A3 Concept Keyboard, so that it will become an integral part of his learning, in group as well as individual work.

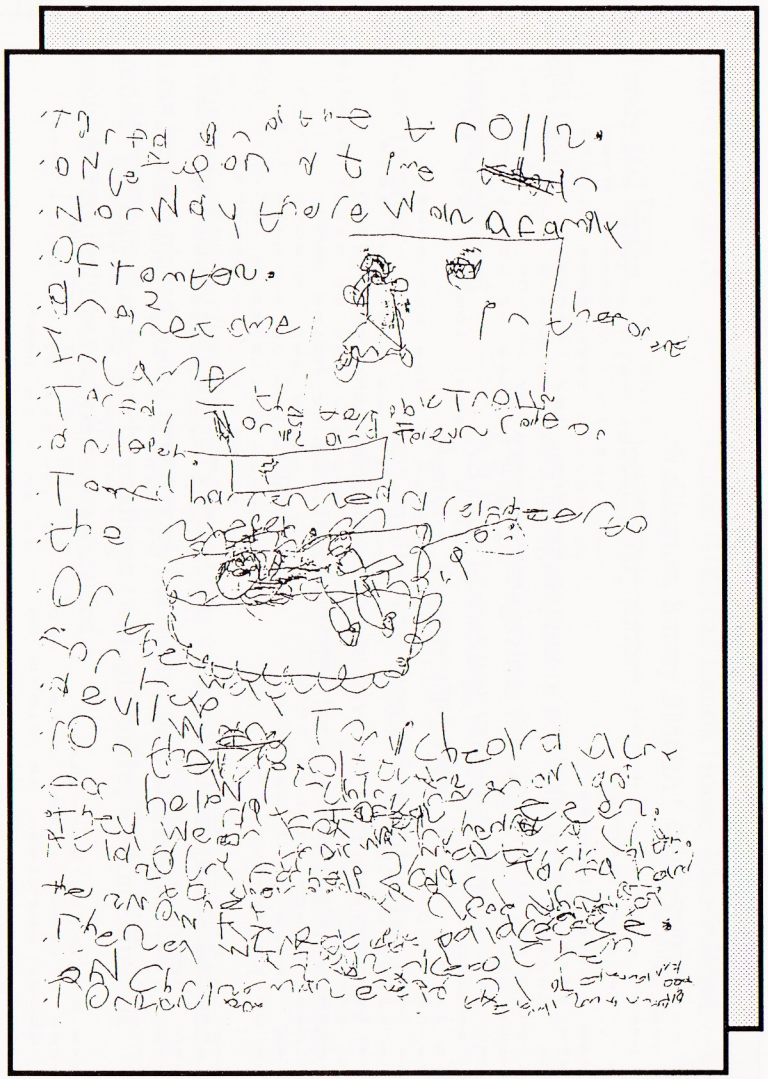
G is a 7 year old Downes syndrome girl who is easily distracted, but motivated by computers. Her system can be used to help her learn basic concepts and to encourage her to learn how to work co-operatively with her peers.

The Language Unit has a BBC system with printer, Concept Keyboard and Microvitec 501 Touchscreen. It proves a very versatile and motivating classroom tool: bright graphic programs like Early Fingers and Blob and the Brimble Hill Suite can help teach basic concepts and increase confidence and language skills; Prompt, with its facility to generate coloured text, links in with their colour coded language scheme; 'Using Rebus' enables the staff to make rebus reading cards on the screen or as printouts.

H and I were two almost disaffected top infant boys. They were not too interested in reading until their teacher made them their own files on SPEAK, a Language Master type program, that highlights the word as it says it in computer-speak. Now, on the computer, the lines from their book would speak to them and there were even sentences about them and their class, so they could not wait for reading.

N is a seven year old girl with Asberger's Syndrome who goes to a mainstream primary school. She is intelligent, but produces screeds of writing which only she can read. One day her teacher let her have access to Folio to write her story. Entirely unaided she wrote three pages of story, complete with speech marks. As a result of this she had been loaned a Canon Typestar90. She took to the typewriter immediately and within a week had produced almost perfectly spelled text, some as reported speech and some complete with speech marks. The content of her stories is all related to family experiences and she seems reluctant or unable to tackle imaginary stories. Her teacher is going to try to encourage her to branch out to new themes by using an ideas bank on the Concept Keyboard with Folio.

BBC system shared between an adjoining Nursery and Assessment Class has brought an extra dimension to the Nursery and a tool for integration for the children with learning and behaviour difficulties.



Nicola was asked to write the story of Tarfa and The Trolls" - a music programme (T.V) which Middle and plan to adapt as a Christmas Concert.

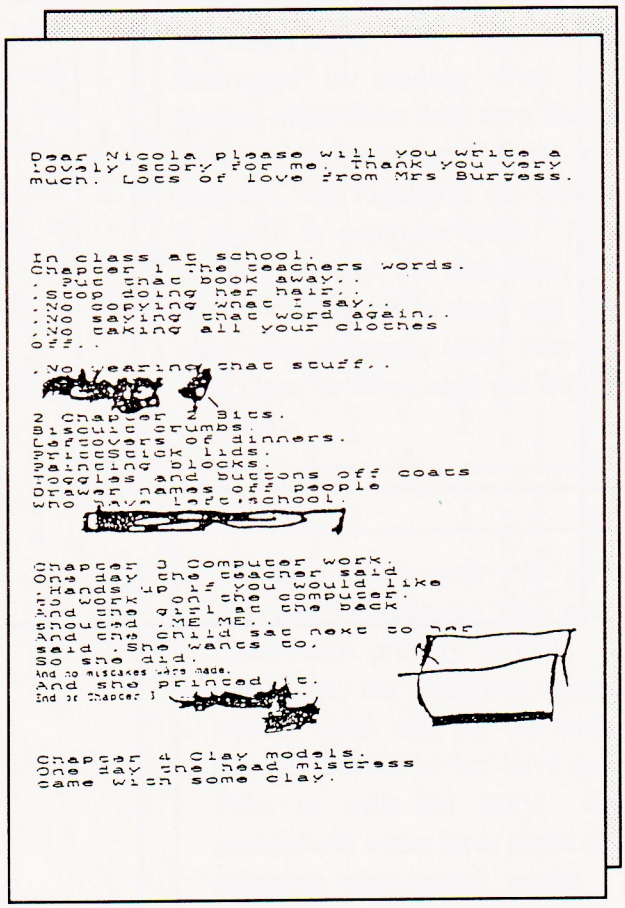
Tarfa and the Trolls

Once upon a time in Norway was a family of Tomtees noise came in the forest In came the terrible Trolls Tarfa Torgus and Torvic rode on a sleigh Tarfa harnessed a reindeer to the sleigh. In the way Torvic heard a cry for help A gull was attacking an owl and trying to pinch her eggs. On the way Torgus heard a cry for help. A fox was stuck in a trap On the way Tarfa heard a cry for help Two polar bear cubs had lost their mammy Soon their mammy was found Then they were at the Ice Palace, and the Snow King was happy to see them Then they were flying over the sea and they saw a boat. On Christmas Eve they were in the Trolls mountain Torgus got in a cage because he was being silly All the Trolls exploded Torgus was out the cage when he was told Evergon

A handwritten story and and transcript by N (case study example)

Though apparently imaginative, this piece was written in immediate response to the stimulus of a television program.

Examples of children's computer writing.



Dear Nicola please will you write a lovely story for me. Thank you very much. Lots of love from Mrs Burgess.

In class at school.
Chapter 1 in bed teachers words.
. Put that book away..
. Stop doing that hairy..
..Now stop saying that I say..
No saying that word again..
No taking all your clothes
No..

. No wearing that stuff..

2 Chapter 2 Bits.
Biscuit crumbs.
Leftovers of dinners.
Pencil sick lids.
Building blocks.
Goggles and buttons off coats
No swearing names of people
No ... Left school.

Chapter 3 Computer work.
Monday up to teacher
And work for me would like
And Mrs Burgess computer.
And Mrs Burgess me ME ME..
And Mrs Burgess me ME ME..
Said . She will sat next to her
Said . She wants to.
So she did.
And no mistakes was made.
And she printed it.
End of Chapter 3

Chapter 4 Clay models.
One day in the head mistress
came with some clay.

About my house.
My house is nice.
Sometimes we are good and some - times we are wrong

We look at catolouges.
We are late for school.
Nobody teases us.
No nipping or picking.
Everyone likes us.
Stephen has a bolt on his door.
I am sensible.
People like us and talk to us.
Nobody hates us.
People are nice to us.
We are happy children.
We are lucky children.
Me and Stephen are kind.
We are nice children.
No flower heads picked off.
Stephen wears nail varnish.
And he wears makeup too.

My name is Nicola Robson.
People come past our house.
Stephen comes in my room.
He came in my bed this morning.
Our friends say hello to us.

We make mistakes sometimes.
Everyone loves us and cares for us . Nobody worries or picks on us Every day we go to school.
The end of Page 1.

We are kind and good.
Everybody talk to us.
We live in 1 Crummock Road.
We have a bath some nights.
People say things to us.
Dirty people don;t like us.
People look around our house.
We get videos if it is bad .

Aunty Isobel looks after us.

People love our house.
t
People come past our gate.
We watch the televison.
No rough , bad or silly playing
No fuss or noise made.
Our hairs get a good brush.
People know us quite a lot.
Stephen calls me a ,Stupid girl
No sticky on our clothes.
People like our house.
I can hear songs coming from the hall.
People come near our house.
Stephen will be 4 on Monday.
Our windows and door are varnished . Stephen hardly stayed in his own bed.
We now ask if we can look.
at an Avon book.
The End of Page 2.

REFERENCES

ACE DICTIONARY	ACE Centre
ALBERT'S HOUSE	RESOURCE
ALL ABOUT ME	Northern Micromedia
BLOB	Widgit
CAPTION	NCET/MESU
CONCEPT PODD	esm
EARLY FINGERS	Blue File
FAIRY TALES	RESOURCE
FOLIO	esm
INTRO TRAY	Blue File
MAKE AND USE	Cleveland LEA
PICTURE PLAY	Blue File
PROMPT/WRITER	NCET/MESU
SCENARIOS	Blue File (Moving In: Moving In 2: Elmtree Farm: Fantasy That!: Our School: Toy Cupboard)
SPEAK	Superior Speech/Sid Cumberland
STYLUS	MAPE
TOUCH EXPLORER PLUS	NCET/MESU
USING REBUS	Blue File
WINDOW	NCET/MESU
WORDWEB	esm
WORLD WITHOUT WORDS	4Mation

Canon Typestar *	Canon (UK) Ltd Canon House, Manor Road, Wallington, Surrey SM60AJ 01 773 3173
Tandy 102 laptop	local Tandy shop
Z88 laptop	any local supplier or see mail order in computer magazines for offers
Concept Keyboard	AB Euro Marketing, Wharfdale Rd., Pentwyn, Cardiff, CF2 7HB
Voice recorder	any small voice recorder is suitable, but it is probably better to have one that uses ordinary sized tape cassettes, for ease of transfer between machines.

* NB Unfortunately the Canon Typestar90 is withdrawn from production and is not being replaced with a new model, but the company representative informs me they may be still be available (with guarantee) for some time, as machines recalled from suppliers are serviced.

Witches With Everything

Andrew Wood teaches the special needs class within Bryncethin Junior School, Mid. Glamorgan. In this article he describes the wide range of activities in which I.T. was a major stimulus and tool in a thematic approach including all elements of the curriculum during the course of a term's work.

I have always considered that children with special needs deserve as broad, balanced, differentiated and relevant curriculum as it is possible to develop. A thematic approach to teaching has always provided relevant areas of learning and experience to pupils. Literature provides a sound initial stimulus for the selected theme and a 'spin-off' interest in books. Last term my class theme was based on the book 'The Worst Witch' by Jill Murphy and software 'The Worst Witch' by M. Anderson and D.Baxter. I decided to incorporate all elements of the curriculum under the umbrella of this theme.

In terms of Information Technology, the program was sound in developing research skills, as without selecting data from the text, pupils could not progress with the adventure. The program itself accepted a variety of responses of language to use the game. Pupils therefore not only expanded their information gathering skills and use of English language but also learned worthwhile skills in data input and retrieval.

Design / Technology

A valuable aspect of this theme (photo 1 and item 1) was the opportunities it offered for design and technology experience. One group of nine and ten year old pupils were set a design brief of creating a machine to lift a witch over a wall and set her down on the other side safely. Again this was based on part of the story. This they accomplished using materials such as polystyrene, card and wood as well as using the gearing mechanism from Lego. The finished apparatus worked so well that the group decided to add an electric motor to the gears which led them on to constructing simple electric circuits. Other groups used their knowledge of witch torture to build ducking stools and stocks.

As part of Home-School Liaison (photos 2 & 3) some pupils built at home their own models at home designed to transport witches on land, sea and in the air. Self-hardening clay provided an ideal outlet for talent for those with some problems with fine motor control who made broomsticks, cauldrons and bats. Several pupils produced outstanding fabric designs and pictures using the "Artist" graphics package.



Photo 1 - Children with the machine to lift a witch over a wall

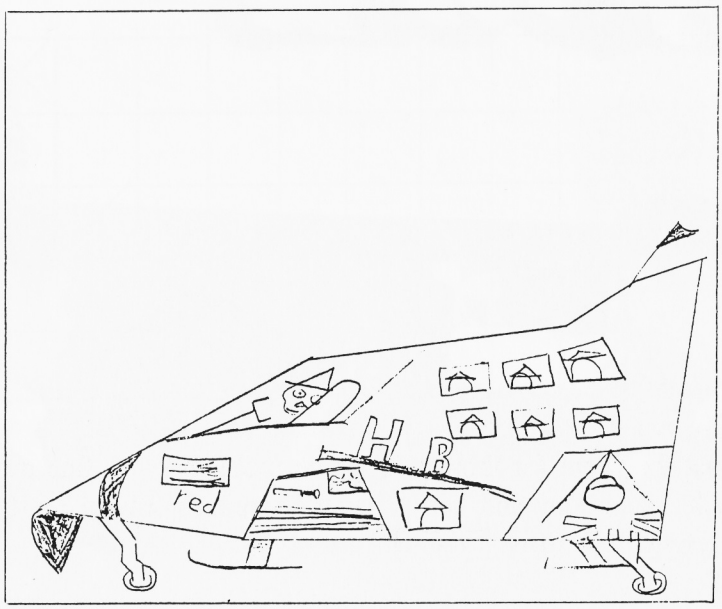
DESIGN TECHNOLOGY

Design a car for Miss Hardbroom with the following features;

It must be able to carry a broomstick.

It must be able to carry a large cauldron.

It must be able to carry 7 young witches to go to rounders matches.



Item 1 Design for witches' transport

Pupils photographed with their designs for witch transport.

Photo 2

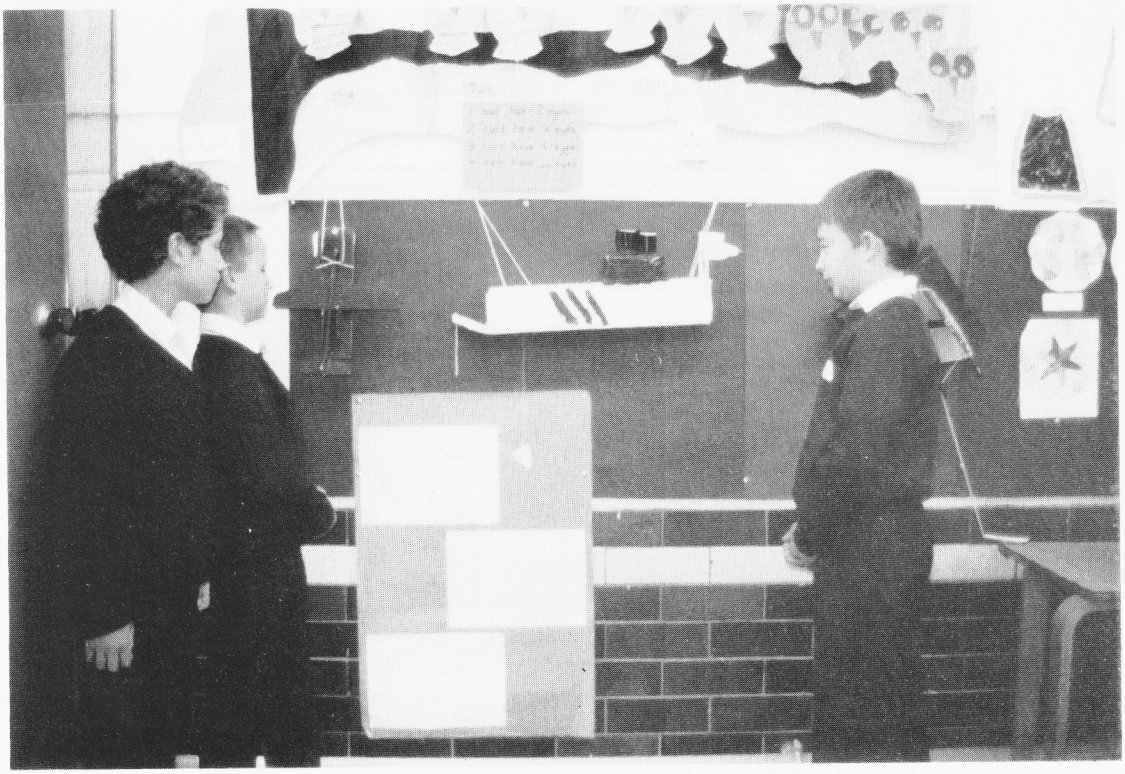
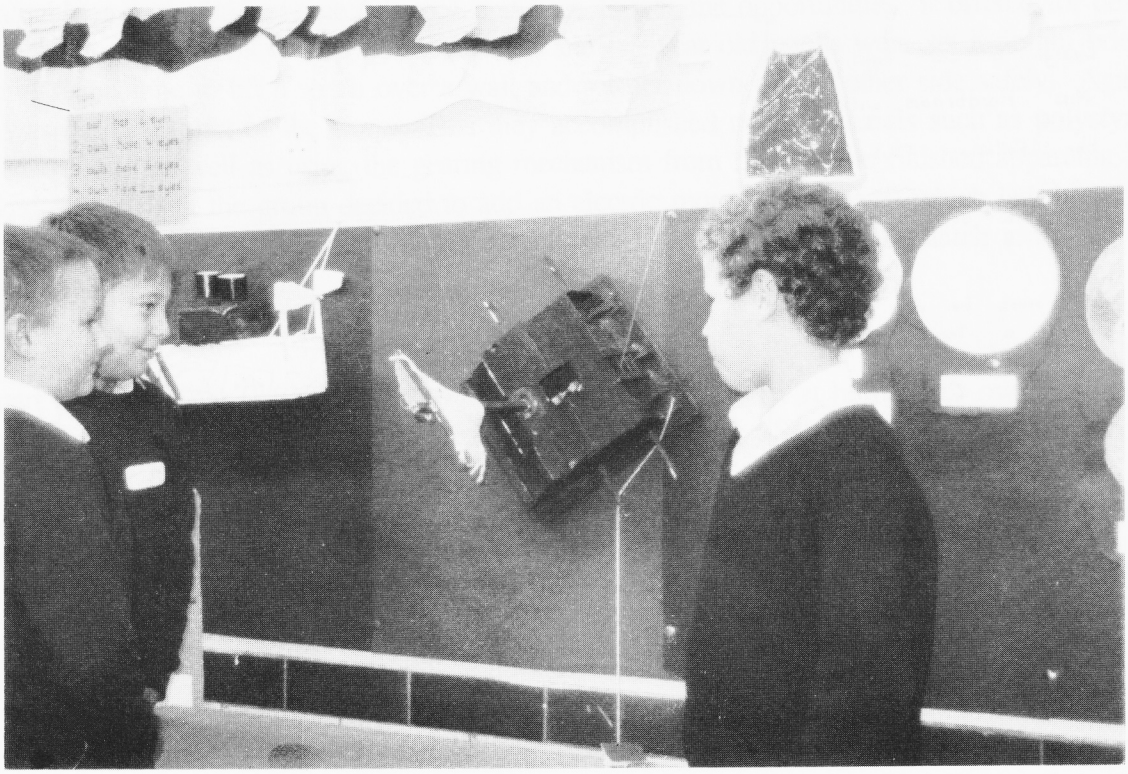
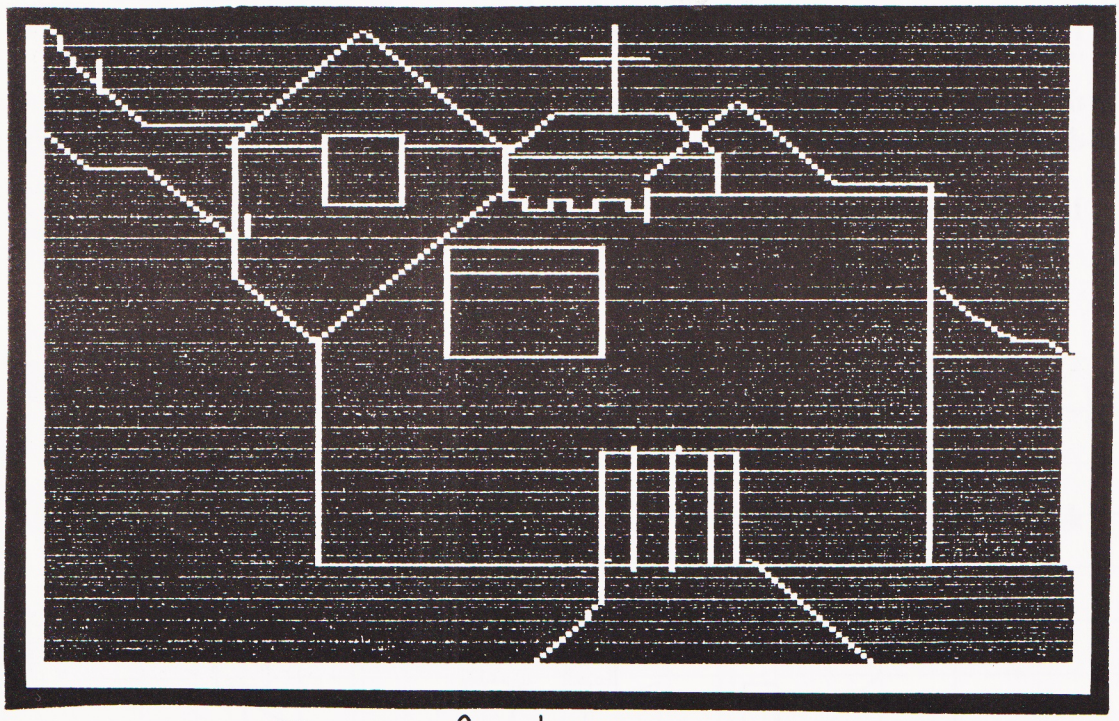


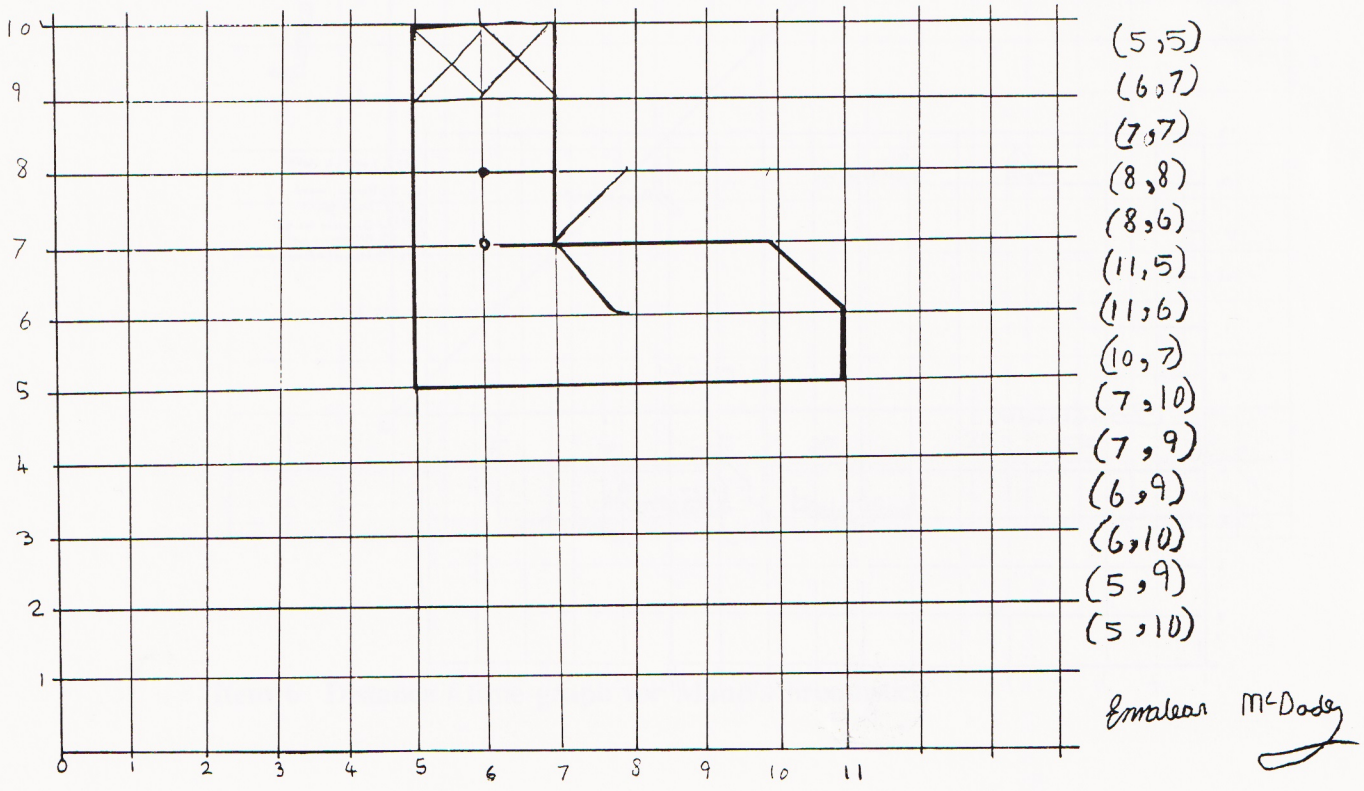
Photo 3



Item 2. Computer-design for a Witch Academy prepared with the program 'Artist'



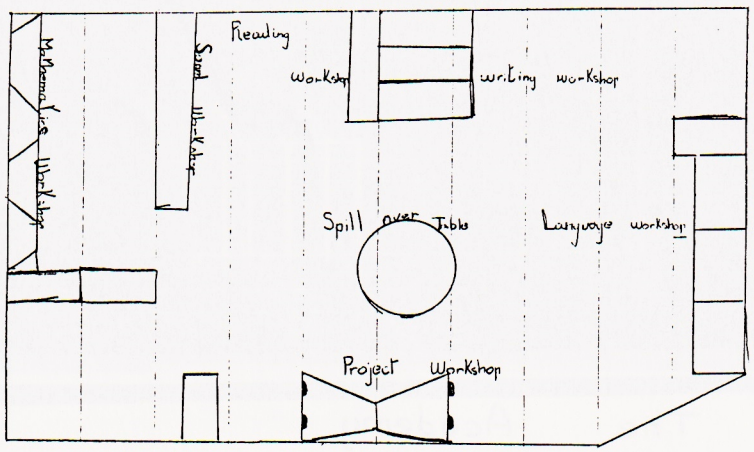
Item 3. Co-ordinate work - Design for a witch's boot



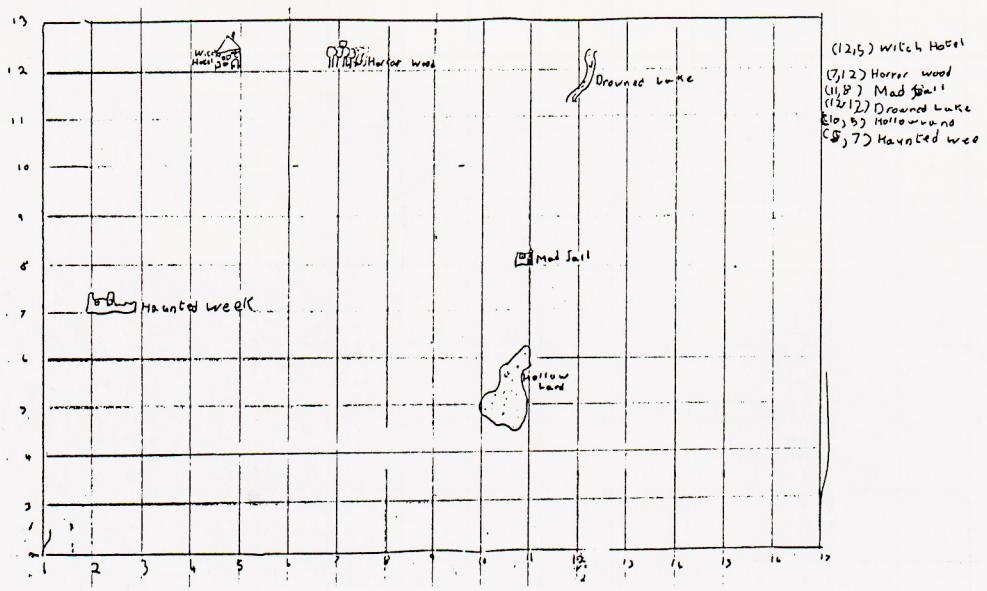
Mathematics

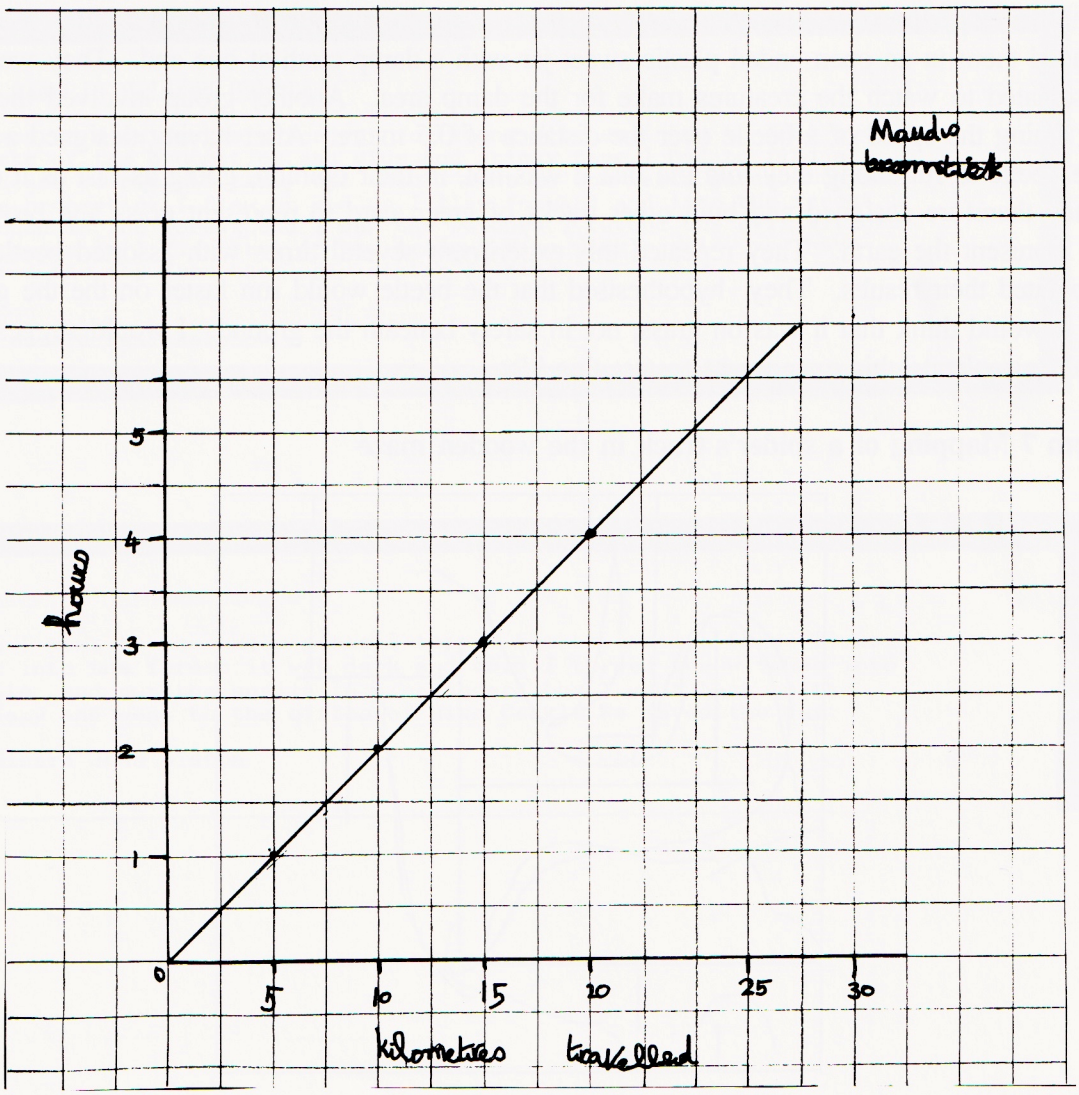
In mathematical terms, the plan of the Academy of Witches contained in the software pack, provided an ideal starting point for plans of our own 'academy'. This led on to work on direction, compass points and grid references. Some pupils developed imaginary maps containing frightening grid points as "Warlocks Castle" and "Bat Pond". The skill of using reference points allowed the pupils to acquire the skill of creating pictures using these points as well as distance/time graphs. (Items 3, 4, 5, 6)

Item 4 Plan of the classroom



Item 5 Imaginary map with grid references





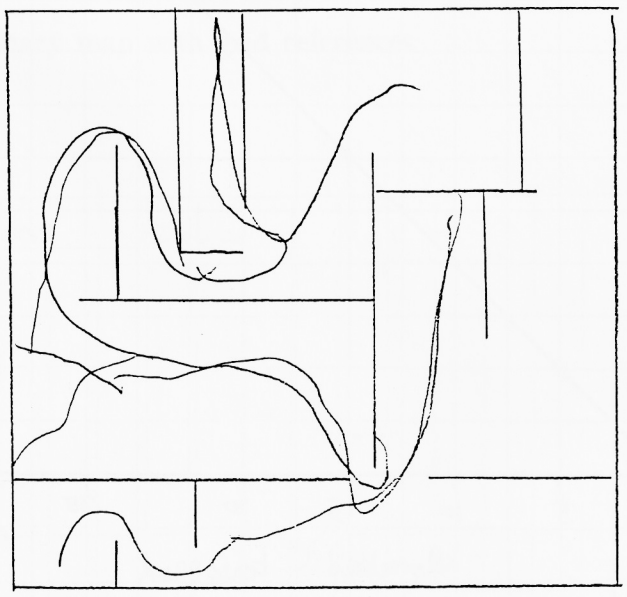
Item 6 Distance / time graph for Maud's broomstick

Religious and Moral Education
Religious and moral education under this theme allowed the pupils to examine a number of issues. For example, the more able pupils looked into persecution of people on religious or ethnic grounds. This work was quite illuminating as it highlighted just how much some pupils have a developed awareness of the world in which they live. All pupils examined the festivals of All Saints and Halloween.

Science, Observation and Experiment
Good examples of scientific investigation, observation and recording skills were contained in the work of the children who carefully selected spiders, worms and other assorted life forms for their experiments. They chose these as they thought that they were suitable ingredients for most spells though no "home economics" followed. One experiment involved the building of a maze and mapping the movements of a spider from one corner (item 7) to the grass mound in the other.

Another experiment allowed the pupils to observe the behaviour of woodlice, after having placed them in an open ended plastic sweet jar with a damp cloth at one end. They were fascinated to watch the creatures make for the damp area. Another group involved themselves in timing the speed of a beetle over the distance of 0.5 metre. After having designed a track for the beetle to run along they told me that it was not, in their opinion, going as fast as it could. They therefore designed and built other tracks of green card to represent grass and brown card to represent the earth. They repeated this experiment several times with assorted beetles and tabulated their results. They hypothesised that the beetle would run faster on the the green card as it would think that it was on grass, not in safety beneath the ground. I would suggest that classes replicate this experiment to test this idea.

Item 7 Mapping of a spider's track in the wooden maze

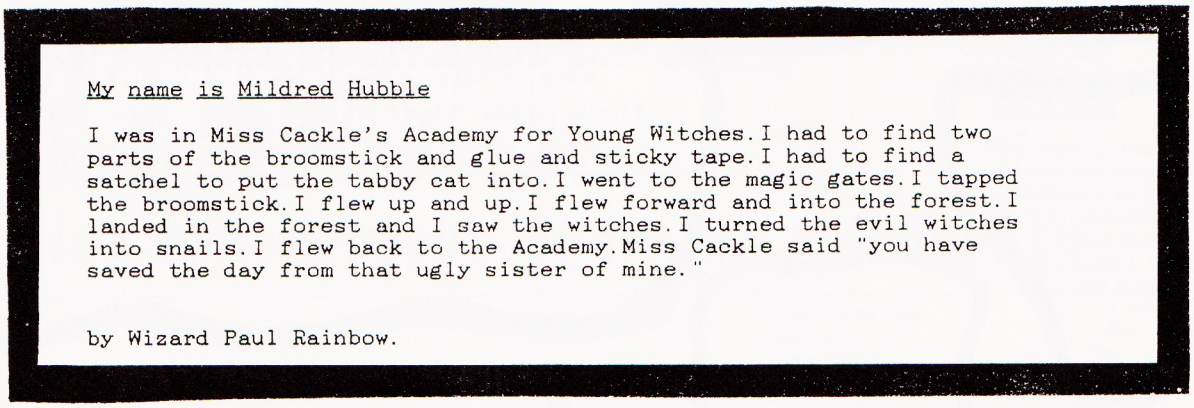


The Maze is made out of wood and we put grass in the Maze and we had two Spiders and we had a map the Spiders were clumbing the wood when the Spiders was out of the Maze

English

Perhaps the linguistic and literary area of learning was developed most by this theme. The pupils were provided with the opportunity to write creatively. Topics included 'Ghostly witches', 'Flying over the school on a broomstick', 'Mixing assorted potions and spells'. Word pattern amulets were made, leisure items written for 'Holiday Witch!' magazine, newspaper stories produced using Front Page Extra and empathetic writing with the main characters in the story was developed. It provided a golden opportunity to enrich vocabulary, particularly adjectives.

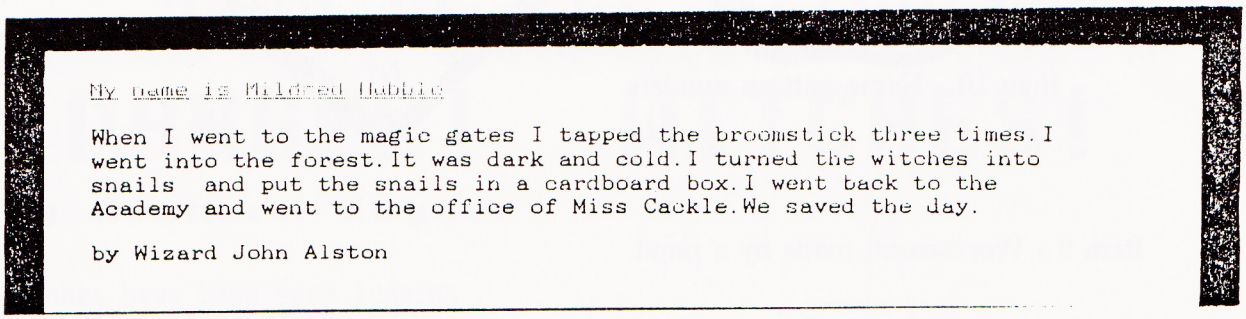
Item 12 - Two short word processed pieces of writing as characters from the book



My name is Mildred Hubble

I was in Miss Cackle's Academy for Young Witches. I had to find two parts of the broomstick and glue and sticky tape. I had to find a satchel to put the tabby cat into. I went to the magic gates. I tapped the broomstick. I flew up and up. I flew forward and into the forest. I landed in the forest and I saw the witches. I turned the evil witches into snails. I flew back to the Academy. Miss Cackle said "you have saved the day from that ugly sister of mine."

by Wizard Paul Rainbow.



My name is Mildred Hubble

When I went to the magic gates I tapped the broomstick three times. I went into the forest. It was dark and cold. I turned the witches into snails and put the snails in a cardboard box. I went back to the Academy and went to the office of Miss Cackle. We saved the day.

by Wizard John Alston

Item 8 - Story

GHOSTLY WITCHS

By Richard Joyner

Ooce there was a witch who made noises in the night like a ghost. She lived in a cave and one night she put a spell on all radios so that at midnight they would make ghostly noises.

On that very night,the King was listening to the radio.At midnight he was scared.
He hid under the blanket.

He tried to go to sleep but he could not.

In the morning,he sent his army to find the witch.
The army went up the hills and into the forest.

At the end of the forest was a cave .As the soldiers began to go into the cave,they heard mysterious noises.
They saw the witch.She was ugly and horrible.
They decided to wash her to make into a white witch and that was the end of the ghostly witch.

****

NEILGRANVILLEWATSON
NEILGRANVILLEWATS
NEILGRANVILLEWA
NEILGRANVILLE
NEILGRANVI
NEILGRAN
NEILGN
NEIL
NE
N

WAYNEBURNELL
WAYNEBURNEL
WAYNEBURL
WAYNEBL
WAYNE
WAY
WA
W

MEIRION
MEIRI
MEI
M

Item 10 - Name pattern amulets

Item 9 - Wordsearch made by a pupil

g f q p n l a x z n
c a t o z h g d l a
e m l t r b i s p c
w y r i w k z s z l
t i t o w i t c h o
x e t n f r z a r a
x r g a k n o z c k
z n n r r h w m n f
e r i o l d n p g e
s p e l l c e u e m

wizard
witch
spell
potion
cat
cloak

Kirsty.

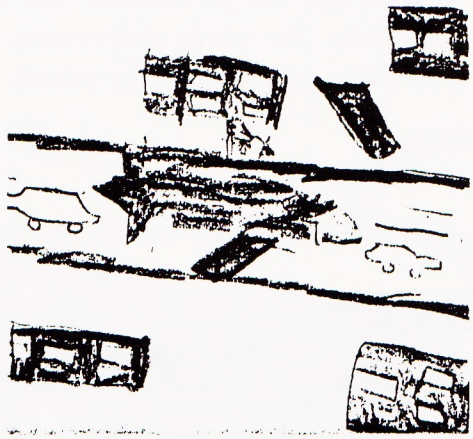
SCHOOL NEWS

£1

Wednesday 2nd May

Witch pulls off aeroplane wing

Yesterday,a witch pulled a side wing off a Concorde aeroplane travelling from Cardiff Airport to Spain. It crashed by the beach in Costa Blanca Spain near to the Olympic Hotel. Mr.Albert Thompson who was a survivor from the crash said " A witch wearing a black hat and cloak with a green face with boils and warts cast a spell to rip off the wing."
32 were killed in the accident but 20 survived.Spanish police have ordered a search for the witch.Our reporter asked what they were doing about the incident and they said that they waiting in case she came back.



New broomsticks from Wizard Supply

Item 11 Two 'Front Page' news stories

NEWS OF THE WITCHES

67p

Sunday May 25th 1989

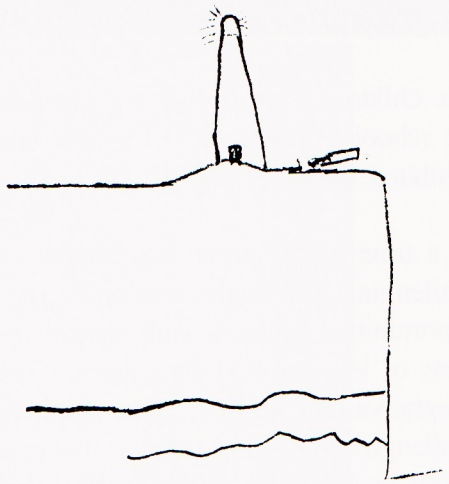
DANGER! WITCHES!

by Richard Joyner

Witches have been seen jumping from cliffs near Ogmore-by-Sea.

Witches have for the last few days been using spells in the area.Two people have been turned into frogs!

One was Mr.Jim Toy,a 25 year old milkman.The other was Mr.Tom Broke a postman who later said "Ribbit.Ribbit."

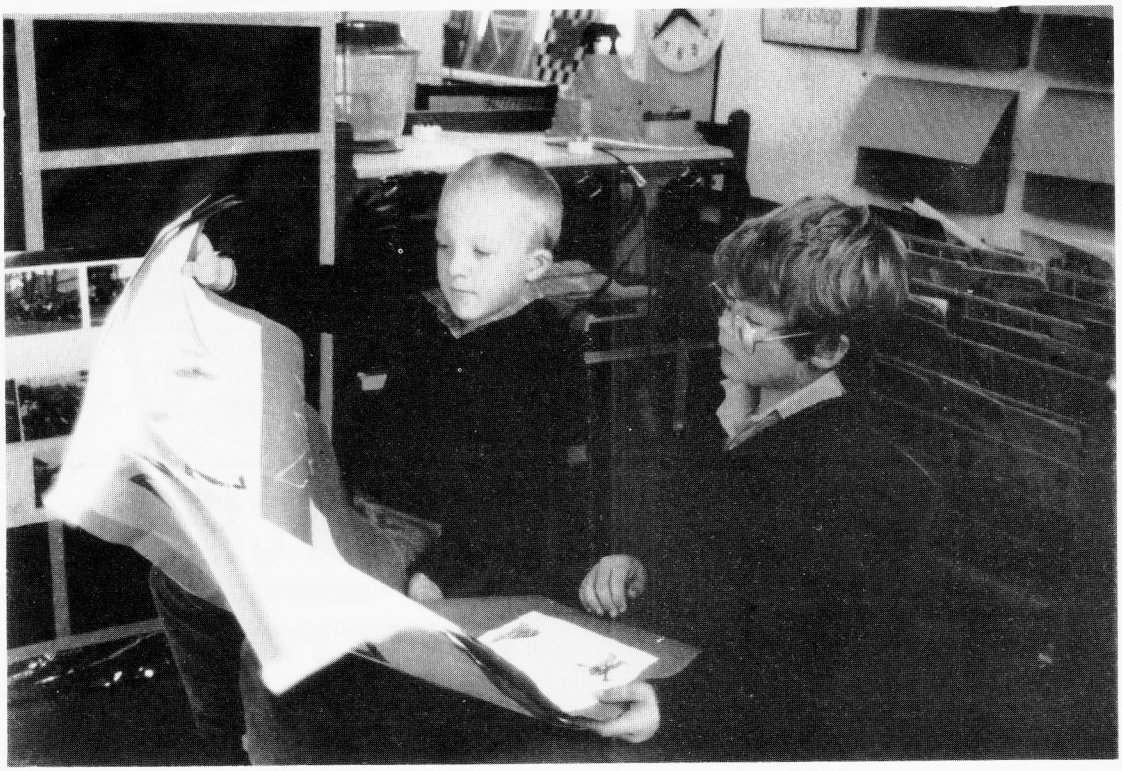


WitchyCola...The wizard drink.

Drama

The most dynamic aspect of this area was that of drama. The class and I had the enriching experience of working alongside Mrs.J.Munsen, a drama advisory teacher, who encouraged the children to work on a poem which they then dramatized. Some children acted as witches compete with simple make-up, and cloaks made from bin bags, while others worked in unison as the cauldron complete with sound effects. Every adult, both parent and teacher, who viewed this performance was impressed by the pupils' total absorption in the drama. The whole performance was recorded on video tape which parents could then borrow from the school. (Photo 4 and items 8-14)

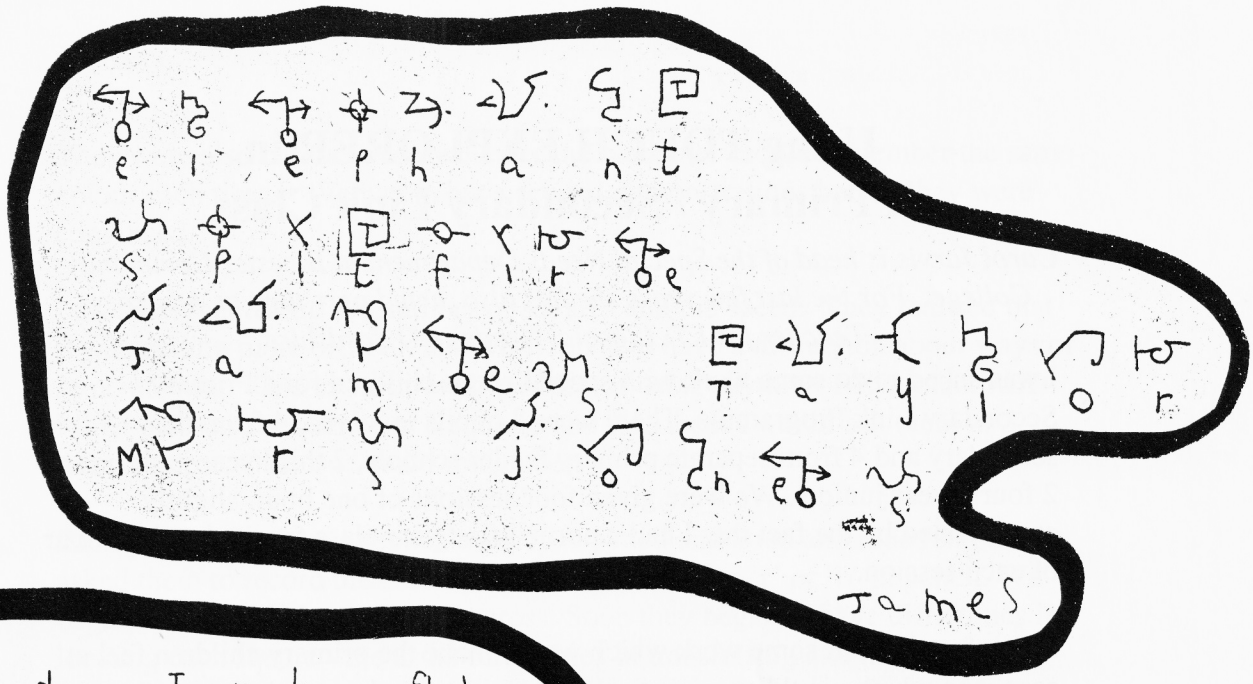
Photo 4 - Children reading the book of spells which they helped to write.



The children were further encouraged to receive a letter from the Governors of the school thanking them for their hard work on the project which was exhibited at the SEMERC exhibition last year.

At a time when special educational needs teaching can, at best, be described as challenging this theme reinforced my views that, given appropriate opportunities, children with special needs can exhibit a depth of feeling to all areas of learning and experience. This curriculum must surely be viewed as integrative and holistic. The children amply demonstrated that when challenged by an imaginative theme and given appropriate tools, they can reveal unsuspected abilities. Their self esteem benefitted greatly from the genuine admiration and approval their work on this topic won for them from the rest of the school, its pupils, parents, teachers and governors alike.

Warlock's secret code - Item 13



One day I took a flight. up to the sky But when I got up there I could see a lot. But the towns and houses were so small that. I could not hardly see them. and when I got a little bit closer I could see them a. liltle bit more and then. when I seen what I wanted I went back to the college of witchraft and I will meet my friend Linda

Creative writing - Item 14



Photo 5 The colourful stand at the SEMERC exhibition

Using TOUCH EXPLORER in a Primary / Secondary Link Class

Carol Jarvis is head of the Special Needs Department at Bicester Community College. For the last few years she has also acted part-time as Advisory Teacher for I.T. (Special Needs)in Oxfordshire.

I was asked to do some work with special needs children for a Primary / Secondary Link Programme. There were 8 pupils involved, 4 from the secondary and 4 from separate primary feeder schools, 2 third year juniors, and 2 fourth year juniors. We were given four sessions of one hour, slightly complicated by the fact that I had a normal first year class for the last half hour of each session.

I therefore needed some work which would make the primary children feel at ease, one which would encourage group response and co-operation, and one which would be entirely new to all the pupils. The program I chose was TOUCH EXPLORER with the Patterns & Symmetry files from the Maths Inset Pack developed at Bristol SEMERC.

FIRST SESSION For this first session I used PATTERNS 1, see Figure 1 . We all briefly introduced ourselves and I seated them around the screen. I gave no preliminary talk, but simply showed them the A3 Concept Keyboard and made sure they all had a good view. I pressed squares at random. The children were all very curious, especially the primary ones, since they had not seen a Concept Keyboard before. They all began to read the words from the screen, *"Red. Look! That says blue!' "Now it's red again"*.

													1	1
				2	3	2		4		2	3	2	1	1
				4		2	3					2		
				2		4			3			4		
				2	3	2		4			3	2		
				4		2	3	2		4		2		

Text of the messages:
1. Write the numbers 1 to 50 in the boxes. Shade every other box red and every third box blue. Some numbers need both colours. The boxes contain clues.
2. red
3. blue
4. red and blue

NB. The grid was blank when presented to the pupils. The diagram shows the content of the file, the relevant message being revealed when each square was pressed.

Figure 1

I then told them I wanted to see how good their memory was. I would press four squares, then see whether they could remember which colour each square was. At first they found it easy to remember as their concentration was so good. They were also puzzled by the blank squares. "What's that? Doesn't the computer know that one?

They were also curious about whether the computer "could remember the same colour each time." We had to have several demonstrations before they were convinced.

I gradually increased the number of squares and the speed. They realised that it was getting more difficult and we stopped to have a discussion about ways of remembering. One came up with the idea of using rhythm - RED, blue, RED. I then pressed a sequence of 5 squares and told them I would ask them in 5 minutes time. Only one could remember.

Each pupil was given a replica overlay, a pencil and a red and blue felt pen. I asked them to record the colour of each square with a 'r' or 'b' in pencil. We began at the top left and moved across. Soon they began to have difficulties in locating each square - the usual difficulties in transferring attention from the keyboard to the screen to the sheet.

We decided we needed a reference for each square. This came up quite naturally and was satisfactorily solved by the 1st Year Secondary Pupils who had just done co-ordinates in Maths. They numbered each column across from 1 - 10 and each horizontal line A B C D E. I was impressed by the way two of the secondary children told the primary pupils how to do this. (The other two secondary pupils were all at sea with this system).

I then had to leave them to do their own numbering whilst I dealt with my own incoming class. When I returned one had taken over the group and was saying, *"Now touch red. Yes that's right. Now mark it red"*. I decided to leave them to it. There were fascinating discussions about the square marked *"red and blue".'* One said, *"That makes purple"*. They agreed to differ in their colouring. This they had not all finished at the end of the first session, and so they took them away to complete.

SECOND SESSION For this session I chose 'Triangles' (Figure 2), as I wanted to see their prediction skills. This time I deliberately pressed quite a few blank squares. They decided that this was odd because "the computer isn't telling us anything". They were therefore very interested when the first square came up with a colour and a number. After some discussion and suggestions, - *"See what the squares round say."* - they directed me to the apex. - *"It must start there"*. The second line puzzled them. *" If that is 1blue there* (i.e. at the apex) *how can that be 1 blue as well ?"* It was quite a big step to consider that "1 blue" might begin each line. I asked them to guess what the number and colour of the next square might be. Guessing number 2 was easy, guessing the colour was more difficult. After that I told them to record their predictions in pencil, then to check themselves by pressing the square. Once that was done they began colouring. It was interesting that two of the children could follow the recording of the number sequence but were confused by the colour alternation.

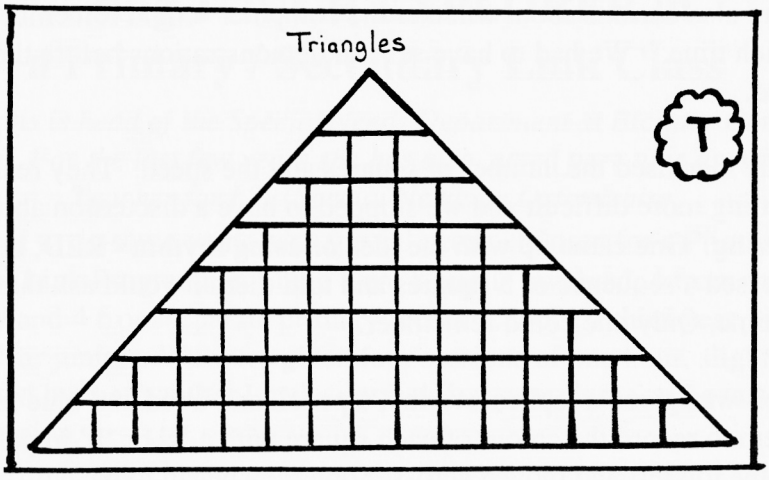


Figure 2

THIRD SESSION For this session I wanted to develop the idea of predicting an exact pattern. I made my own TOUCH EXPLORER file which had a capital E with a mirror image, made from an alternating pattern of green and blue (Figure 3). It was very quick to make since all one had to do was type in the two separate messages 'green' and 'blue' and press all the squares of each relevant colour. This time the children again had a replica overlay. I told them that they had to discover on their own, and that they were looking for a letter which appeared twice. I took a back seat and did nothing except regularly change the pupil who pressed the keyboard. They followed the same format as before, recording colour in pencil by initials. Then one said it was difficult to see the pattern and decided to put some rough colour in. They all followed suit. After a little while the same pupil began to organise the group. *"You do the bottom bit. Then we can find out quicker."*

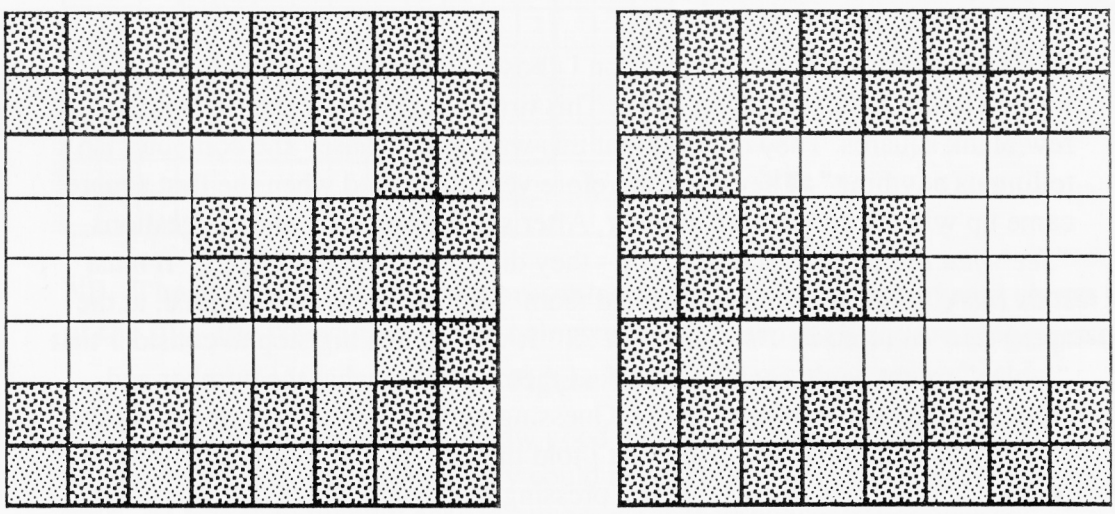


Figure 3

In fact the mirror image of the E really threw them, and they had to complete the whole pattern and then begin looking for the letter. Most of them grasped quite quickly that the colour alternated because this is what had happened in the previous session.

I was surprised and pleased by how much spontaneous group interaction was taking place, and by the long time span of their concentration.

FOURTH SESSION This took place near Christmas, and for this I prepared a TOUCH EXPLORER file of a Christmas card (Figure 4), which had more complicated instructions. I told the group that this time there was a picture hidden. Again they had a replica grid with printed co-ordinates. I operated the Concept Keyboard and asked each in turn to give me the co-ordinates of a square, then to record the answer in pencil. They began at the top left and followed each other in a logical sequence along the first line, then the second. Most had difficulties with left and right, and only one knew the meaning of "diagonal". After several lines I asked whether anyone could guess what the picture might be. One pupil said, *"I know. It's a house, and there's stars and holly. It's a house and it's Christmas."* Nothing could shake her from this view even as they continued to explore down the picture and a green triangular shape appeared.

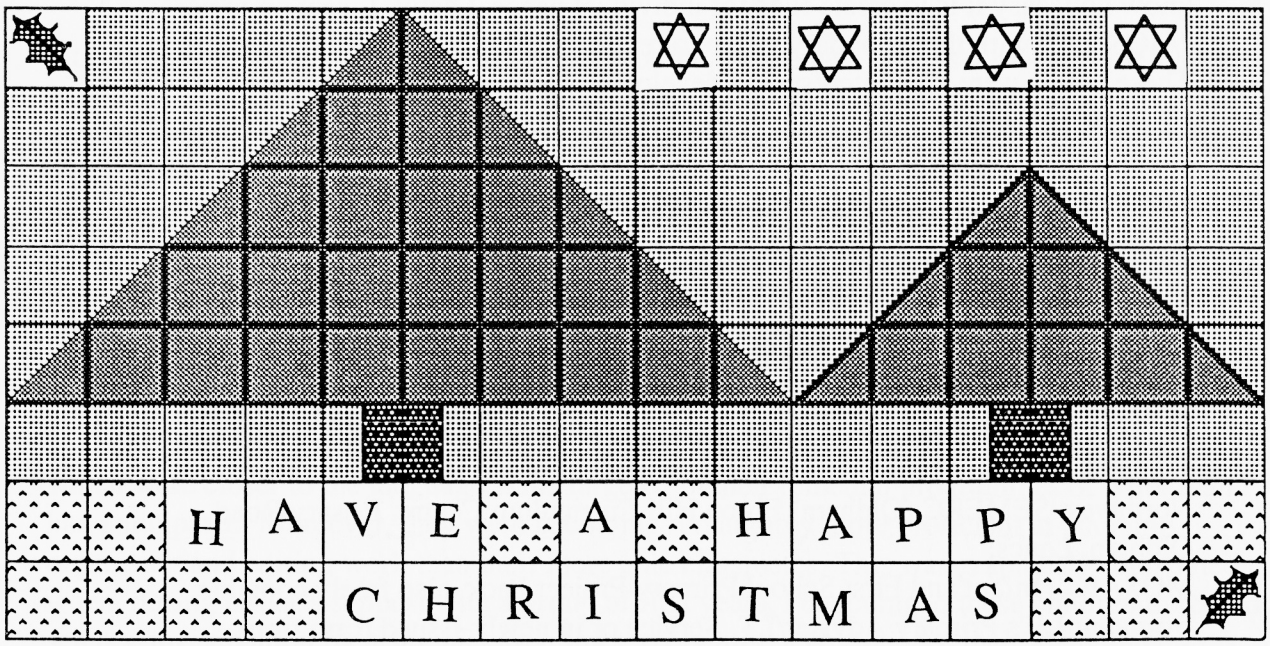


Figure 4

I said I was bored by pressing squares in sequence, and that they should choose at random. They were surprised to see letters at the bottom, but they were very keen to explore more. However, it took them a long time to work out the message as some of the letters were missing. "Happy" from "app" was very difficult.

They had to complete almost all the picture before they decided exactly what it was. The "house" idea persisted. It even became a stable with Mary and Joseph inside!

This program was so successful it was also used with 2nd and 3rd year pupils and it always provoked a very high level of concentration and persistence remarkable in some of the pupils.

The four programs had fulfilled all my requirements. The pupils had immediately settled to work together and to co-operate without any sense of awkwardness. Their interest and involvement had been sustained for much longer periods than usual. They had discussed ways of remembering, predicting and organising themselves without very much adult intervention. They were also very pleased with their completed work, particularly the Christmas card

I feel that TOUCH EXPLORER has good potential for work with those children who have visual sequential problems. Those who already use it will know how easy it is to create files for individual needs. Lastly, I went on to use "MOSAIC" with the secondary group to reinforce the work we had done. These pupils were then interested in developing their own files to provide "puzzles" for others.

Carol Jarvis
Bicester Community College

Programs used
TOUCH EXPLORER - This is the original Blue File program (not the developed version Touch Explorer Plus). Blue FileSoftware is freely copiable and may be available from your LEA contact or, in Sth Wales and Sth West England, from Bristol SEMERC. In case of difficulty it is available from Northwest SEMERC (Oldham) Fitton Hill Curriculum Centre, Rosary Road, Oldham, Lancs.
MOSAIC - Infant and First School Primary Project Pack, also freely copiable fromyour LE's Primary Adviser/I.T. Service or in newly-issued form from NCET, 6 Sir William Lyons Road, Science Park, University of Warwick, Coventry CV4 7EZ.

Why the use of DART and Turtling are central to the provision of special needs education at the Ridge Junior School

Wendy Watchman is responsible for special needs provision at the Ridge County Primary School, Avon.

When a rise in the school enrolment at the Ridge in 1986 led to five hours additional staffing I was appointed to establish special needs provision throughout the junior age range. An empty classroom was available but resources were limited by the fact that this provision had to be funded entirely from the already overstretched school budget. Fortunately, since the headteacher was extremely enthusiastic about the potential of micro-computers in the classroom and had recently purchased a Jessop Turtle, I was lucky enough to have access to two computers, a printer and the turtle itself.

Initially I was enthusiastic about the mathematical potential offered by the Turtle in exploration and problem solving and in investigations and co-operative learning. However, with such limited time available to help children with widely ranged problems, I felt doubtful that I could justify the time that I needed to allow these children the freedom to explore the Turtle's potential without diluting their much needed remedial programme.

Because of their limitations, I decided to use DART to control our Turtle. I liked the fact that the basic instructions were linked to the function keys, thus eliminating the inevitable experiences of failure that certain children would experience if they were obliged to use the keyboard to spell or even abbreviate commands. We also acquired a Bigtrak to use with they youngest and least able children who found the units of turn difficult to handle with Dart and the Turtle.

At this point I was gaining a healthy respect for the use of the Turtle as a medium for children to handle numbers and solve problems without fear. I was fascinated by the children's identification with the Turtle and their own body orientation as I actually observed them fusing mathematics and
movement into a single learning process. One ten year old boy with severe specific learning difficulties prefaced every directional command by solemnly lifting and naming his own left/ right leg in confirmation of his decision before committing himself on the keyboard but his total absorption in the task eliminated any self consciousness - the process was all important.

Since a number of these children had specific learning difficulties and experienced problems with laterality and sequencing, I began to see that they were acquiring and reinforcing skills which were closer to the language skills targeted in their remedial programmes of work than I had anticipated. Moreover, they were becoming remarkably more proficient at planning, organising and editing work than their more able classmates. This was graphically illustrated when, during in-class support with a group of first years, I encouraged these children to record a science investigation by using picture frames to organise and sequence their ideas and statements. The class teacher was sufficiently impressed by the concise and clear results that she encouraged the rest of the class to record their findings in a similar manner.

It was quite a boost for the group of children with special needs to see that the rest of the class lacked the necessary skills to organise and present their work as concisely or clearly, and their products were clearly inferior.

As the children became more proficient they began to want to record certain procedures so that they could refer back to them in later work. We were also frustrated with Turtle geometry because the fact that the children were slow when drawing on paper caused ink blots and these marred the end product. In response to this I acquired from a local factory two very large perspex circles. These proved the perfect drawing surface since mistakes could be erased and unfinished work stored until the next session.

Recording programmes for Bigtrak also yielded some interesting insights into the way children think and plan. It also reinforced my conviction that, even if the teacher intervenes at a carefully considered point in an investigation and offers a new concept at what seems an appropriate point, unless the child is ready to absorb the the concept he will not make it his own until he needs it. One group of third year children demonstrated this when I first showed them how to use a REPEAT procedure. We had evolved a system of recording Bigtrak procedures using number and arrow cards which were slotted into Breakthrough trays. This particular group had decided to use the same method of recording when trying to draw a robot face on the screen using Dart. They decided to give him a punk hairstyle and when I returned to see how they were getting on they were into their fifth Breakthrough tray in their attempt to create this spiky hairstyle. Although I had explained the repeat procedure before, they had disregarded it because they did not need it. When I showed them how quickly the repeat procedure could be used to produce the spikes that they now needed, they readily adapted to its use without question and scolded each other for the fact that none of them had remembered it previously. The five Breakthrough trays of procedures did, if nothing else, illustrate how children with short attention spans can be encouraged to develop persistence in explaining problems. In future, when producing any graphical representation, they will be looking for patterns in the process so that they can use the repeat procedure since its incorporation is now obvious to them.

One bonus from the turtling which was being undertaken in our special needs classroom was the fact that it was exclusively the preserve of children with learning difficulties of one kind or another. The motivation to come to that classroom was extremely high and the children who were involved were positively envied by other children. I was developing a very healthy respect for the contribution of the microcomputer to self-esteem. At this point a very bright second year child was referred to me with severe spelling problems. His reading skills were good but this failure in written language was resulting in great frustration and extremely difficult behavioural problems at home. Greg resented coming to the special needs classroom and as soon as he walked in his body language spoke for him. After a very short time when we were clearly not making contact at all using direct teaching methods I abandoned his programme completely and began to use Dart and the Turtle in an attempt to motivate him. Theoretically I knew that he should benefit from the sequencing and laterality aspects of the work. What I did not appreciate was the remarkable change which would be brought about in his own self-esteem. Within a short time it was difficult to keep Greg out of my classroom. We implemented a programme of work which he could carry out before school started with another boy who was experiencing similar problems. He became very positive about his specific learning difficulty and extremely co-operative when direct teaching methods were resumed. During the pre-school session, both boys explored Dart exhaustively and confidently moved on to Logo. By the time they finished in their third year in the school they had mastered concepts in mathematics and I.T. which are not normally requested of students until they are in the middle year years of their secondary schooling.

Greg more than any other child illustrated the philosophy that underpins the provision for special needs at the Ridge School. Self-esteem is fundamental to positive learning experiences and we have repeatedly found that using the microcomputer and Turtling activities is instrumental in raising confidence and self-esteem.

Currently, we have extended our activities to incorporate two Roamers which we have recently acquired. I find them invaluable since they combine the accuracy of the Jessop Turtle with the manoeuverability of the Bigtrak. Not only do they turn by using degrees but they can be programmed to move forwards and backwards in a range of units size enabling children to be very precise in their commands and high in their expectations of success. Activities can now be undertaken with sizable groups of children at the same time,using such combinations as Dart + printer, Dart + Turtle, 2 Roamers and 2 Bigtraks. Ideally I find that three is the maximum to work with the Turtle and microcomputer. This enables one to programme, one to control and watch the Turtle's progress and one to give commands, each child taking on each of these three roles during any given session. To work with Dart and the printer or Roamers and Bigtrak I find that two is the practical maximum. Interaction is constant and children's abilities to work with others and communicate progress to peers and teachers is enhanced.

Turtling at the Ridge School is no longer the exclusive preserve of the children with special educational needs. We now incorporate in group sessions children of high ability. However, we still find that children who are working together need to be carefully paired and that in general it is not advisable to partner high and low ability children since it is too easy for the more able child to dominate and the fragile self-esteem of the less able child to suffer as a consequence.

Special Education/I.T. Network Contacts

(Information supplied by NCET)

The Centres

• **Bristol SEMERC**, supported by Bristol Polytechnic (serving Avon, Gwent, West Glam., South Glamorgan, Mid Glamorgan, Glos., Wiltshire, Oxford, Powys, Isle of Wight, Dyfed,Cornwall, Somerset and Hampshire)
Contact: Jean Johnston, Bristol SEMERC, Redland Hill, Bristol Polytechnic, Bristol BS6 6UZ (0272 733141)

• **NESSDC**, Bell Farm, Hersham (serving Surrey, Kingston and Sutton)
Contact: Andrew Leah, North East Surrey Staff Development Centre, Bell Farm School, Hersham Road, Hersham, Walton on Thames KT12 5PY (0932 253088)

• **Newcastle SEMERC** (serving Sunderland, Gateshead, South Tyneside, North Tyneside, Newcastle, Northumberland, Cumbria, Durham and Cleveland)
Contact: Ann Muxworthy, I.T./SEN centre, Newcastle Polytechnic, Coach Lane Campus, Newcastle upon Tyne NEI 85T (091232 6002)

• **North-West SEMERC**, Oldham (serving Oldham, Bury, Rochdale, Lancashire, Thameside, St Helens, Wirral, Isle of Man, Shropshire, Manchester, Clwyd, Bolton, Salford, Liverpool and Sefton)
Contact: Martin Littler, North-West SEMERC, Rosary Hill, Fitton Hill Curriculum Centre, Oldham OL8 2QE (061627 4469)

• **Offley SENNIT** (serving Hertfordshire and Bedfordshire)
Contact: Pat Williams, SENNIT, HITAC, Offley Place, Great Offley, Hertfordshire (046276 8897)

• **Redbridge Special Education Resource Centre** (SERC) (Redbridge have retained a regional role for the advisory teachers of the old Redbridge SEMERC region. Meetings for these teachers are held termly, and other occasional meetings are called. Redbridge will also be the Apple Regional Information Centre for special education. It is highly probable that further developments will take place at this base.)
Contact: Jean Tait, Redbridge SERC, Dane Centre, Melboume Road, llford, Essex IGl 4HT (01 478 6363)

• **RESOURCE** Special Needs Support Unit (SENSU), Doncaster (serving Doncaster, Humberside, Sheffield, Barnsley, Rotherham and Wakefield)
Contact: Paul Meakin, SENSU, RESOURCE, off Coventry Grove, Exeter Road, Doncaster, South Yorkshire DN2 4PY (0302 340331)

The Regional Groups

It should be noted there are some overlaps in the emerging clusters of advisory teachers and LEA co-ordinators. This will, no doubt, resolve itself in due course.

• **Greater London:** West (Barnet, Brent, Ealing, Haringey, Hillingdon, Hounslow, Kingston, Merton and Richmond)
Contact: Rob Heron, Ealing Computer Centre, Hanwell, Boston Road, London W7 2AD (01579 7972)

(Regional Groups continued)

• **Greater London:** East (Redbridge, Waltham Forest, Havering, Bexley, Bromley and Barking)
Contact: Clare Johnson, Bexley Education Computer Centre, Bexleyheath School, Graham Road, Bexley Heath, DA6 7DA (01303 0839)

• **Special Needs REMIT** group (Cambridge, Derby, Leicester, Lincolnshire, Northamptonshire and Nottinghamshire)
Contact: Barbara Holdich, MEDU, Bishop Grosseteste College, Newport, Lincoln, Lincolnshire, LN1 3DY (0522 544713)

• **Special Needs RMGIT** group (Leeds, Bradford, Kirklees, Calderdale, North Yorkshire)
Contact: Brian Sellers, TF Davies Teachers' Centre, EDIT, Clifton Villas, Manningham Lane, Bradford BD8 7BY (0274 493535 ext. 33)

• **West Midlands Special Needs Advisory Committee (WMSNAC)** (Walsall, Wolver-hampton, Hereford and Worcester, Sandwell, Shropshire, Birmingham, Staffs., Dudley, Coventry, Warwickshire and Solihull)
Contact: Ray Hills, MACE, Shropshire Educational Computing Centre, Monk Moor Site, Racecourse Crescent, Shrewsbury (0743 246464)

• **East Anglia SENNIT** (Norfolk, Suffolk and Essex)
Contact: Tecwyn Cockett, Suffolk House, London Road North, Lowestoft, Suffolk (0502 562262)

• **Berkshire, Buckinghamshire, Hampshire and Dorset**
Contact: Keith Dunk, Great Hampden Computer Centre,Great Hampden, Buckinghamshire, HP16 9RJ (0240 28709)

It should, perhaps, be noted that two larger groups of special needs advisory teachers hold meetings. These are based on the old Redbridge and Newcastle SEMERC regions and are co-ordinated by Jean Tait in Redbridge (01478 6363) and Mel Phillipson in Newcastle (091258 6482).

Other addresses:

Special Needs Software Development Centre, RESOURCE, Exeter Rd, off Coventry Grove, Doncaster DN2 4PY
Tel: 0302 340331

ACE Centre (Aids to Communication in Education), Ormerod School, Waynflete Rd, Headington, Oxford OX3 8DD Tel: 0865 63508

Northern ACE Centre, Park Dean School, St Martin's Rd, Fitton Hill, Oldham OL8 2PY Tel: 061627 1358

Blue File Contacts List

(Information supplied by NCET)

LEA	Contact	Regional Centre / Group
Avon	Mrs A. Keenan	Bristol SEMERC
Barking	Bill Booth	Greater London: East
Barnet	Fiona Shaw	Greater London: West
Barnsley	Stuart Moakler	RESOURCE SENSU
Bedfordshire	Phil Blackburn	Great Offley SENNIT
Berkshire	Ruth Nichols	Berks, Bucks, Hants
Bexley	Clare Johnson	Greater London: East
Birmingham	David Wood	WMSNAC
Bolton	Denise Cooney	North-West SEMERC
Bradford	Brian Sellers	Special Needs RMGIT
Brent	Michael Strachan	Greater London: West
Bromley	Yvonne Marsh	Greater London: East
Bucks	Keith Dunk	Berks, Bucks, Hants
Bury	Barry Flint	North-West SEMERC
Calderdale	Patricia Hornsey	Special Needs RMGIT
Cambs	Linda-Ann Spear	Special Needs REMIT East Anglia SENNIT
Cheshire	Rachel Taylor	
Cleveland	Judith Stansf ield	Newcastle SEMERC
Clwyd	Alan L. Nevitt	North-West SEMERC
Cornwall	Graham O'Callaghan	Bristol SEMERC; South-West
Coventry	Chris Hall	WMSNAC
Croydon	David Jordan	
Dudley	Steve Hartland	WMSNAC
Durham	Kenneth Stephenson	Newcastle SEMERC
Dyfed	Vince James	Bristol SEMERC
Ealing	Rob Heron	Greater London: West
East Sussex	Ian Elliott	
Enfield	Tamara Golding	
Essex	Sid Cumberland	East Anglia SENNIT
Gateshead	Ian Cairns	Newcastle SEMERC
Glos	Christopher Jay	Bristol SEMERC; South-West
Gwent	R. Miller	Bristol SEMERC
Gwynedd	Roselie Gardner	
Hampshire	N. Dalton	Bristol SEMERC; Berks, Bucks, Hants
Haringey	Robin Beste	Greater London: West
Harrow	Carol Berezai	
Havering	Felicitie Barnes	Greater London: East
H'f'd& Worcs	Dave Mitchell	WMSNAC
Hertfordshire	Pat Williams	Great Offley SENNIT
Hillingdon	Cliff Clayton	Greater London: West
Hounslow	Sally Paveley	Greater London: West
Humberside	Richard J. Steel	RESOURCE SENSU
ILEA	Alan Giles	
Isle of Man	John Kermode	North-West SEMERC
Isle of Wight	G. Innes	Bristol SEMERC
Kent	Peter B. Dorman	
Leicestershire	Pauline Harrison	Special Needs REMIT
Lincolnshire	Barbara Holdich	Special Needs REMIT
Liverpool	Ms H. Guiness	
Manchester	Wendy McHugh	North-West SEMERC
Merton	Linda Roberts	Greater London: West
Mid Glam.	Peter Ford	Bristol SEMERC
N'le on Tyne	Roger Edwardson	Newcastle SEMERC
Newham	Brian John Corry	
Norfolk	Jeff Bevan	East Anglia SENNIT
Nth Tyneside	Mel Philipson	Newcastle SEMERC
Nth Yorkshire	Mike Ratcliffe	Special Needs RMGIT
Northants	Colin Richardson	Special Needs REMIT
N'thumberland	Brenda Wood	Newcastle SEMERC
Notts.	David Headley	Special Needs REMIT
Oldham	Martin Littler	North-West SEMERC
Oxfordshire	Carol Jarvis	Bristol SEMERC
Powys	Nita Jones	Bristol SEMERC
Redbridge	Jean Tait	Greater London: East
Richmond upon Thames	Anne Warrington	Greater London: West
Rochdale	Kevin Grocock	North-West SEMERC
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Somerset	Carl Honnor	Bristol SEMERC
South Glam.	Mrs Sian Nichol	Bristol SEMERC
South Tyneside	Robin Sanderson	Newcastle SEMERC
Staffordshire	Jim Birbeck	WMSNAC
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Stockport; Trafford	Fintan Bradley	
Suffolk	Tecwyn Cockett	East Anglia SENNIT
Sunderland	Lesley Etherington	Newcastle SEMERC
Surrey	Bob Walding	Bell Farm
Sutton	Daphne Simpson	Bell Farm
Tameside	Maureen Mulligan	North-West SEMERC
Trafford; Stockport	Fintan Bradley	
Wakefield	Peter Ord	RESOURCE SENSU
Walsall	Tim Kitchen	WMSNAC
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Additional Blue File Contacts

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Derek Maxted	Special Needs Software Centre
Margaret Murphy	Newcastle SEMERC

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