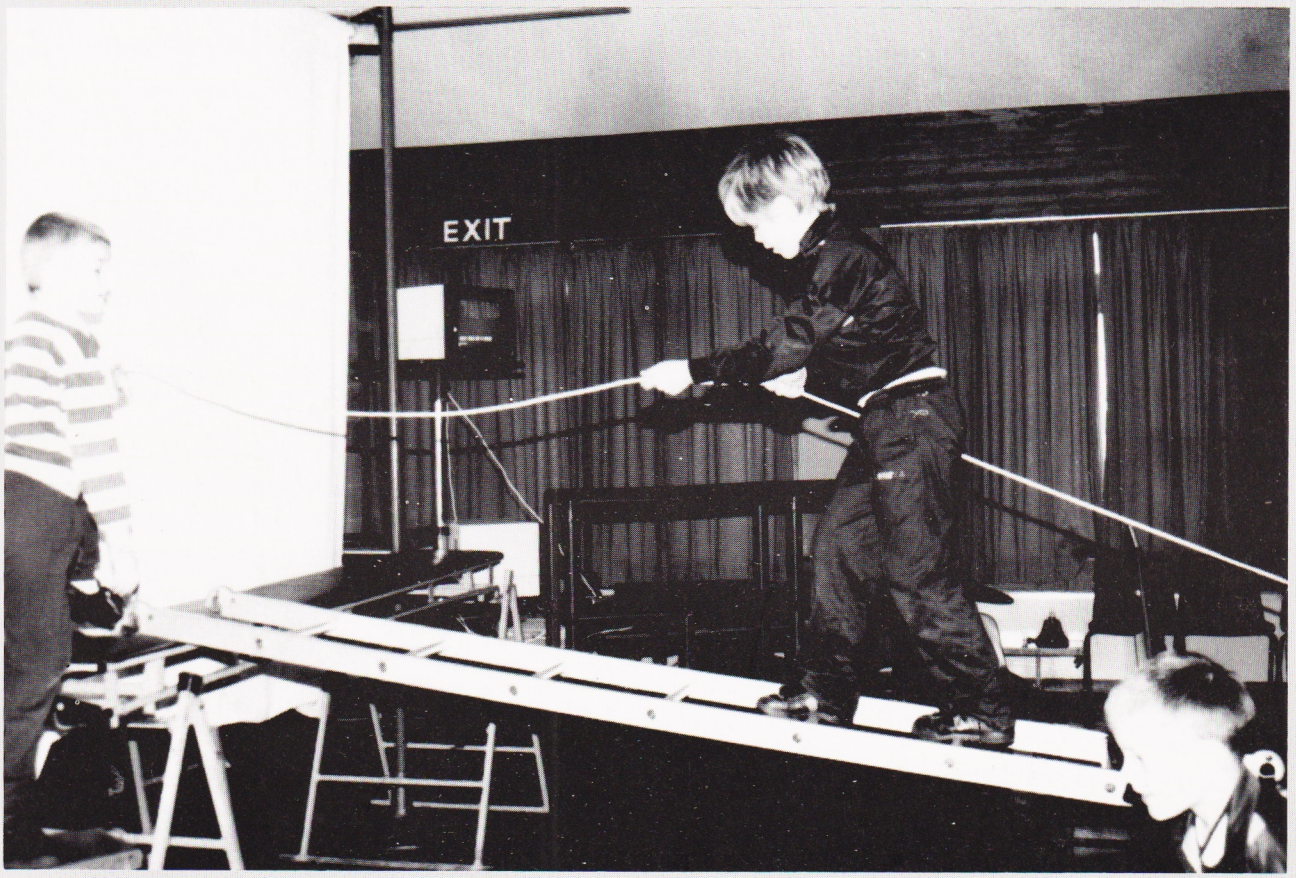
MICRO SCOPE

▶ Issue 31 ▶ Autumn 1990



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NEWMAN COLLEGE with MAPE

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MICRO-SCOPE 31

MICRO-SCOPE matters

Senga Whiteman

The Special Needs Special

Last term's Special went out without the name and the contents list on the front cover. Thus it was only when you looked inside that you realised what the topic was. We apologise to Jean Johnston of Bristol SEMERC for the fact that this happened. Jean had worked extremely hard to produce this special and, through no fault of hers, it went out looking rather strange. The articles are well worth reading – don't be put off by the (incomplete) cover.

MICRO-SCOPE paper

You may well notice that the paper in this edition differs from that of other editions (and in case you haven't noticed the difference we've put a little logo on the back). We have been thinking about using recycled paper for years. At first it was too expensive and of a very poor quality. Now that we can afford it (because the price has come down) we are not certain what to choose. Once you start investigating recycling, everything becomes grey. I think that the following statements are correct, but if any reader is an expert in these matters I'd be grateful for more information. Paper which has been used for printing is subject to a very environmentally damaging process in order to remove the old ink as part of the recycling process. Trees which are harvested for paper are planted for that purpose. The young trees which replace those harvested absorb lots more carbon dioxide than older trees therefore they perform a useful role in supporting the environment. And so on. We have decided to use paper which includes straw. This edition is printed on it. We hope we are supporting the environment – our intentions are good.

MICRO-SCOPE cover design

We have commissioned Castlefield (Publishers) Ltd to design a new, two colour cover for us. Not many people comment upon the cover, but when they do I am usually told that it is incredibly old fasioned. We cannot afford to print a four-colour cover but we hope you like the compromise.

MICRO-SCOPE 10th Anniversary

Since I have not yet received a single response to my plea in the last edition for articles and reminiscences, the 10th Anniversary Special will have limited input from readers. I have edited *MICRO-SCOPE* since edition 12 and although I have become accustomed to a very low level of readership response I keep hoping matters will improve. Incidentally, if you think we are subject to a take-over bid from BLUG (British Logo Users Group) in this edition you could be right, but at least they send the letters and articles. Why don't you?

Primary design and technology project 1990

Land Rover/Solihull LEA

Sue Jenkins
Widney Junior School

This year, children involved in the project (open to all schools in the Borough) were asked to design an accessory for the new Land Rover Discovery Vehicle launched in the autumn of 1989. The children were asked to think about the ways in which 'all terrain' vehicles of this type are used, and it was suggested that they carry out some 'market research'. The only constraint was that whatever the children designed, it should not alter the look of the vehicle.

I decided that my children might be very interested in this kind of activity. It might provide a useful focus for a technology project developing and extending a variety of skills. The brief of the project also seemed to fit in well with the Attainment Targets set out in the recently published orders for Technology in the National Curriculum:

Attainment Target 1
Identifying needs and opportunities.

Attainment Target 2
Generating a design.

Attainment Target 3
Planning and making.

Attainment Target 4
Evaluating.

Attainment Target 5
Information technology capability.

The project also seemed to link with the idea of different contexts set out in the National Curriculum document:

> 'Contexts (situations in which design and technological activity takes place) should include the home, school, recreation, community, business and industry, beginning with those which are most familiar to pupils, and progressing to contexts which are less familiar.'
>
> (p. 19 *TECHNOLOGY in the National Curriculum*, HMSO 1990)

The project would involve a useful contact with Land Rover of Solihull – the company offered to send a Discovery to school for the children to explore and a limited number of children would be invited to the Industry Centre to present their school's work.

I worked on the project with my class of 9/10-year-old children. I decided to work on the project as a class activity, but with groups of children working together in friendship groups for some activities. I emphasised that the children were working together as a team and not competing against each other. I clearly defined my role as that of 'assistant'.

We began by looking at the design brief and examining specifications and constraints of the task. We had a class brainstorming session in which I emphasised the need to explore all areas in this kind of session and not to make any judgements at this time (Figs. 1 and 2). We looked at accessories already available for Discovery, and also Range Rover and Land Rover. I then suggested that we do some 'market research' and the children decided that this involved 'asking people'. Again we brainstormed this idea and three main questions seemed to arise (Fig. 3):

> Who should we ask? What should we ask? How should we ask?

From this point, two pupils took over (Figs. 4 and 5). Sophie and Lisa became our market research team. They decided what they wanted to find out and devised a questionnaire for this purpose, using the wordprocessor and cut-and-paste to make a master for photocopying. Who to ask was a problem, but they eventually went around the school to ask if anyone knew of someone who used an all terrain vehicle like the Discovery. They had ten positive responses and produced a questionnaire for each child. They then distributed these and in due course, received eight completed questionnaires. They used the computer program *Data Show* to display their findings and printed out bar charts and pie charts, both in conventional black and white and colour (using the program *Snatch* and the Integrex colour printer) (Fig. 6).

DESIGN BRIEF

Task: To design and make an accessory for the Land Rover Discovery Vehicle.

You are to think about the ways in which vehicles are used in everyday life, at work, for holidays, hobbies or in special ways such as rescue work, expeditions, or helping the disabled.

You should first do some research to find out what things different people would like to see added to their all terrain vehicles. You could find out why people buy a particular vehicle. Where do they use them? What extras would they like to see in their vehicles?

Now you can decide on what accessory you would like to design and make and for what use. Your group will have to explore ideas, make decisions, try out various designs and different materials, think about where to position it and the size of it. You can also think about background information to go with your design.

N.B. You must remember that whatever you design and make it must not alter the look of the vehicle.

Figure 1

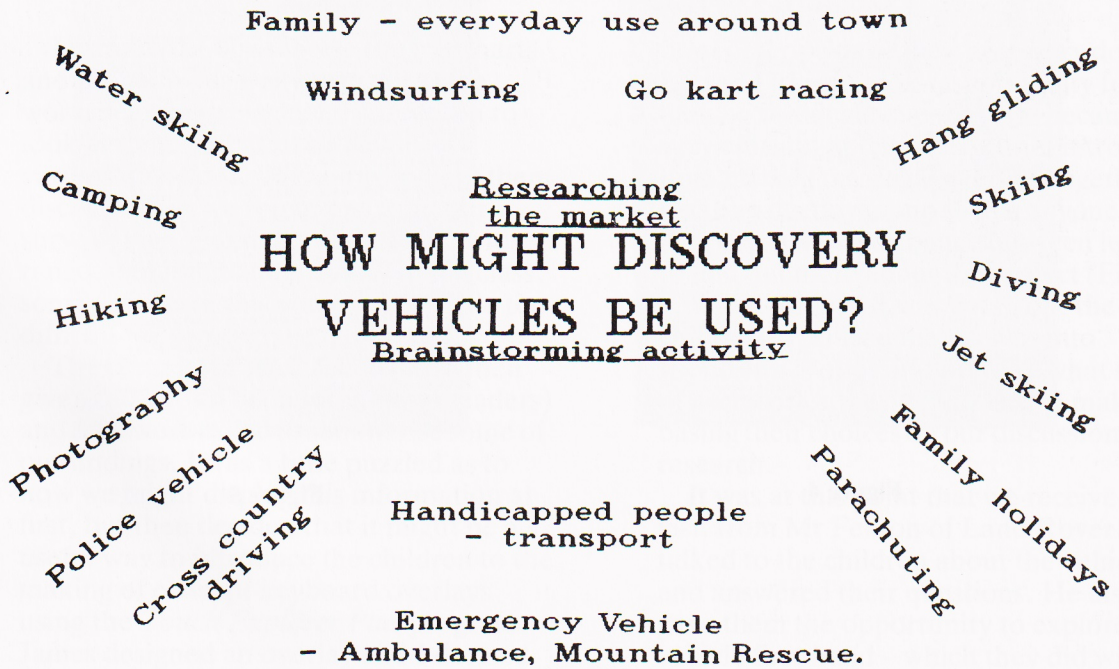


Figure 2

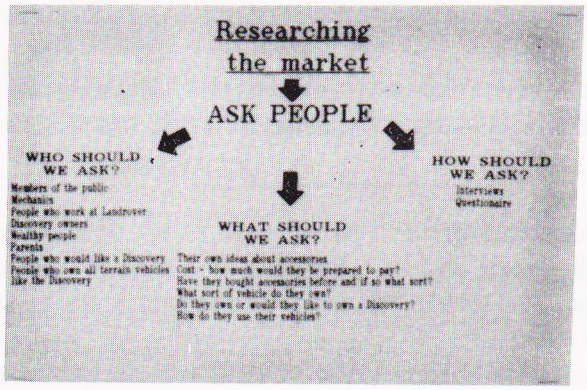


Figure 3

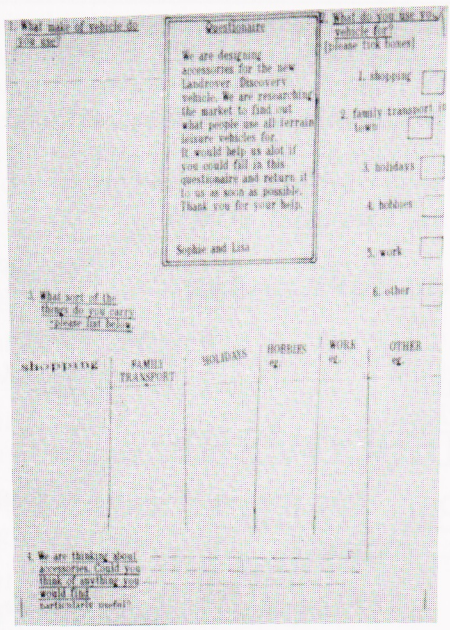


Figure 4

We decided to make a questionaire rather than interview people because we didn't know when people would be available to talk to us in school hours and we didn't know anyone who owned an all terrain vehicle personally. We decided that a questionaire was the next best thing because we were able to ask all the people in our school and asked if anyone's parents, friends or relatives owned an all terrain vehicle and could fill in a questionaire.

When we made a questionaire we had to decide what information we wanted to find out. First we asked what kind of all terrain vehicles people used. We decided that we would ask people with any all terrain vehicle because we thought that not many people would have the DISCOVERY because it was such a new vehicle and hadn't been on the market for very long. Next we decided to ask them what they used their vehicles for and what sort of things they carried in them. We thought that this information might help us by giving us some idea of an accessory that might be useful to them. Lastly, we asked them if they could think of an accessory that they would like.

We made a questionaire by typing the questions on the wordprocessor and then cutting and pasting them onto a piece of paper. We had two attempts because we weren't happy with the first one because the squares were wonky. Then we photocopied the sheets and gave them to the people in school who said they would be able to help us.
Sophie and Lisa

Figure 5

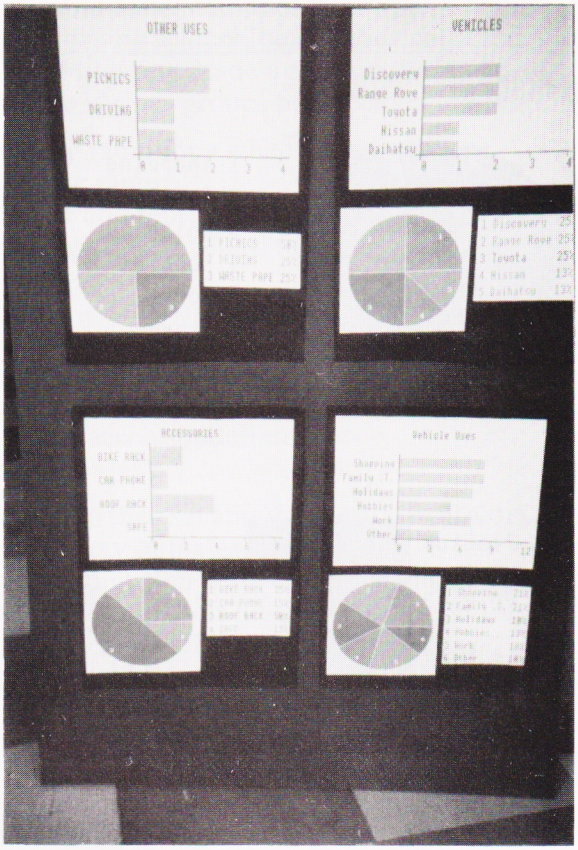


Figure 6

Look at the graph and pie chart which show the type of vehicles used by people in the survey.

1. How many people took part in our survey? 8
2. How many people had vehicles made by Japanese companies? 4
3. a) What percentage (%) of people used vehicles made by Land Rover? 50%
   b) How many people was this? 4
4. Were you surprised by this? no
   Why? because their new on the market

Look at the graph and the pie chart which show the accessories which the people in the survey suggested.

1. Make a list of the accessories suggested.
   bike rack
   Car phone
   roof rack
   safe
2. a) What was the most popular accessory suggested? Roof Rack
   b) Why do you think this was?
   most people would use a roof rack because they carry heavy things.
3. a) Which accessory do you think would be most useful from this list?
   Car phone
   b) Why?
   you could phone people on a long distance journey or in case of emergecy.

Figure 7

I wanted the class to use the bar charts and pie charts usefully and so I made worksheets which asked the children to look at them and attempt to answer various questions, in groups, to help them discover what we found out from our survey (Figs. 7 and 8). With such a wide range of mathematical ability in the class, some aspects of this work were a little too difficult for some of the children.

The completed worksheets were then given to a group of children (able readers) and they were asked to summarise some of our findings. I was a little puzzled as to how we might display this information at first, but then decided that it might be a useful way to introduce the children to the making of concept keyboard overlays using the *Touch Explorer Plus* program. James designed an overlay and I devised the necessary control squares. I decided to incorporate three layers into the overlay group. At level 1 the children set out the results of their brainstorming activities – 'How might Discovery vehicles be used?'; at level 2 the children set out the findings of the survey and at level 3 they gave a brief description of their accessory designs. Ben and Martin took responsibility for making the single overlays and became very efficient at this after a brief introduction. I linked the single overlays together to make an overlay group so that anyone using the program could change between levels to find out more about the project (Fig. 9).

While this work was going on, the children organised themselves into friendship groups and decided what sorts of accessories they would like to make, basing their choices on our discussions and research.

It was at this point that we received a visit from Mr Fenton of Land Rover. He talked to the children about the vehicle and answered their questions. He also gave them the opportunity to explore the vehicle first-hand – which they did with much enthusiasm! They took the opportunity to make a thorough investigation and to measure dimensions that might be useful to them. Mr Fenton also left a video for them to view in the afternoon. They thoroughly enjoyed the experience as was evident in their thankyou letters to him.

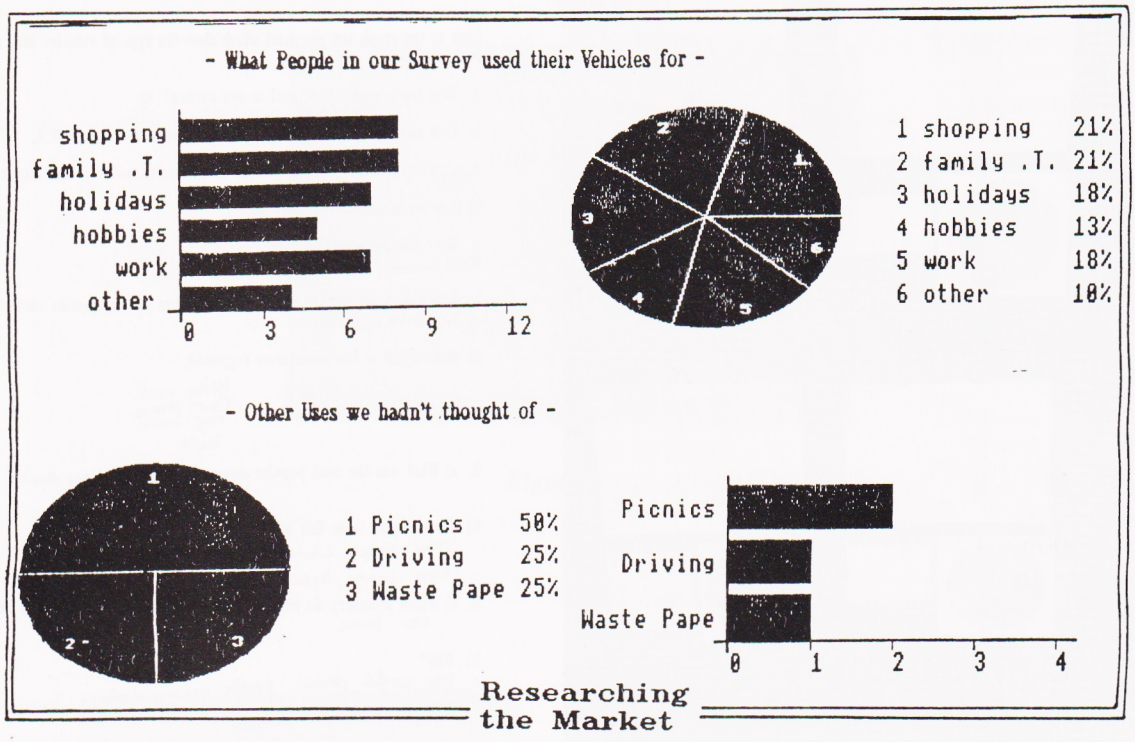


Figure 8

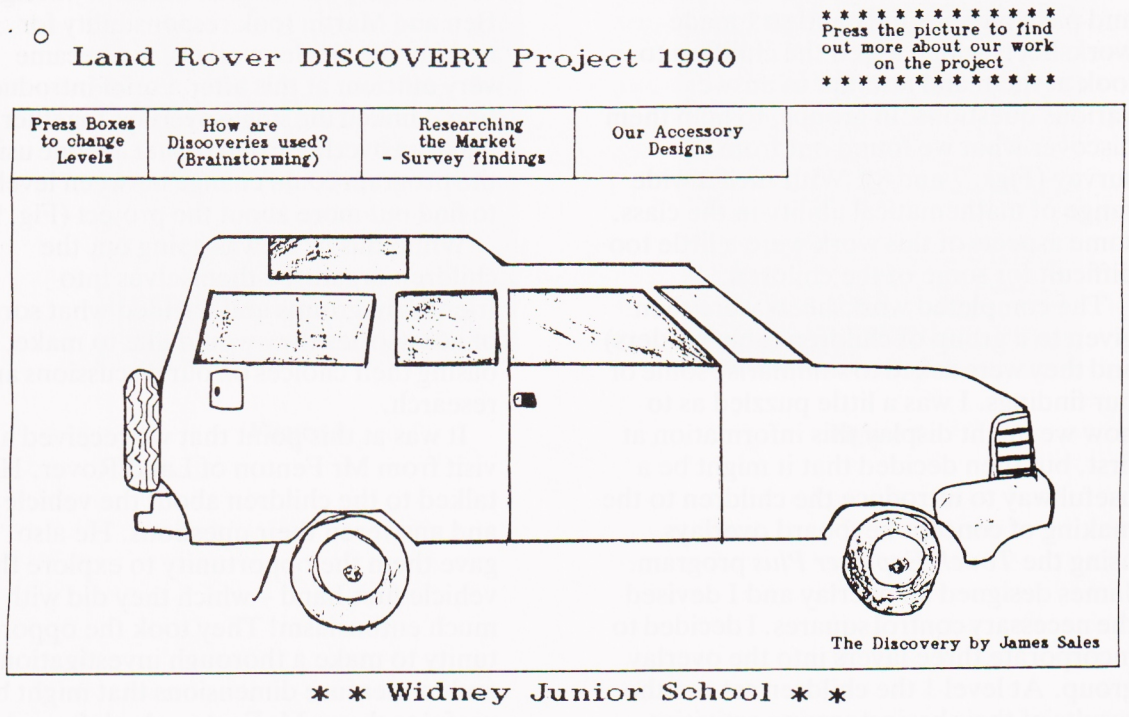


Figure 9

The children were asked to draw some sketches and make a note of their first thoughts in their working folders, before they collected their materials and made a start on the practical work. The various groups had decided to make:

a rolling ramp for a wheel chair;
a folding ramp;
a trailer and tent;
a luggage loader (operated by a motor);
a trailer;
Discaid – a first aid box for the Discovery;
a floating tent;
a surf board roof rack;
a photo tent/trailer;
sleeping accommodation;
a safe.

The children then set about their practical work, using a variety of materials.

At one point Ben and Adam introduced a motor to operate their luggage loader and this appealed to many of the groups who then wanted to include circuits, motors and lights into their designs. It was at this stage that I became aware that I could have taken the design process further if the children had had more experience with the control language of Logo and if we had the hardware (eg a Deltronics interface box) and the software (eg *Control Logo*).

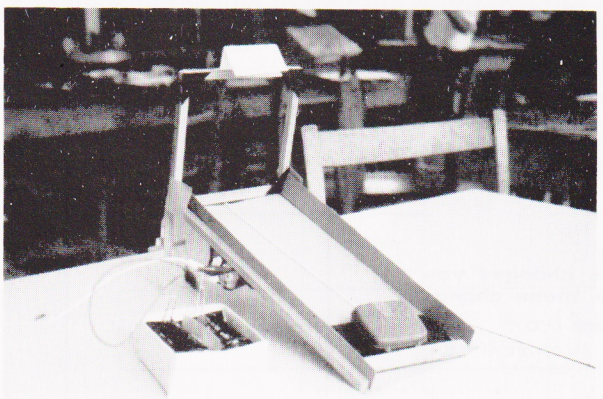


Figure 10 Ben and Adam's Luggage Loader – Control Technology potential!

Ben and Adam's model of a luggage loader involved a tray (on which one would place the luggage) being drawn up a ramp and into the vehicle. They were having problems with lowering the tray again and this might have provided an opportunity to introduce Control Technology (Fig. 10).

Towards the end of the project I wanted to provide the opportunity for the children to evaluate their work fully. I prepared some interview sheets and then interviewed each group about their work (Fig. 11).

The final stage was to take the children's work to the Industry Centre at Woodlands, together with two children able to describe our project.

I found the work on the project very worthwhile. The brief seemed to capture the imagination and enthusiasm of the children and they found Mr Fenton's visit very exciting. I found the 'Researching the Market' exercise most interesting but was very conscious that the activity was quite beyond some of the less able children, while others coped with it very well indeed. In a joint exercise of this nature, I was not too worried about this, since the children gained a lot of satisfaction in joint achievement and in playing their part at their level of understanding.

I think the project was a good illustration of a cross-curricular approach. As well as meeting Attainment Targets for technology, the activity also met Attainment Targets for Mathematics, Science and English. If the equipment had been available at that time, it would have been interesting to have introduced some Control Technology with at least one group, and so extended the design process, but the majority of the class would need more in the way of preparatory work before attempting this kind of activity. An indication perhaps of the need for a structured programme of technology and computer control in the primary school?

Group Review — Widney Junior School

Group Members: Jeffrey Barry, Christopher Ballard, Gavin Smith

Name of accessory: Surf Rack

Description of use: Carrying up to 3 surfboards on the roof together with heavy luggage.

Why did you decide to make this accessory?
Surfing is a popular sport and we thought it might sell well.

MATERIALS
Were you happy with the materials you used?

(Yes) No

Describe anything you would rather have used if you had had the opportunity:
Polystyrene for surfboards and sponge to hold them in place.

What materials would a real accessory of this type be made from?
Steel, plastic, alluminium and nylon.

POSITION
What is the position of your accessory in relation to the vehicle?
on the roof of the vehicle

SIZE
Can you give some indication of the real size of your proposed accessory?
The length of the roof of the Discovery, about 80cm high.

ASSESSMENT
Is your finished product different from what you planned?

(Yes) No

If it is, describe some of the changes you made and say why you made these changes.
We have changed the surfboard position and included a luggage compartment.

Are you happy with the finished product – appearance, performance etc..

(Yes) No

How could you improve it?
Use different materials such as; nylon fabric, polystyrene, metal rods.

Who do you think might buy your accessory?
Jason Donovan and similar types!

Figure 11

Using your concept keyboard to support and extend language activities

Reg Eyre
Advisory Teacher for IT, Swindon, Wiltshire

In *MICRO-SCOPE 27* (Summer 1989) I described some of the ways in which teacher-created concept keyboard overlays could act as a stimulus for writing (via a word processor). The idea which I described involved using an overlay which presented the child with a selection of phrases which could be combined in a variety of ways. Fig. 1 illustrates an overlay which can be used to create sentences with one of four different endings. The endings are not printed on the overlay but are revealed when the ? key is pressed. (This overlay was created on *Stylus*.)

The children write short stories, print them out, discuss them, and have the opportunity to edit, revise and develop them.

Since *MICRO-SCOPE 27* was published, other teachers I have worked alongside have wanted to extend these ideas so that the concept keyboard is used to input the first, and main, part of the story with the story being left open with an 'and then' at the end so that the children write their own endings (Fig. 2).

Having got this far, I thought we had exhausted the potential for ideas using this sequencing theme for story writing. Apparently not! There is a set of teachers who wanted the letters of the alphabet on the concept keyboard, as well as all the editing facilities, so that the childrey would never have to use the Qwerty keyboard. A colleague, David Vincent, has come up with an idea which I have used with some success with *Prompt/Writer*. The idea is to write a mask overlay which has the lower case alphabet on the top two lines together with the 'caps lock', comma, full stop and speech mark keys. The bottom line of the overlay contains the editing features such as space bar, return, cursor keys and delete keys.

This overlay is used as the basis for the sequenced stories mentioned above. For example, while working in a school, I met the speech therapist who was watching the children working with the Floor Turtle and she explained how this fitted in with her work in trying to

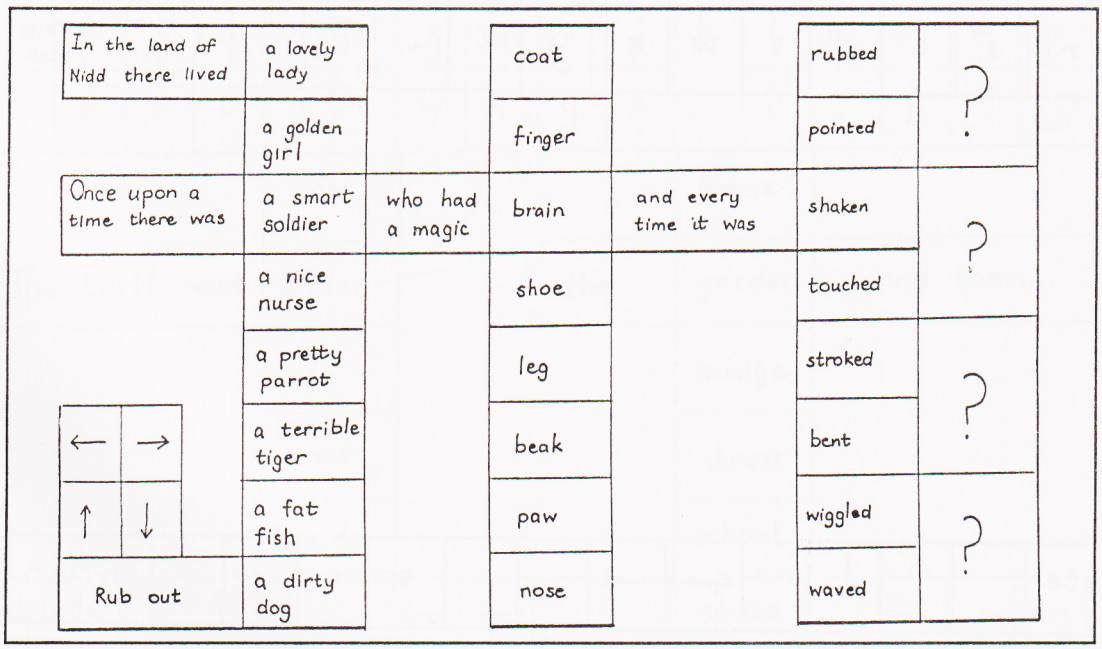


Fig. 1 Magic overlay

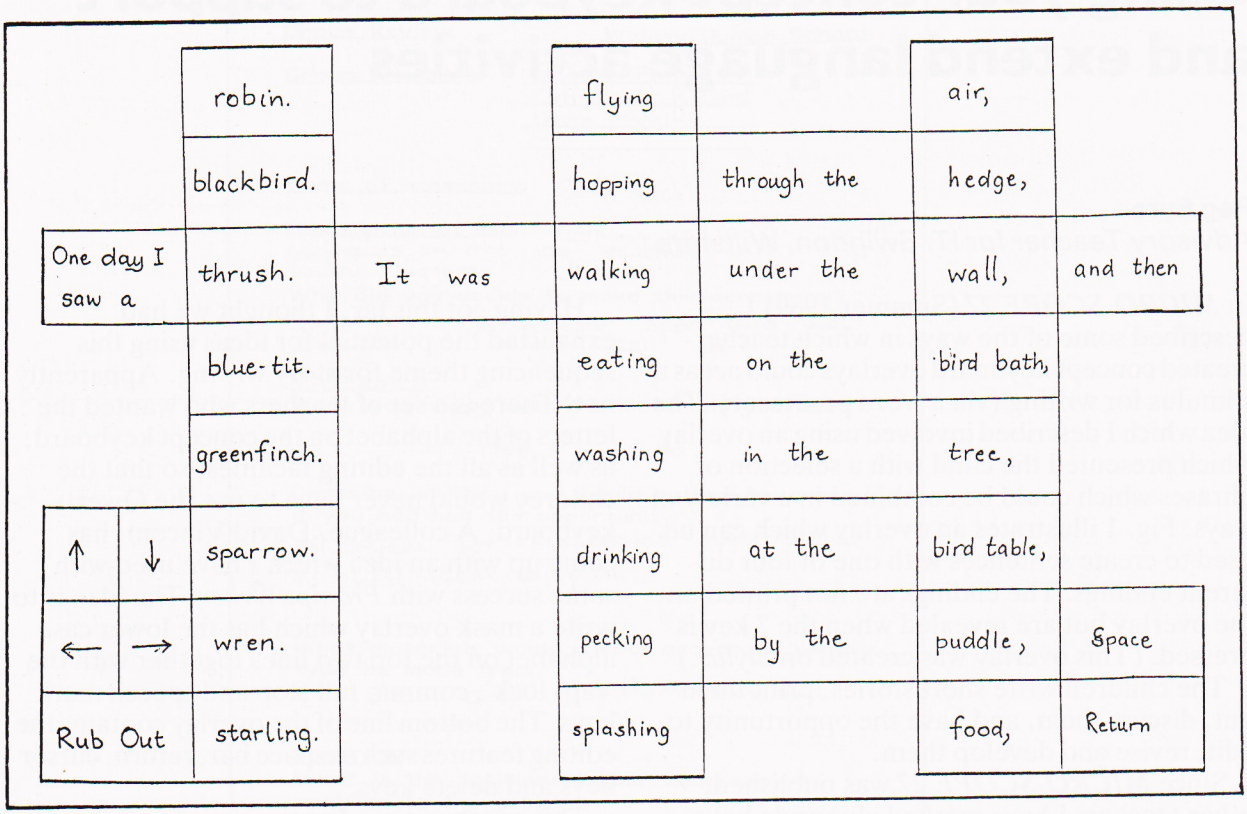


Fig. 2 'Birds' overlay.

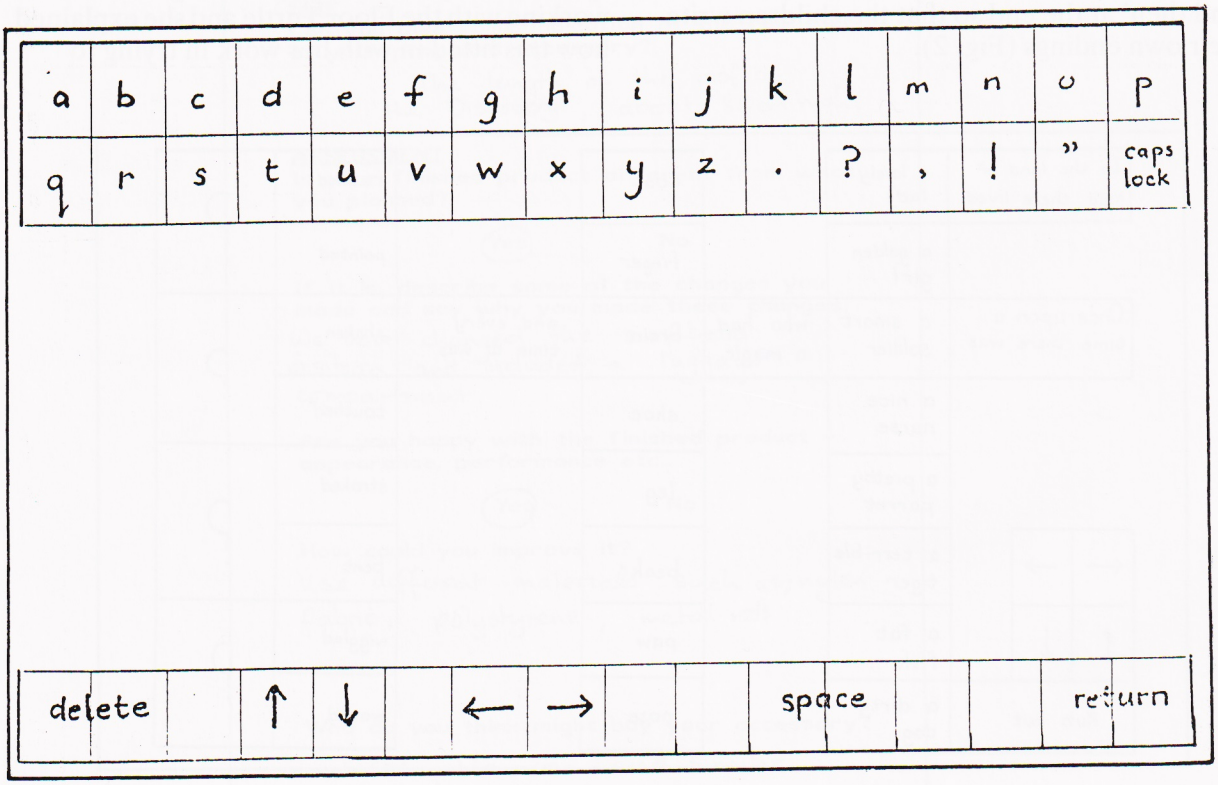


Figure 3. Mask overlay.

encourage the children to use words such as 'on', 'over', 'under', etc. We then built a ramp for the turtle to travel over, under, beside and beneath so that she could encourage the children to use these words. While she was doing this, the class teacher and I loaded the 'mask' overlay file (Fig. 3) and added the phrases in Fig. 4.

The speech therapist was overjoyed and asked if we could add words such as 'through', 'in front of', etc. which we did by loading the existing overlay, adding the requested words, and saving the edited overlay under a new file name.

The strips in Figs. 4 and 6 are attached to the mask overlay with bits of 'Blutak'. The important thing to note is that a series of overlays can be built up by gradually adding words that the teacher wants the children to use.

Unfortunately, *Stylus* does not allow you to put the CAPS LOCK key on the overlay, so you may be restricted to *Pendown*, or *Prompt Writer* for copying the layout given in Fig. 3 and using the QWERTY keyboard to change case.

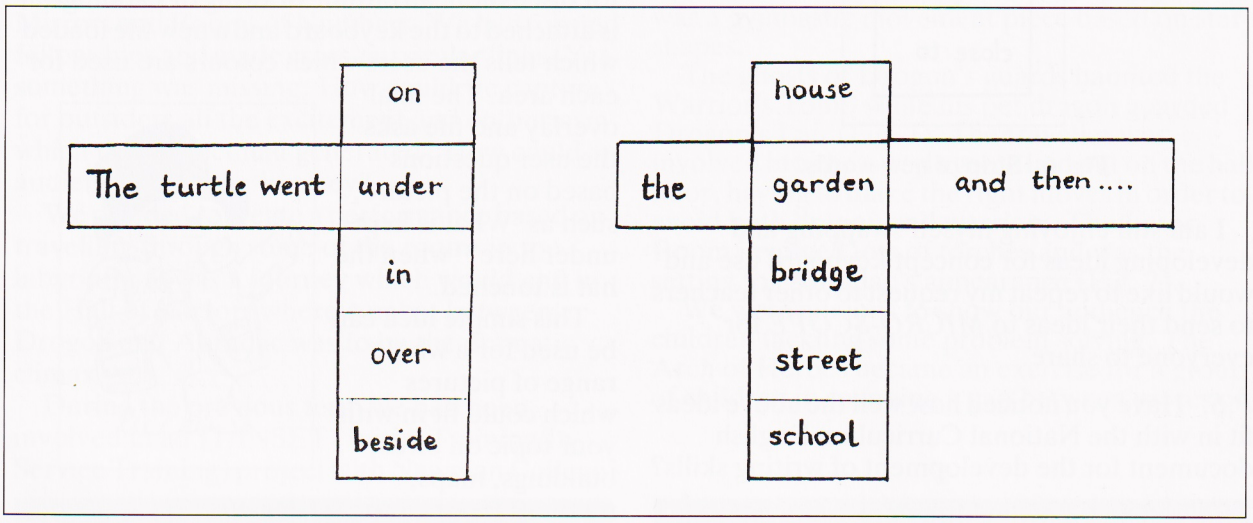


Fig. 4

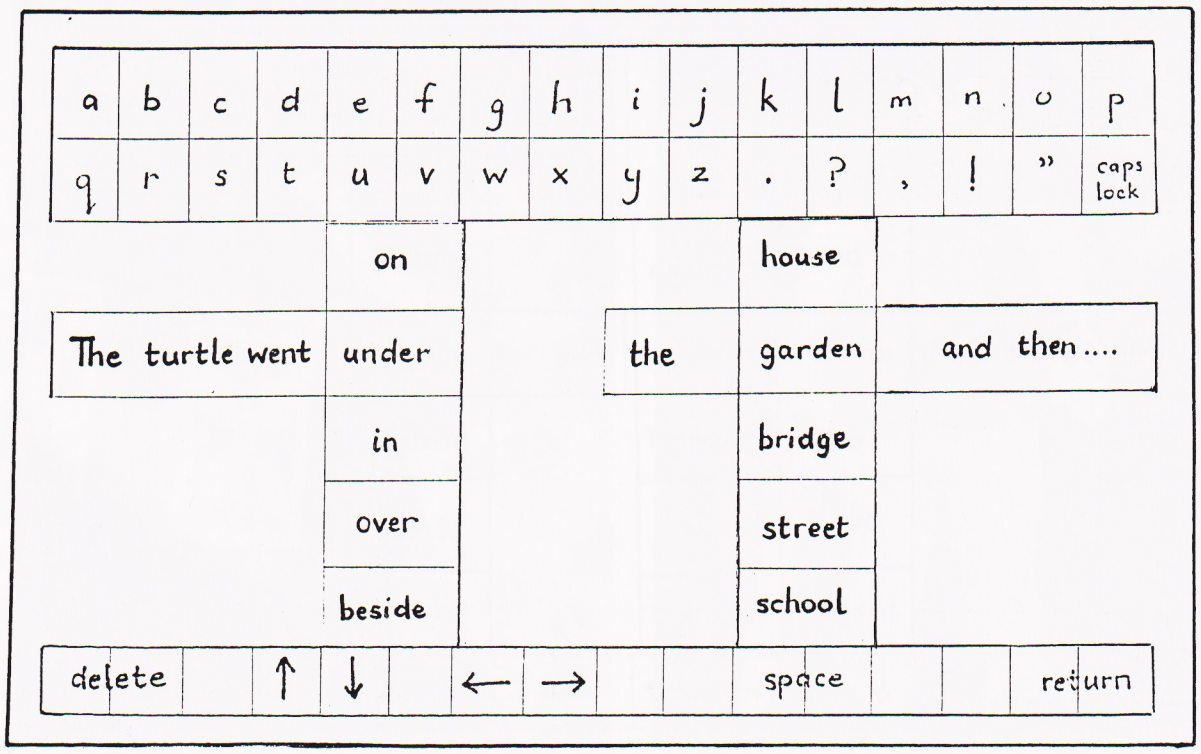


Fig. 5. The edited overlay.

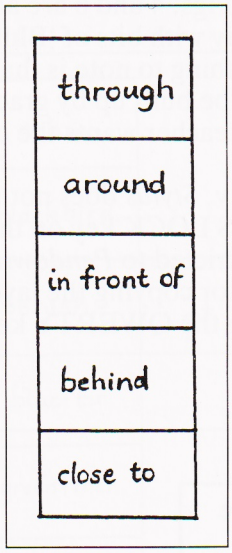


Fig. 6. Strip of new words.

I am still enjoying myself swapping and developing ideas for concept keyboard use and would like to repeat my request to other teachers to send their ideas to *MICRO-SCOPE* for everyone to share.

P.S. Have you noticed how well the above ideas fit in with the National Curriculum English document for the development of writing skills?

P.P.S. The following little idea came out of a concept keyboard overlay writing course recently while using *Touch Explorer*. (It is important to say that writing overlay files for *Touch Explorer* is the easiest introduction to writing overlays that I know!)

Based upon the picture of Paddington Bear in Fig. 8, the screen messages offered phrases such as 'a small eye', 'a duffle coat', 'a large felt floppy hat', etc. The users are presented with the concept keyboard which has a blank sheet of paper on it and invited to investigate. When they think they have a enough information, they are invited to draw what they think was the original picture. Having put several attempts on the wall for discussion, an outline drawing of Paddington is attached to the keyboard and a new file loaded which tells the users which colours are used for each area. The final overlay and file asks the user questions based on the picture, such as 'What is kept under here?' when the hat is touched.

This simple idea can be used for a whole range of pictures which could fit in with your topic on birds, buildings, maps, mythical beasts, etc.

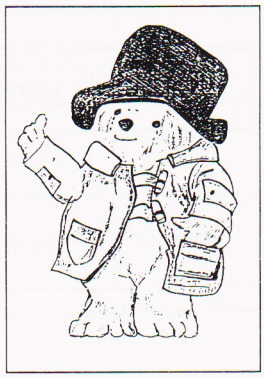


Fig. 8

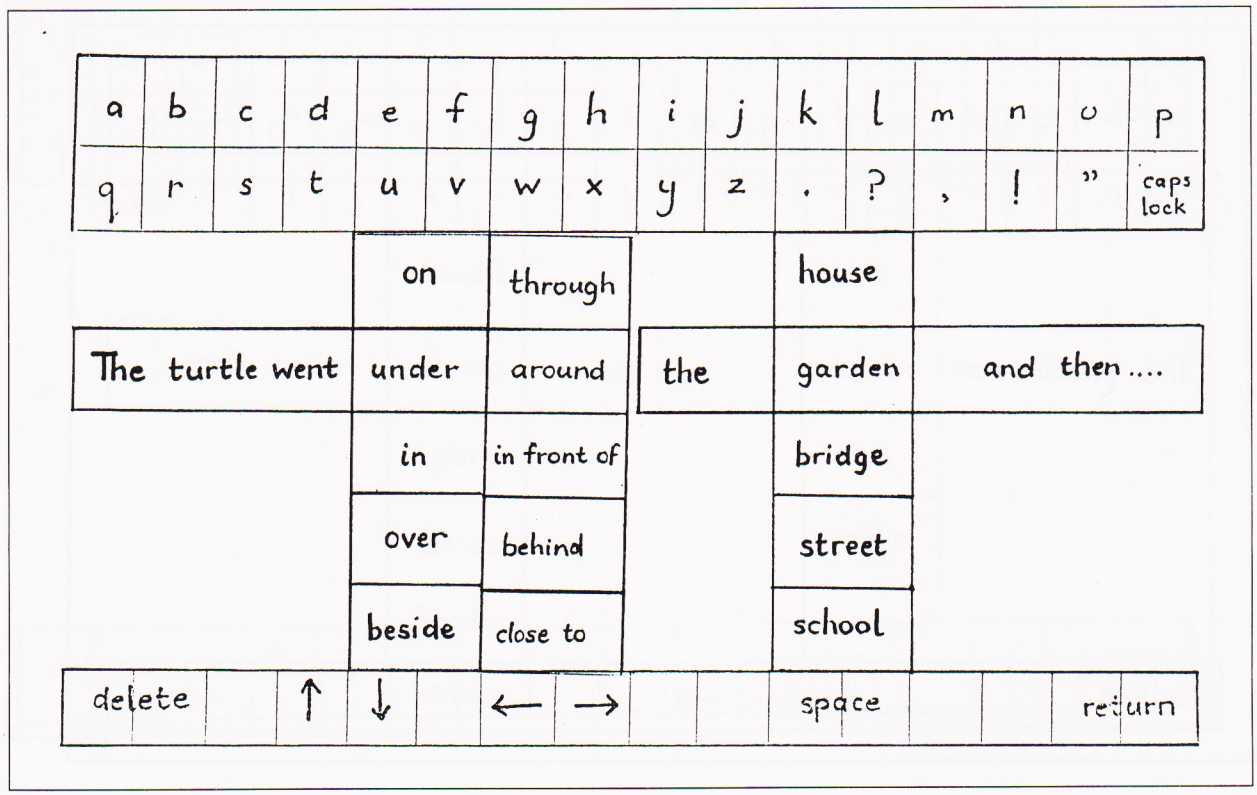


Fig. 7. The re-edited overlay.

Performing a computer adventure game – *The Orb of Zalibar*

Roger Cunningham
Kitwell Primary School, Birmingham

The Orb of Zalibar had taken over the school. Our open-plan building had been transformed into Firecaves and Waterchambers, Halls of Mirrors and Rooms of Numbers. We had formed fellowships and made cross-curricular links. Yet something was missing. How could we capture for outsiders all the excitement and enthusiasm which the project had generated? How could an audience make the journey?

We decided to create a performance based on travelling through some of the rooms in the labyrinth. It was a journey which would end in the Hall of Mirrors where combat between Drogon and Abradac was to be the dramatic climax.

During the previous term we had been involved in an IT/INSET (Initial Training/In-Service Training) project with Newman College. We had worked on dance and were anxious to build on that. The Water Chamber and the Firecave became dance pieces and the Starcave was a gymnastic movement piece based on star shapes.

The ghosts of Drogon's guards haunted the Warrior's Tomb while his pet dragon guarded Drogon's Lair (Fig. 1). The traveller was involved in a chess-style game laid out on the hall floor, having to make the right moves in order to avoid both dragon and warriors. The Laser Room involved lots of torches and was the setting for Abradac's appearance (Fig. 2).

We were anxious to show our audience the children tackling some problem solving. The Arch of Heroes became an exercise for a group of children in spanning a gap between pieces of

Fig. 1. The ghosts of Drogon's guards (The Tomb of Warriors).

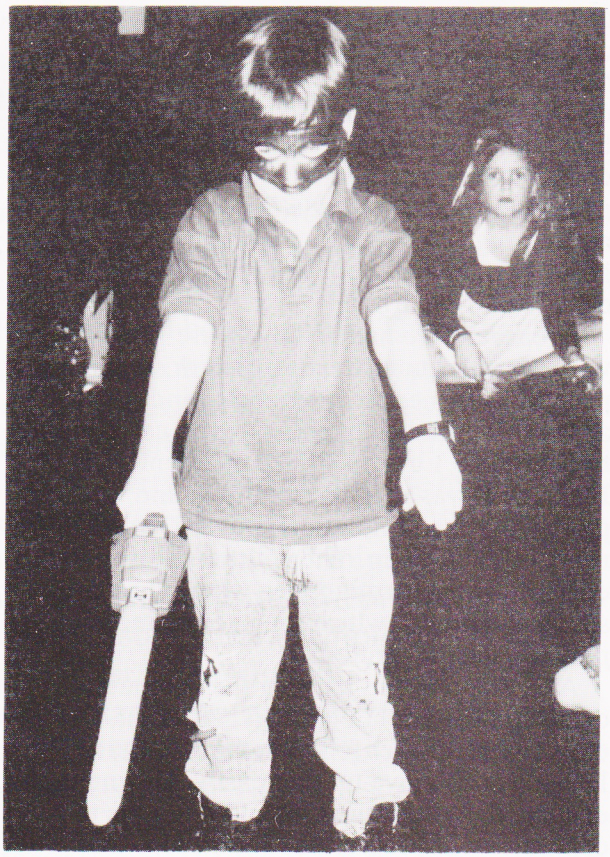


Fig. 2. Abradac appears in the Laser Room to help in the quest.

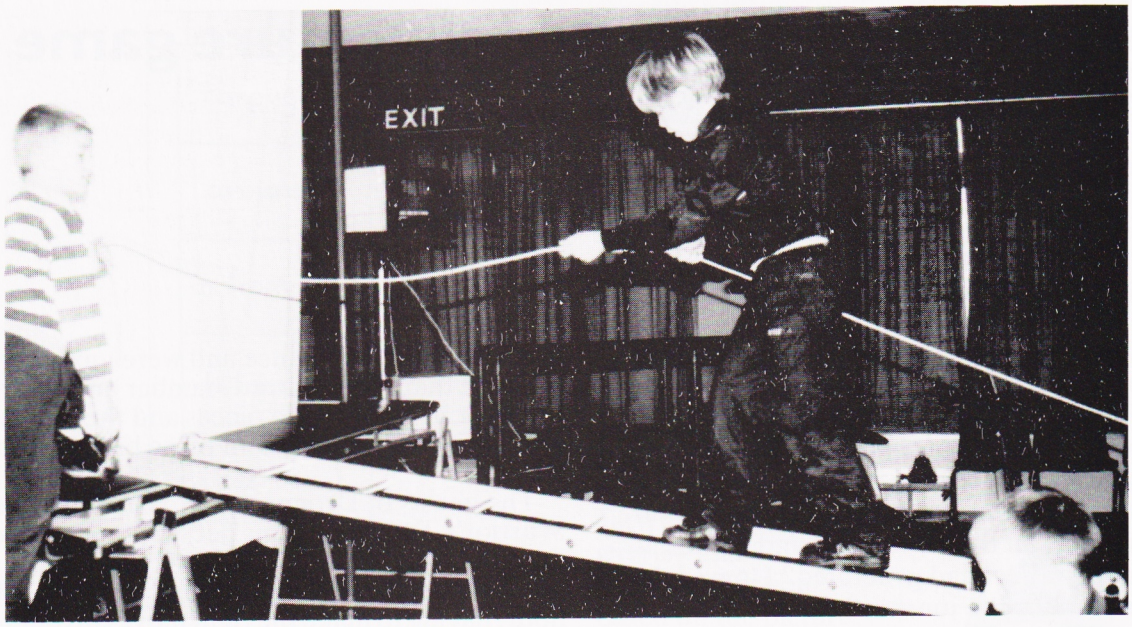


Fig. 3. The Arch of Heroes (in the background the computer which controlled the performance).

PE apparatus (Fig. 3). They planned it during rehearsal but they still had to make it work in performance. They made up rules like: 'If you fall then you cannot climb out of the abyss' – rules which concentrated the mind wonderfully.

The Room of Numbers contained a number of exit doors. These doors were made up of the children in the group. However, Drogon's computer had the power to change the combination each time the piece was performed. Fifteen children might have to make an 8–5–2 shape this time but a 1–9–5 shape next time. With fifteen children, 48 three-number combinations are possible (set it as a puzzle for your children), easy enough on paper but devising rules to make groups on the hall floor is a real exercise in collaborative learning!

Eventually we had an adventure game but we wanted a computer to control it. A simple program to generate numbers at random was the answer. We had eight rooms – you can generate the numbers 1 to 8 in 40,320 different ways. Each room was assigned a number and when the program picked a number it put the name of the room on the screen. The children sat round the edge of the performing area where they could see the computer which then generated the performance at random.

At the end of the journey the computer displayed the Hall of Mirrors. After all, we didn't want the Orb found in the first scene! But Drogon didn't give up that easily. During the ensuing fight between him and Abradac the computer was programmed to choose the winner at random. Having two possible endings gives 80,640 ways of playing the game. If you really want to make it complicated, multiply that by the 48-door combinations and that's 3,870,720 different plays you can perform.

In reality, none of this is quite as daunting as it may sound. You don't even need a computer. Why not give a member of the audience the numbers on cards which they can hold up at random? The biggest problem we had was with the seating at the second performance. Most of the first night audience turned up again to see what I can promise you becomes an exciting, very challenging, totally absorbing theatre piece.

Remember, at the start of each performance, *you* don't know what will happen, never mind the audience. Of course, there's always a one-in-three-million chance that you'll repeat the same performance that you did last time!

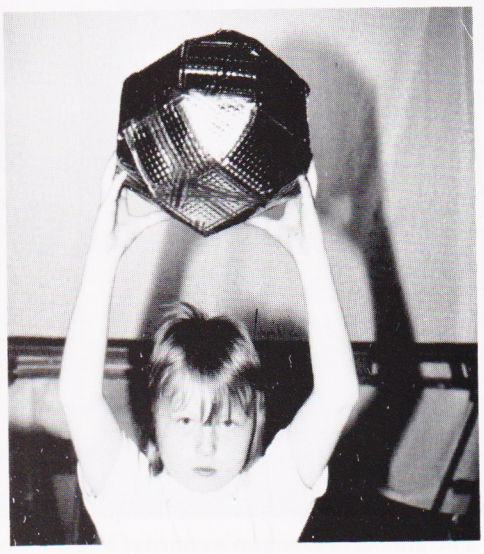


Fig. 4. The Orb is found!

MAPE Curriculum Development Fund

Application Form 1991

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

Applications are now invited from teacher(s) seeking support for work to be carried out in 1991; we are not looking for grandiose, ambitious research projects, but hope that this Fund will give MAPE members an opportunity to develop in a little more depth some of the many practical, classroom-based ideas which we hear of from around the country and to share them with their over-worked colleagues!

Project outcome:	Bids should indicate the approximate age of the children (between 3 and 13) at whom the materials are targetted and the nature of the materials which will be produced. These may be software files to accompany existing programs, classroom resources, list of ideas, or some other form of support materials which will then become the property of MAPE and be made available to MAPE members.
Project costs:	Costs should be estimated and might include items such as travel, subsistence, photocopying, professional assistance (for example the services of a graphic artist). Although funding will not cover items of hardware, appropriate software items can be included in the bid.
Minimum project funding;	£250
Maximum project funding;	£750; payment to be made in agreed stages

This form may be freely copied for further distribution.

PROJECT TITLE:

Brief description including projected outcome:

Starting date:

Projected completion date:

Estimated costs (give brief details):

Supporting statement from headteacher or line manager:

Name and position:

Signature:

Project leader:

Present position:

Any other relevant information:

Contact address:

Telephone number:
MAPE membership number:

Project participant:

Present position:

Any other relevant information:

MAPE membership number (if any)

Project participant:

Present position:

Any other relevant information:

MAPE membership number (if any)

Project participant:

Present position:

Any other relevant information:

MAPE membership number (if any)

Any additional information:

When complete, this form should be returned to Chris Robson by **Friday, 11th January.** After consideration by the Curriculum Development Subcommittee, successful applicant(s) will be informed in early February, and will be assigned a MAPE Council member or Regional Representative as their project coordinator. The project coordinator will offer any advice and help needed, meeting the project member(s) at least twice a term and reporting back to the National Council.

Chris Robson (MAPE)
99 Foxcote
WOKINGHAM
Berkshire
RG11 3PG

Logo comments

Loretta Olusanya
Jubilee Nursery School, Hackney

I believe that Logo should be included in the primary curriculum because, as Derek Radburn in the *MICRO-SCOPE Logo Special* says, 'Logo is like sex. It has ends beyond the immediate activity'. Children say that when you finally get the picture right it is very pleasing and satisfying. It is also great fun.

Logo is a powerful language, designed by Seymour Papert and his colleague Wallace Feurzeig at the Massachusetts Institute of Technology to help pupils develop their intellectual and problem solving skills, in mathematics, and as an aid to stimulate creative thinking.

Logo can support the development of the following skills: learning intuitively; concentration; spatial awareness; shape and colour recognition; precision and judgement. Logo develops and has endless possibilities for the exercise of logical and spatial awareness, spatial geometry, reflection, language, symmetry, problem solving skills, programming and, if that were not enough, it is mentioned in the National Curriculum. Logo can also be used for data processing when it can operate on numbers, words and lists.

Logo is best suited to the top down method of programming which involves dividing a problem into smaller pieces and then testing experimental solutions on each sub-problem. This is a very useful skill. Children are intrinsically motivated to want to solve a problem and they are rewarded by the results on the screen immediately. This could be regarded as the extrinsic reward.

Originally Logo was implemented on American mainframes in the early 1970s. Papert's book *Mindstorms* was only published in 1980 and then British teachers were discouraged from using American micros. Logo was released in April 1983 for the RML 380Z and in 1984 for the RML 480Z and more recently for the Nimbus. It has been generally available on the BBC range of micros for about six years.

Logo is accessible from children at nursery age to adults with no previous experience of computers. Serafim Gascoigne (*Learning through Logo*, Macmillan, 1984) says it can be used intelligently with bright, mentally retarded, autistic or physically handicapped kids.

The language that children can use is familiar: eg.

RIGHT, LEFT, (to make it turn on the spot)
FORWARD, BACKWARD, (to make it move in either direction)

Each command needs to be followed by a space and a number to determine the amount of turn or movement for the turtle. Using just these 4 commands makes a great deal possible.

Anita Straker (*Children using Computers*, Blackwell) says Logo is an open-ended programming language which young children can use almost as soon as they can count and recognize simple written words. From my experience, I would argue that young children under five can use Logo in a fairly structured way, even before they can count or recognise simple words or even identify colours. I have been working with nursery children using Logo and I have observed many joining in with the dialogue that I have used, when using Logo. 'R is for . . ., E is for . . ., P is for . . ., E is for . . ., A is for . . ., T is for . . .' Anita goes on to say that young children are encouraged to use larger numbers and the use of numbers in the hundreds is commonplace.

Logo is used in GCSE Maths, at 'A' level, and at University level to investigate the Theory of Relativity and beyond. It enables children to take control of their learning. It is used to provide a secure environment in which it is safe to experiment and make mistakes. Indeed, mistakes or bugs as they are called in programming, are in some way essential to organised thinking. Debugging is therefore fundamental to good, effective learning. Logo is used to help pupils set their own goals, and to modify and assess their levels of success, thus they gain a sense of ownership of their work. Logo lends itself very well to cross-curricular subjects, ie maths, language, art, technology, PE dance and movement, robotics, science, physics, music and all areas of knowledge etc.

Knowledge built from logo is syntonic, appropriate to the person, and experienced as an authentic, intimate part of the self. It frees the individual to create within a social context that

makes our culture's most powerful ideas accessible. Logo is also a vehicle for a philosophy of education and not a mere programming language.

Thus, the five basic tenets of logo-ology are:–

1. Computer programming can be an arena for learning to learn.
2. Computer uses appeal to many different tastes.
3. Computer-based activities can support Piagetian 'natural' modes of learning.
4. Computer power is widely available in schools and some homes.
5. The child should program the computer, not vice versa.

Despite Piaget's belief that children under 11 could not have a sense of 'abstract reasoning' which programming involves, documented research, accumulated by the MIT Logo project and published in 1978–79 at Brookline School in America with 11 year olds, showed that after 20–40 hours of hands-on experience, 14/16 children had mastered 4 concepts (command, sequence, procedure and debugging). More than half mastered four more advanced concepts (loop, variable, conditional, and interaction).

Deryn Watson says Logo is characterised by the active association with discovery-based learning and intended to encourage students to ask 'What would happen if . . .' This is exemplified in the National Curriculum AT:1 Level 2 and AT:9 Level 2.

At present we are witnessing a technological revolution especially with the increased use of microcomputers and by the year 2000, micros, like televisions will be in nearly every home. I was thoroughly impressed by the number of different computers that Logo can work on and these vary from Atari, Apple, Apricot, Nimbus, American computers, Spectrum, BBC, RM 380Z and 480Z, Tandy, Commodore etc.

We as responsible teachers have a duty to equip children to be prepared for the rapid changes that are taking place in technology and we need to be able to equip them to face the challenge of the future. We are equipped with the software and hardware and surely should be responsible enough to harness the opportunity and use this powerful technology towards positive ends. Logo enables children to come to terms with this technology.

If computers cannot be made to enhance the quality of education we have the choice not to use them. But we also need to ask ourselves if Logo has helped to reveal a hidden intelligence, which our school system has failed to notice. Does it reveal hidden potential? Does it provide a stimulating environment for learning through practical activities at the level of each child's understanding?

We should look at all the uses of Logo first before we evaluate it. Logo is used to add up numbers, to print the area and perimeter of a rectangle, to calculate the square root of a number, for calculus, for topology, for learning the 9 times table by drawing a pattern using right angles, 90, 180, 270 and 360. It can be used to make a quiz based on your topic or general knowledge or for simple adventure games (Fig. 1).

I have looked at all the National Curriculum Documents, and I have linked Logo to Maths, Science, Technology and English, because I feel all of these areas are important and are integrated. I have quoted specific examples that relate directly to my work with Logo, rather than use all the examples given in the National Curriculum documents. I have also selected only those attainment targets towards which Logo can make a particular contribution, and the most important ones are written in bold text.

Mathematics in the National Curriculum

Attainment Target 1: Using and applying mathematics

Level 1 Talk about own work and ask questions (ask questions such as 'What shape shall we design and what colour or which is the longest line?')

Make predictions based on experience (predict which way the line will be drawn on the computer if they type in FORWARD 50).

Level 2 Describe current work, record findings and check results (draw shapes for adding on the computer and printout)

Ask and respond to the question: 'What would happen if?'

Level 3 Make and test predictions (Using different angles to start with, estimate whether or not angle 90 always gives a square shape).

Attainment Target 4: Number

Level 1 Give a sensible estimate of a small number of objects up to 10. (Estimate the number of shapes on the screen).

Level 2 Make a sensible estimate of a number of objects up to 20. (Estimate the number of shapes printed out for 4 children in the class.)

Level 3 Recognise that the first digit is the most important in indicating the size of a number, and approximate to the nearest 10 or 100. (Know that 27 is roughly 30.)

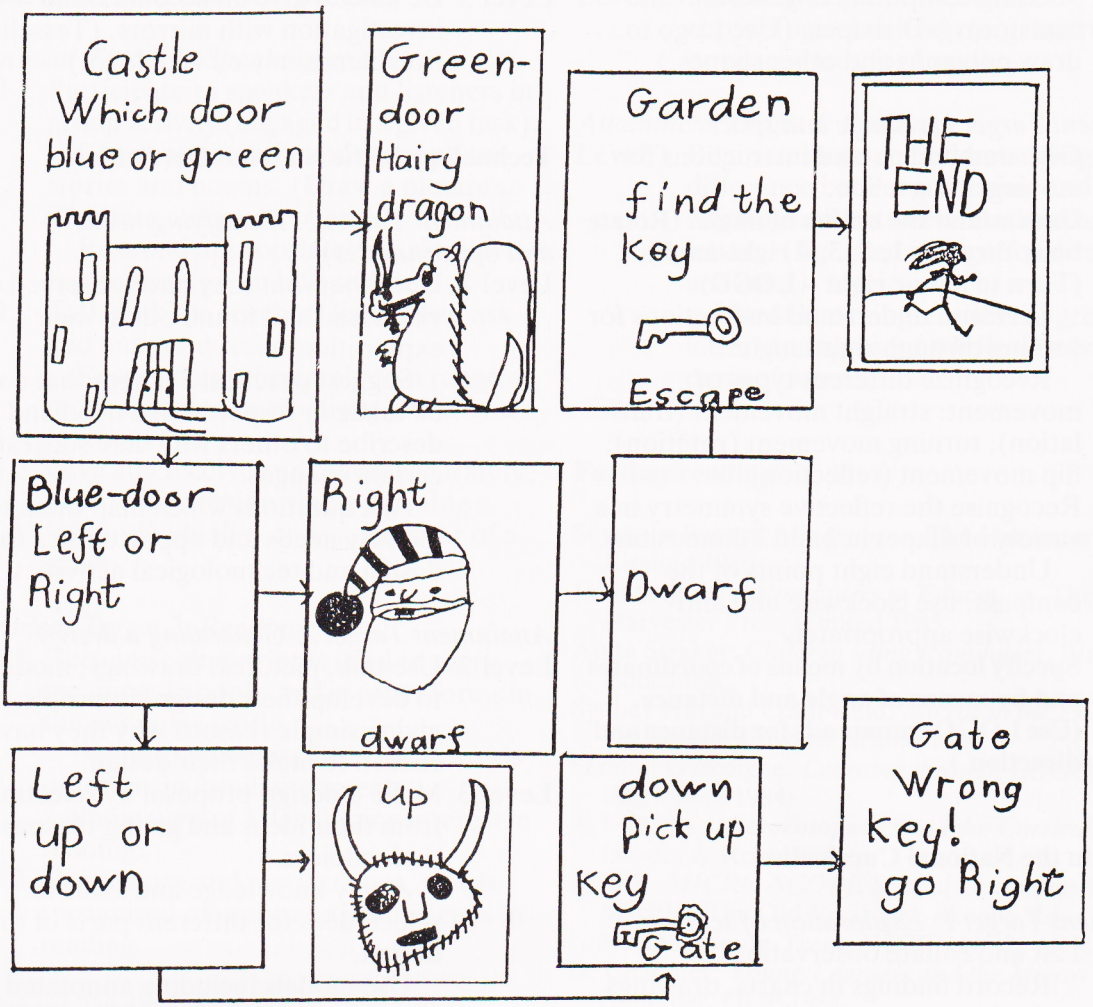


Fig. 1.

Attainment Target 6: Algebra

Level 3 **Deal with inputs to and outputs from simple function machines. (Use doubling and halving, adding and subtraction, FORWARD and BACKWARD (in LOGO) etc, as inverse operations.**

Attainment Target 7: Algebra

Level 4 **Know the conventions of the coordinate representation of points; work with coordinates in the first quadrant.**

(e.g. Create shapes by using DRAW and MOVE commands in BASIC in the approriate graphic mode, or by using LOGO commands).

Attainment Target 9: Using and applying mathematics

Level 1 Talk about own work and ask questions. (Ask questions such as 'Which is the longest?') Make predictions based on experience.

Level 2 Describe current work, record findings and check results.

Ask and respond to the question 'What would happen if . . .?'

Attainment Target 10: Shape and space

Level 1 Draw 2-D shapes and describe them.

Level 2 Recognise squares, rectangles, circles, triangles, hexagons, pentagons, cubes, rectangular boxes (cuboids), cylinders, spheres, and describe them.

Recognise right-angled corners in 2-D and 3-D shapes.

Level 4 Understand and use language associated with angles. (Know acute, obtuse and reflex angles, parallel, perpendicular, vertical and horizontal, etc.)

Level 6 **Know and use angle proportions and symmetry properties of quadrilaterals and other polygons. (Determine whether a tessellation of given shapes is possible).**

Using computers to generate and transform 2-D shapes. (Use Logo to draw polygons and other shapes.)

Attainment Target 11: Shape and space

Level 1 Give and understand instructions for moving along a line.

Level 2 **Understand the notion of angle. (Rotate body through 1, 2, 3, 4 right-angles.) (Turn to left or right – LOGO)**

Give and understand instructions for turning through right-angles.

Recognize different types of movement: straight movement (translation); turning movement (rotation); flip movement (reflection).

Level 3 Recognise the reflective symmetry in a variety of shapes in 2 and 3 dimensions.

Understand eight points of the compass; use clockwise and anti-clockwise appropriately.

Level 4 **Specify location by means of coordinates and by means of angle and distance. (Use LOGO commands for distance and direction.)**

Science in the National Curriculum

Attainment Target 1: Exploration of science

Level 2 List and collate observations.

Record findings in charts, drawings and other appropriate forms.

Level 3 Select and use simple instruments to enhance observations, eg, a protractor.

Describe activities carried out by sequencing the major features.

Attainment Target 6: Types and uses of materials

Level 1 Be able to describe un/familiar objects in the terms of simple properties, eg. shape, colour, texture.

Attainment Target 12: The scientific aspects of information technology including microelectronics

Level 3 Know that information can be stored electronically in a variety of ways eg text, number, picture and sound.

Be able to retrieve and select text, number, sound, or graphics stored on a computer.

Attainment Target 15: Using light and electromagnetic radiation

Level 2 Be able to draw pictures; (using Logo etc) showing features such as light, colour and shade.

Level 3 Be able to give an account of an investigation with mirrors. (Tessellation blends in well with logo.)

Technology in the National Curriculum

Attainment Target 1: Identifying needs and opportunities

Level 2 Describe what they have observed or visualized and found out in their exploration.

Suggest practical changes that could be made in response to a need and describe to others why they suggested certain changes.

Ask questions which help them to identify needs and opportunities for design and technological activities.

Attainment Target 2: Generating a design

Level 2 Use talk, pictures, drawings, models, to develop their design proposals; giving simple reasons why they have chosen to make their design.

Level 3 Make a design proposal by selecting from their ideas and giving reasons for their choices.

Apply knowledge and skills to select ideas for different parts of their design.

Use models including annotated (furnish with notes) drawings and three-dimensional working models to develop their design.

Record how they have explored different ideas about a design and technological proposal to see how realistic it might be.

Level 4 Record their ideas as they develop.

Describe and edit design proposals.

Attainment Target 3: Planning and making

Level 3 Consider constraints of time and availability of resources in planning and making.

Attainment Target 4: Evaluating

Level 1 Describe to others what they have done and how well they have done it.

Describe to others what they liked and disliked about familiar artefacts, systems, or environments.

Level 2 Discuss with teachers and others how satisfied they are with their design and technological activities, taking into account their original intentions and how they went about their task.

English in the National Curriculum

Attainment Target 1: Speaking and listening

Level 1 Participate as speakers and listeners in group activity (engaged in a given task).

Listen attentively and respond to stories and poems. (Draw a picture to illustrate a story or poem).

Respond appropriately to simple instructions given by a teacher.

Level 2 Talk with the teacher, listen, and ask and answer questions.

Respond appropriately to a range of more complex instructions given by a teacher.

Level 3 Give and receive and follow accurately, precise instruction when pursuing a task individually, or as a member of a group.

Attainment Target 2: Reading

Level 1 Recognise that print is used to carry meaning, in books and in other forms in the everyday world.

Begin to recognise individual words or letters in familiar contexts.

Show signs of a developing interest in reading.

Level 2 Use picture and context cues, words recognised on sight and phonic cues in reading.

Attainment Target 3: Writing

Level 1 Use pictures, symbols or isolated letters, words or phrases to communicate meaning.

Level 2 Produce simple, coherent non-chronological writing. (e.g. instructions or procedures for Logo)

Attainment Target 4: Spelling

Level 1 Begin to show an understanding of the difference between drawing and writing, and between numbers and letters. (Eg. used in logo for direction and size.)

Use at least single letters or groups of letters to represent whole words or parts of words.

Further reading

Seymour Papert: *Mindstorms*, The Harvester Press Limited 1980

John Self: *Microcomputers in Education*, The Harvester Press Limited 1985

Anita Straker: *Children using Computers*, Blackwell Education

Sydney Hill and Colin Reid: *Micros in the Primary Classroom*, Edward Arnold 1984

Serafim Gascoigne: *Learning through LOGO*, MacMillan 1984

A.V. Kelly: *Microcomputers and the Curriculum*, Harper & Row 1984

MAPE: *MICRO-SCOPE Special* December 1987, MAPE, 'The Old Vicarage', Skegby Rd, Normanton-on-Trent, NOTTS NG23 6RR

D. Chandler: *Young Learners and the Microcomputer*, OUP 1984

ILEA: *Logo, A Teacher's Guide*, 1986

Letters to the editor

In *MICRO-SCOPE 30*, Rosemary Burton wrote about her expectations as a Curriculum Support Teacher and expressed her concerns for the future of others taking on this role.

I thought it might be of use to express my own expectations since I am about to take on the challenge of becoming a Curriculum Support Teacher.

My recent background is that of a College of Education lecturer with responsibilities for educational aspects of computing and mathematics. Although the majority of my teaching was with B.Ed. students, it was no secret that my preference was for In-Service work and for studying the effects that computers were having on everyday classroom practice. To this end, I always took the opportunity to work alongside teachers in their classrooms to try out 'new ideas' before suggesting what might be possible with this 'new technology'.

Just over a year ago, I took the opportunity to become an advisory teacher for IT for a one-term secondment. It enabled me to see the same things that Rosemary wrote about, ie that the most effective model for INSET in IT is not the short course, whether in school time or after hours, but is that of working alongside colleagues in their classrooms and giving them the confidence to use the computer as a learning/teaching aid. This aspect of the work was the most rewarding since I was able to see the teachers' growing confidence on subsequent visits.

I ought to state that the Adviser for IT was insistent that we spend the majority of our time working in this way. But now comes the crunch! The ESG budgets have been trimmed substantially and the advisory teams cut back so it will be impossible to continue providing this type of support. We are going to have to operate with these reduced teams for three years and then face an even more uncertain future. So why have I opted to leave the safe environment of a College to face the prospect of a three-year contract with no certainty thereafter?

I feel that there is still a job to do. Somehow we have got to aim at providing the kind of support that we felt was the best approach to developing good use of IT in schools. My aim is to set up clusters of schools with an identified IT Leader who will be a teacher in one of these schools. The role of this leader will be to act as a first point of reference for the teachers in their cluster group as well as being given some time, in the form of supply cover, to work alongside teachers in their cluster (perhaps one half-day per fortnight).

Our aim now becomes that of providing training and support for these cluster group leaders and establishing a programme of inducting new teachers into this role every year. If this works(!), then in a short time people like myself may well become redundant, ie my aim is to work myself out of a job because there should be a network of teachers able to provide colleagues with first-hand support.

All of these ideas will need the permission and encouragement of my own adviser as well as the other subject advisers since the shortage of funding means that funds spent in one area have to be taken from others.

It is fairly obvious, but I must add that these ideas are my own and not part of County policy, (yet!), but I feel they are good enough to be worth fighting for.

This still leaves unresolved the issue about how I am to continue paying the mortgage in three years' time, but the challenge is too good to miss. Maybe there will be more Government funding before then; maybe my local authority will keep me on; maybe I shall continue to be the eternal optimist. I am not sure, but unless we put our ideas into practice, the rate of progress will be even slower than it is being forced to become.

Reg Eyre
Curriculum Support Teacher,
Wiltshire LEA

How iconoclastic is UK IT!
How does our factionalism undo us!

I read with delight that our Scottish colleagues had continued the tradition of close contact between their nation and the French in the 'Primary French Project' reported in *MICRO-SCOPE 30*.

But, alas, I found it to be flawed.

Logo is in use in France. Indeed, Logotron Logo for the BBC micro is a French product. There are (be not astounded!) seven BBC networks in Belgium. I have in my possession a copy of the 'Manuel Logo Illustré' (version BBC), 2nd edition, 1986, by B. Denis. This, then, is a definitive source for the commands that French children really use for their turtle graphics. I list the relevant ones in the following table:

English	*Abbr.*	*French*	*Abbr.*
FORWARD	FD	AVANCE	AV
BACK	BK	RECULE	RE
RIGHT	RT	DROITE	DR
LEFT	LT	GAUCH	GA
PENUP	PU	LEVECRAYON	LC
PENDOWN	PD	BAISSECRAYON	BC
HIDETURTLE	HT	CACHTORTUE	CT
SHOWTURTLE	ST	MONTRETORTUE	MT
REPEAT		REPETE	

Notes:
1. There is no abbreviation for REPEAT in Logo.
2. The use of 'TOURNE' before GAUCHE and DROITE follows an early Spanish implementation. It has subsequently been dropped.

Had the Scottish children produced 'real' French Logo, they could have sent their discs off to peers in, say Belgium, who could have then viewed their efforts.

There are two morals to be drawn from this experience:

A. To be European we need to enquire of Europeans.

B. The schism between factional UK IT-in-Education organisations is a barrier to information flow and counter productive.

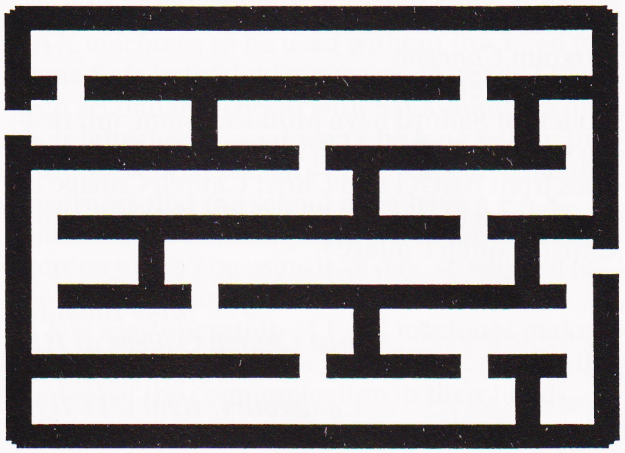
For those who holiday in Spain, the equivalent Spanish LCSI (*LogoWriter*) commands are:

ADELANTE (AD); ATRAS (AT); IZQUIERDA (IZ); DERECHA (DE); PB; PI; ET; MT; REPITE.

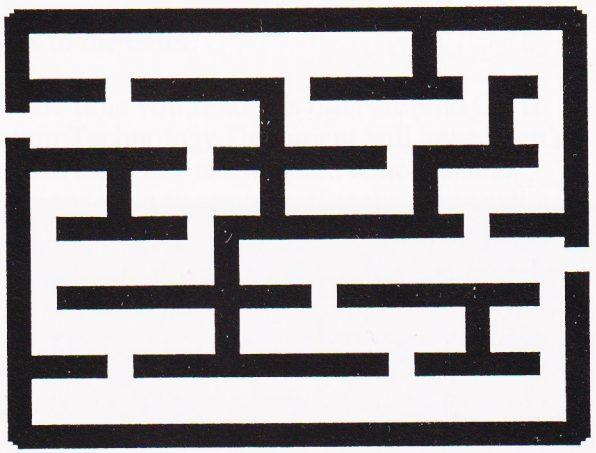
Logo is on the increase in Europe, and they are not just doing turtle graphics. On the PC, (upon which Europe has standardised), *LogoWriter* is giving children access to a word-processing microworld to complement the original turtle graphics.

M.P. Doyle
Hon. Chair, BLUG

Background screens for Logo activities



Maze 1.



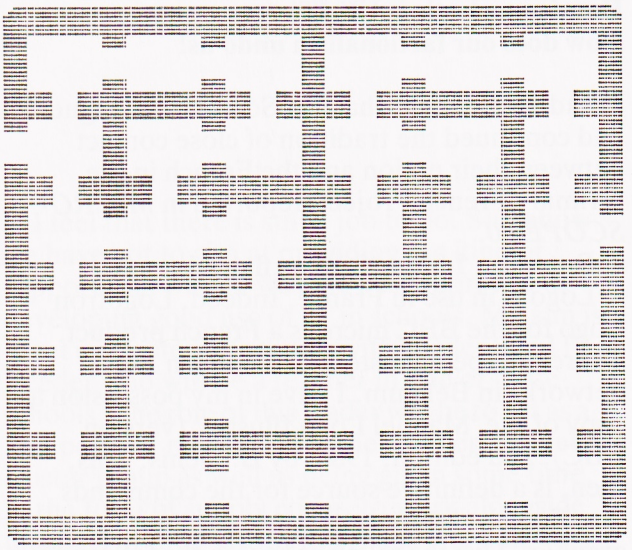
Maze 2.

I read with interest Stuart Duke's article on using background screens for Logo activities in *MICRO-SCOPE 29*. There were some good ideas for using pictures produced using the drawing programs *Image* and *Picture Builder* but the whole process of typing in VDU codes etc seemed a bit off-putting.

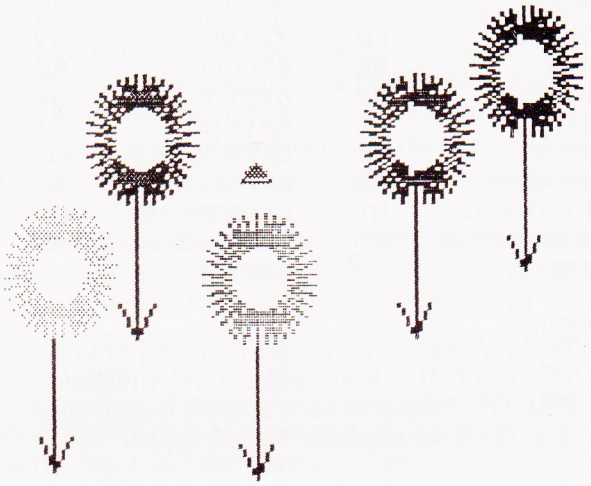
Coincidentally, I have just produced a disc in collaboration with the British Logo User Group which makes it very easy to use pictures with Logo on the BBC computers. All you do is save the picture onto the disc. You can then select pictures from a menu by starting-up the disc in the usual way. It will also allow you to link the screen to Logo procedures and concept keyboard overlays made with the NCET program *Concept*.

Paul Shreeve of Norfolk LEA and Dave Hollett of Salford have produced some interesting sets of screens which are available as screen discs from BLUG and Christ Church College at £4.00 per set (please make cheques payable to Christ Church College).

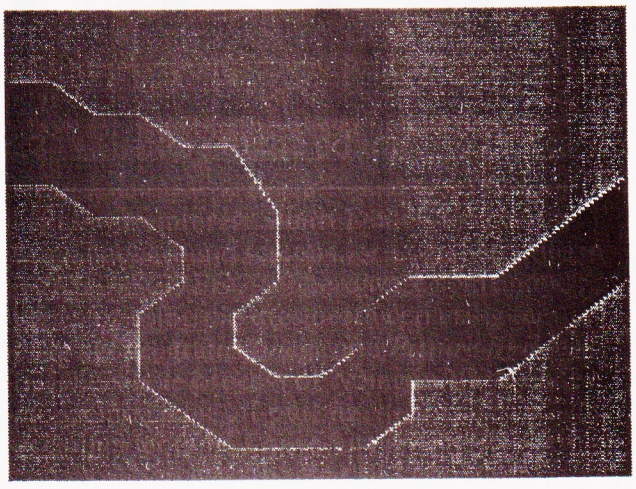
Mike Blamires
Christ Church College of HE,
North Holmes Rd
Canterbury, Kent CT1 1QU



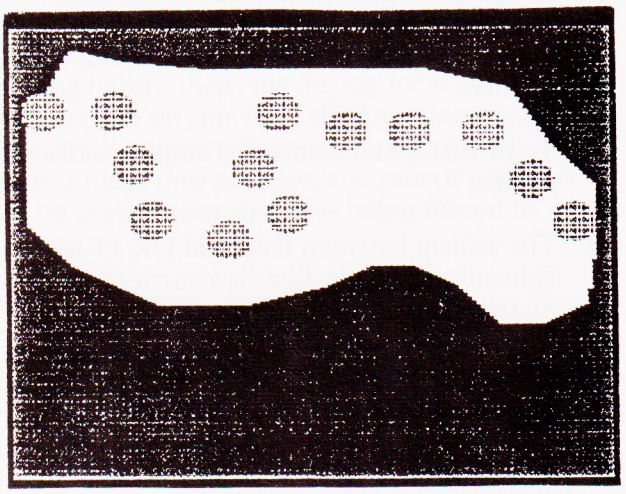
Maze 3.



Garden.



River.



Pond.

Musing on the educational IT scene

Chris Hurrell
Shropshire LEA

IT can damage your communication skills

> *'Pupils should be able to use Information Technology to:– communicate . . .'*
> *National Curriculum Technology – p. 43*

IT can be an aid to communication, (ie make things easier), or IT can get in the way of effective communication (ie make it more complex). I am not convinced that all this MODEMing and E-MAILing is good for your communication skills; it may be good for your computer study skills but there are simpler ways of communicating if all you want to do is send a letter/story to a friend in far-flung parts. One of these easier ways involves the use of a FAX machine. It may be a little on the expensive side at the moment but like all techno-gear, as the complexity goes up and time goes by, the price drops. Just look at video recorders, pocket calculators, digital watches, etc.

Compare the simplicity of using a FAX machine with the complexity of E-Mail and it is easy to see that this complexity must go, or we will sée the death of E-Mail for all but the RAMbos of the IT world. Not being a RAMbo myself, and having used both, I know which is easier. For the sending of a message to a distant desgination FAX is by far the simpler of the two. There is no hardware barrier with FAX for the non-technical person to overcome. We can all use a press-button phone.

Sending and receiving plain text on E-Mail, sometimes garbled or with bits missing, is not half as stimulating as sending and receiving children's hand-drawn diagrams, illustrations, maps and plans etc on FAX. (Why has every E-Mail demo I have ever seen had trouble logging on to the main computer?)

There are applications for which E-Mail will always be suitable, such as the accessing of Local, National and International databases, NERIS and the like, but these functions could be taken over by central resource facilities such as Teachers' Centres and Libraries. Currently, the major use of E-Mail in schools is for the transmission of letters and other textual materials for which FAX is eminently more suitable. FAX is immediate and personal; the technology becomes invisible and communication can take place easily.

With the cost of FAX machines falling and their facilities increasing, this inverse ratio will soon place them within the financial compass of many schools. Joint purchases by groups of schools, or Teacher Centre loans, will enable FAX machines to be used without this need for immediate individual purchases. Already I have seen secondary schools with FAX numbers on their letterheads, so it won't be long before the entrepreneurial primary head will persuade the governors that the school must have a FAX machine in the office, (and if it is in the office the secretary won't be using it all day, so why not let the children use it?).

The easy operation of FAX machines makes them ideal for school use by children, putting the control of the communication in their hands. Information Technology here assists and facilitates effective communication rather than communicating just for the sake of using the Technology.

Nuts to the bolts

By the time you read this the National Curriculum Technology Document will have been on stream for a few months and concepts and opinions as to the nature of technology will be beginning to take shape in teachers' minds. What follows is a bit of a plea for a wider vision than the one that I see forming at the moment.

Technology is not just the nuts, bolts and wires of hard technology. Technology is many other things. Where is the soft tech of the creative processes involved in making an omelette, of designing a rucksack strap that doesn't leave red weals on your shoulders at the end of the day? These are technological processes, as is the decision by a class of seven-year-olds to make and sell buns for the parents on open evening.

Read page 21 of the green and white ring binder and look at the words . . . kitchen . . . shopping list . . . fabric . . . yeast dough to bread . . . sewing . . . drawing . . . painting – the hammers and nails are there but Technology is more than hammer, nails and wire.

We are in the season of the distillation of the latest NCC ring binder into a single shot quick-fix: 'Technology equals hammer, nails and wire' – get the stuff and we are doing the technology. No, we are not.

But look at any publication targetted at teachers and scan the adverts that mention technology. What do you see? Buggy builders, control boxes, electric motors etc. The concept is being hammered home (excuse the pun) that technology is the hammer, nails and wire aspect.

Digging the garden . . . making a cup of tea . . . knitting a scarf . . . making wine . . . producing a film . . . designing a bird feeder . . . they're all technological processes.

Is science a sub-set of technology?
Is maths a sub-set of technology?
Is everything a sub-set of technology?

In the words of the Open University:

> 'Technology is what human beings do to modify their environment to their own ends.'

The trick is knowing which bits to leave under other umbrellas so that technology does not become so wide and all-embracing that you find yourself going crackers and including everything under the technology umbrella. Moderation in all things and don't forget the omelettes.

The Logo file

Chris Robinson
British Logo User Group

Let's share Logo!

Logo has been given a high profile in National Curriculum standing orders; it has been readily available to British schools for nearly ten years; it has been developed as an educational tool for thirty years. What is all the fuss about? Is it really justified? What *use* is Logo?

If you have been using Logo with children, please write and tell us. Your ideas may help others avoid frustration or re-invent the wheel.

There are many organisations attempting to achieve similar goals of helping teachers provide the best learning environment for their pupils in which the computer is an integral part. Let's make sure we talk to each other more and combine our energies and expertise.

Please send any contributions of a Logo nature to Chris Robinson, BLUG, PO Box 43, Houghton-on-the-Hill, Leicestershire LE7 9GX. Text sent as plain ASCII files is preferred if possible. (It saves it having to be retyped.) Practically any system can be accommodated: PC 3.5", PC 5.25", BBC, Nimbus, Spectrum (microdrive or tape), Z88 (eprom), QL. . . . Please enclose a printed copy too, and an sae if you want your disc returned. In case of query, telephone Chris on 0329 661565 (answerphone when unattended).

From time to time, we seek class teachers to test Logo software additions. If you are willing to assist in this way, please contact Chris via the phone number provided above.

'I don't know how to help'

The computer screen displayed a clever turtle-generated picture with a flashing cursor demanding an input. The bemused teacher, assuming it was another adventure game (for, indeed, that was the offering on the majority of the other screens that a couple of years previously would not have even figured at this educational event) had already received the response, 'I DON'T KNOW HOW TO GO' to his suggestion, 'GO EAST', and had reasonably requested of the machine, 'HELP'.

The unenlightened exhibitor, for once not rushing to secure a sale, could hardly be blamed for his reticence; in 1984, few had any significant Logo exposure. Furthermore, for the majority of educational suppliers and teachers alike, learning to plug in and switch on the machine held priority over learning a new programming language.

But that wouldn't happen today, would it? In 1990 I have been told, when questioning the absence of Logo from a particular manufacturer's display, that they weren't concentrating their sales effort on it as 'It is not a very user-friendly program', and by a teacher, 'I don't use Logo as I've found a graphics program the children can use to draw squares and circles more easily.'!

How can we help educators realise the educational potential of this educational language? Answers on a postcard, please. (Or floppy disc!)

'You should have written it in your notebook!'
or **Why keep a dog and bark yourself?**
(The development of a Logo extension)

'We've made this picture of a boat!', three excited voices soared across the field, followed marginally more slowly by their young owners.

I could hardly reprimand the trio for this uncharacteristic interruption of my lesson in view of their obvious enthusiasm generated by the newly discovered use of their classroom computer. Their excitement in part reflected my own that not only was the hitherto underused electronic resource being put to good use but that its effectiveness was proved in these children having mastered the necessary concepts of length and angle required for such a complex task.

There was however a problem. The children wanted to keep a record of the creation that embodied their efforts with this new language. They had only used a succession of direct commands so there were no procedures that could be saved and, although they had started by planning and copying commands on a notepad, they knew they hadn't been thorough enough to guarantee its reproduction again; there had been no printer dump extension previously prepared and another group was waiting for their turn to attempt to prove their mastery of the machine.

Perhaps if I could have left my class and accompanied these children back, I might have remembered the numbers that must follow *SAVE PICTURE, assuming a blank formatted disc was to hand, but I couldn't expect their teacher, as new to Logo as her children, to know.

The inevitable conclusion was that posterity has been denied the masterpiece of their toils but I was determined such an occurrence wouldn't befall us again.

BBC Logotron Logo does have, on an extension disc, 'dribble file' and 'printer dump' utilities that have to be installed before children start using the language which would, in theory, solve the problems. However, I could imagine the reaction of some of my 'Logo virgin' staff if required to attempt to master this as well – it just might put them off Logo for good!

Removing my 'expert' cap, which I have never felt fits well, I began to empathise with the perception that Logo can be user-UNfriendly! Thus was conceived '*Notepad Logo*'.

Starting the freely copiable software by pressing SHIFT and BREAK with which most teachers are now familiar, extra facilities are accessed by the function keys, which may now be thought of as the keys of a tape recorder. One key STARTs recording the commands on the notepad whilst the children use direct commands to create their masterpiece. Apart from STOP, PLAYBACK and CONTINUE, other keys enable the work to be NAMEd as a procedure that may be edited and saved in the normal way (or via other easy-use function key presses).

Far from alienating staff from the Logo environment, this new utility appears to have contributed to Logo becoming a more acceptable learning tool in our classrooms.

Notepad Logo is part of the BLUG software selection which is freely copiable and available from Christ Church College, North Holmes Road, Canterbury, Kent CT1 1QU at £2.00.

Book review

Title: **Computers and the Primary Curriculum, 3–13**
Editor: Rob Crompton, University of Reading
Publisher: Falmer Press, Rankine Road, Basingstoke, Hants RG24 0PR
Price: £8.50

Computers and the Primary Curriculum is a comprehensive, helpful and down-to-earth guide for teachers using computers across a wide age range. As well as plenty of useful tips on the practical management of IT in the classroom, there is a wealth of illustrations, colour photographs and examples of children's work to show how the computer can be used as a versatile tool to enhance children's learning.

Skilfully edited by Rob Crompton, who has written an excellent introductory chapter, this book covers almost every aspect of IT, from Religious Education and Adventure Games to Problem Solving, Technical Tips and Art and Design. I found Chris Hopkins' chapter 'Beyond the QWERTY Keyboard' particularly interesting. Every section of the book takes into account the National Curriculum and the Education Reform Act and Denby Richards' chapter about how to develop a school IT policy contains plenty of sound advice.

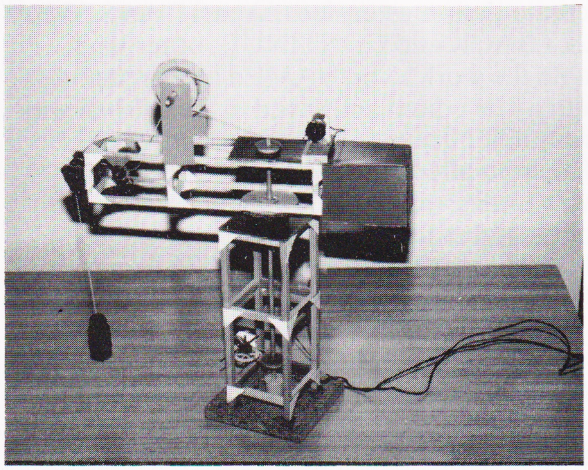
My two criticisms of this book are minor ones: the chapter on Problem Solving has too much about Big Trak and not enough about floor turtles, and the list of software publishers does not include MAPE. Apart from these errors, *Computers and the Primary Curriculum* is an excellent, lively and readable book, with plenty to interest the novice and the more experienced IT enthusiast. Perhaps the most important aspect of this book is that it shows that computers are not simply trendy technological toys with no real educational value, but that in fact IT can provide a stimulating environment which enhances everything that is happening in the classroom.

Simon Hill
Windesham House School

MAPE news

Models, movement and micros
A report of a West Midlands MAPE one day course

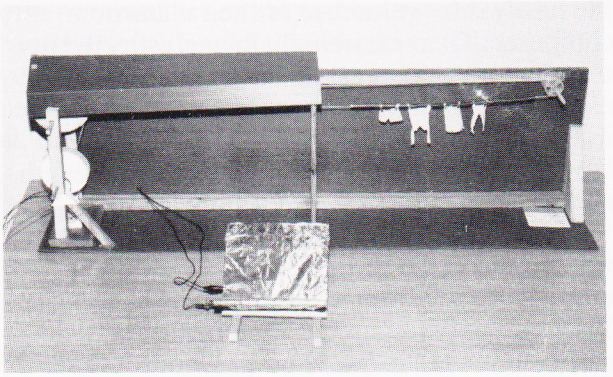
'The activities of designing and making should be regarded as being at the fundamental stage, every bit as important as reading, writing and arithmetic, and at the more advanced stages, as important as literature, science and history. Every child in every school, every year should be involved in designing and making activity, on the grounds that, in its own right, it is a very valuable educational approach.'
(Stanley Lecture: *A coherent Set of Decisions*, Sir Alex Smith, Royal Society of Arts, London, October 1980)



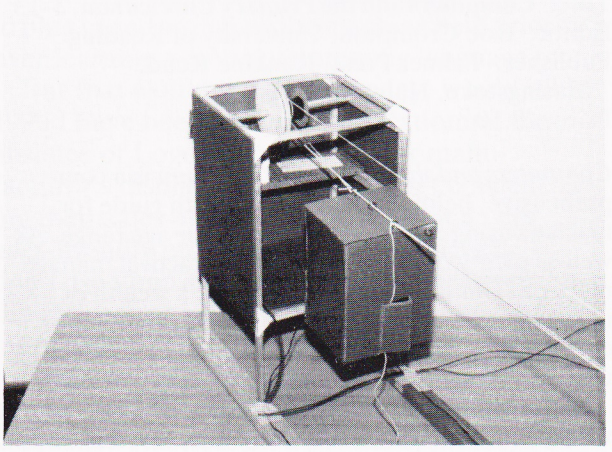
It was a 'full house' again on Saturday 22 September, for the West Midlands MAPE third one-day course on 'Models, Movement and Micros'. This was held in the super new technology room at Newman College. It is laudable that this has not been fitted out with sophisticated equipment to resemble a secondary school CDT area, but is resourced with the sort of tools and materials found in the primary classroom.

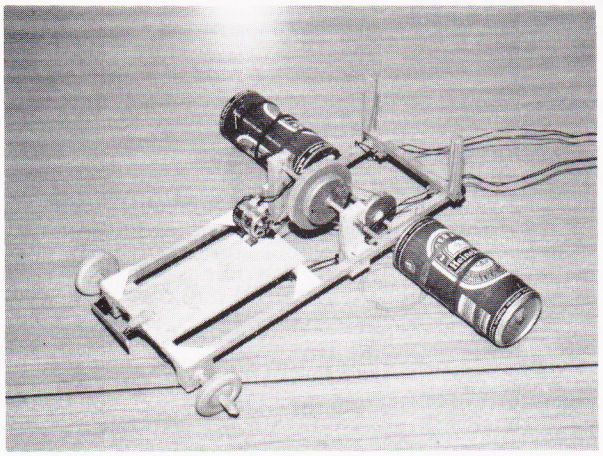
Teachers from seven LEAs were represented and with juggling instruction (the new way to reduce stress I'm told!) before the start it looked as though it was going to be a relaxed and constructive day.

Roger Keeling spent the first session discussing the Technology document for the National Curriculum, acknowledging that some aspects of technology have been part of the primary curriculum for a long time. However, teachers will need to develop tasks which allow children to achieve all four attainment targets. There must be some elements of progression, and a school policy is essential. As he talked about the other areas that come into this new subject area, Roger said that making scones *is* a technological activity but it is difficult to think of a scone as technology because it lacks four wheels and a motor! Someone suggested you could always use the currant in the scone to drive a motor!



Models, motors and movement is only *one* aspect of Technology. Course members were told that it was up to them if they wanted to concentrate on the model making and use battery power or go further and control their models with the micro. Coffee and biscuits arrived – by



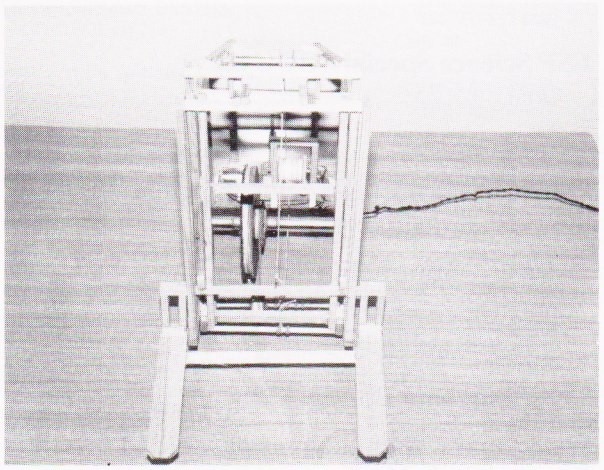


woman power – and helpers wished a cooker were available to 'design and make' some more appetising biscuits.

Slides showing a variety of models gave good ideas, and groups of people were soon huddled around sheets of paper addressing attainment targets 1 and 2. The quiet of the room suggested what had previously been discussed: that young children (and some of us!) may need guidance in identifying a need and opportunity, and that we as teachers might set open-ended problems for them to pursue.

Mike Compson announced the opening of Merlin's Educational Supplies to replace the Sandwell Science & Technology Shop. This will be operating from Newman for the present. The usual resources are available at very competitive prices.

Meanwhile ideas flowed, plans were drawn up, resources explored – ('I've been looking for something like this for ages to put over my car window to stop the sun shining on the seats'), jobs designated, and skills, like using the hot glue gun, learned. Things began to take shape as



faces became less worried, although nails were bitten and heads were scratched.

Few people noticed the buffet lunch arrive as they were engrossed in their tasks. Plates of food mingled on work benches with wire strippers and worm gears, fingers wandered from forks to adjust something here or there, thoughts lingered on the transition from battery to micro, and the afternoon continued . . .

By the end of the day we had an air-conditioned room, an up and over door, a crane, a traffic barrier, some super windows, and a variety of buggies of different shapes and sizes that the Motor Show would have been proud to display!

As the day came to a close models, motors and micros stood proudly on tables as tired bodies and minds sipped a welcome cup of tea before the technology fair began.

'Don't know why I'm so thirsty – this is my third cup of tea'.

As each group talked about their initial design, shared their frustrations and worked their models by whatever means, evaluations and suggestions for further improvements were already being considered (attainment target 4 level ?).

New friends have been made, ideas exchanged, visual aids produced, at the end of a 'technological day'. All this and on a Saturday too!

'What did you do on your course today, Dad?'

From under your arm you produce with a flourish a buggy with beer can wheels!!!!

Another day of 'Models, Movement and Micros' will be held in the Spring term. Watch out for details.

Anne Farr
West Midlands MAPE

MAPE software information

MAPE software is distributed free of charge only to those people who are members at the time of publication. However, those who subsequently join may still obtain copies of the software.

MAPE Tapes 1–3 (on disc now) were produced a number of years ago. A selection of the better programs has been collated in order to produce:

The MAPE Compendium
Micro: BBC, RM480Z
Cost: £11.50 (non-members)
£9.20 (members)

The programs included are:
Canal Locks, which simulates the way lock gates work;
Mangonel, which allows you to investigate the workings of a Roman catapault;
Marsh, a problem-solving activity;
Mallory Manor, the famous detective game;
Crackit, in which you crack the code;
Pattern, a simple pattern creation activity;
Front Page Extra, the easiest and simplest newspaper program;
Mousey, a shape matching activity.

and, in addition:
BBC only: *Jumbo*, a problem-solving activity involving a crane and an elephant;
Deetree, a branching tree program for information handling.

RM480Z only: *Treasurer Hunt*, an adventure game for the very young;
Picture Builder, in which you construct pictures and patterns by operating on a range of given shapes.

Also available:

MAPE Tape 4 (on disc)
Micro: BBC, RM480Z
Cost: £9.20 (non-members)
£7.48 (members)

This includes the following programs:
BBC: *Pond Dipping*, which simulates a systematic exploration of a pond;
Magic Telephone (Part 1), a pictorial adventure game;
News Bulletin, which allows you to produce an electronic magazine;
Topol, a problem-solving game.

RM480Z: *Adventure Story* and *Adventure Editor*, which allows you to create and edit branching stories;
Picasso, a picture creation package.

MAPE Tape 5: Owl Pack (software and resources)
Micro: BBC (B and Master), RM480Z, RM Nimbus
Cost: £14.38
£8.63 to new members of MAPE
£10.93 for bulk purchases (more than 20)

A simple adventure game on the theme of owls, plus associated teaching ideas.

LEA licences available, plus the A3000 version from Newman Software.

MAPE Tape 6
Micro: BBC (B and Master), RM480Z (*Orb of Zalibar* only), RM Nimbus
Cost: £12.50
£6.90 to new members of MAPE
£10.93 for bulk purchases (more than 20)

MAPE 6 includes *Stylus*, an introductory word processor (an update of *Concept Writer*) and *The Orb of Zalibar* adventure game.

LEA licences available, plus the A3000 version of *Stylus* from Northern MicroMedia, Resources Centre, Coach Lane Campus, Coach Lane, Newcastle upon Tyne NE7 7XA.

(Please note that if you require the Nimbus versions of MAPE Tapes 5 or 6, could you please enclose a blank formatted disc.)

ESP Science Special (BBC only)
Cost: £5.75

Please send orders (include information about the type of micro) to:

MAPE Information Officer
Computer Centre
Newman College
Bartley Green
Birmingham B32 3NT

Please make your cheques payable to MAPE. Prices include VAT.

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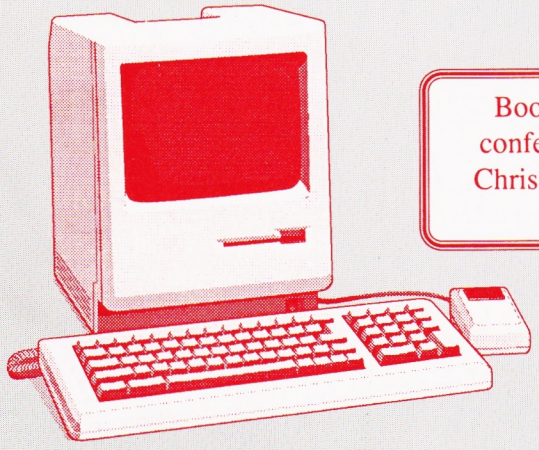
MICROSCOPE

MICROS AND PRIMARY EDUCATION

IT's working for me

National Conference

3rd - 5th April 1991,
Jordanhill College of Education,
Glasgow.



Booking forms for the conference will be in the Christmas Special edition of Microscope

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NEWMAN COLLEGE with MAPE