

# MICRO-SCOPE

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**IT in the School Curriculum**

**School-based INSET**

**The Owl Pack**

**IT development at one primary school**

**Using your concept keyboard**

**Logo notes**

**Investigations – with a mathematical flavour**

NEWMAN COLLEGE WITH MAPE



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# MICRO-SCOPE 27

## News from the MAPE Council

### Roger Keeling

One of the issues discussed at the last AGM was how to organise MAPE initiatives in order to draw upon the experience and expertise of the membership. One way of doing this is to plan certain working weekends, which are open to any member with an interest in the relevant area. If we are inundated with offers then we will have to invite a subset of the volunteers, but at least that reflects a healthy state of affairs. The following weekends are being planned:

*Friday evening/Saturday* 7/8 July

This meeting will be devoted to writing a MAPE response to the Design and Technology Working Party final report. This evidence will be sent to the NCC before it produces its Consultative Report.

*Friday evening/Sunday* 10/12 November  
or 17/19 November

This meeting will be devoted to producing MAPE publicity materials, in particular exhibition displays, a calendar and a MAPE poster. We would like to hear from members with graphics, design or display skills.

*Friday evening/Saturday* 5/6 January

The subject matter of this meeting has yet to be decided but will probably be devoted to producing resource materials for MAPE 7.

The venues for these meetings are still being sorted out, although the July one will probably be in Oxford. MAPE will pay travel and accommodation of those attending. If you are interested in taking part then please drop me a line. I would appreciate one or two notes about your relevant experience and interests in case we need to be selective due to oversubscription.

### Industrial support

Microvitec plc are the first company to respond to an appeal for sponsorship of MAPE, aimed at increasing the efficiency of our administration and at keeping down the cost of membership. The company, who are well known for their monitors, have recently entered the personal computer market with a range of machines aimed at schools, and which are compatible with industry standards. The divisional director, Ken Hardy, has arranged for the donation of one of their PC1 computers, with 640K of memory and a 30 megabyte internal hard disc, for the use of the MAPE treasurer. Included with the computer system is an integrated software package which includes a database, wordprocessor and spreadsheet and which also allows data to be transferred from one program to the other. Hopefully this will make Keith Whiting's job of maintaining the accounts, producing reports and analysing membership statistics much easier. The intention is to link the name of MAPE with a wide range of organisations through such sponsorships and we are very grateful to Microvitec plc for getting involved at an early stage in our sponsorship programme.

This offer was closely followed by Research Machines who have been kind enough to loan us a Nimbus AX and laser printer, plus a copy of Aldus Pagemaker. This is mainly for the use of Editor and for the secretary at Newman who does a great deal of behind the scenes work. *MICRO-SCOPE* has always had a high production standard; this equipment will now enable us to ensure that other letters, circulars, posters etc are of the same high standard. Research Machines have always had a close association





Colin Watkins (left) of Research Machines, presents a Nimbus for the use of MAPE to the Chairman, Roger Keeling.

with MAPE and have supported the annual Conference with the loan of equipment. At this year's Conference they announced a decrease in the price of the PC1, the first issue in a series of primary software discs and the availability of an RM concept keyboard. The launch of a new machine was also tactfully denied, but rumour has it . . . !

### Regional update

Now for another matter – and another opportunity for members to become actively involved. MAPE has always tried to organise and promote regional INSET activities. The frequency of such meetings varies throughout the country, and is largely dependent upon the existence of an active regional committee (existing committees vary in number from three to more than thirty). Some regions would like to increase the size of their regional committee in order to be able to offer more in the way of regional activities. Hence this request for volunteers. If you would like to be more actively involved in regional organisation then please contact your regional rep *whose address appears on the inside of the back cover*. In particular, the following regions have messages for their members:

#### *Yorkshire and Humberside*

Look out for activities in Huddersfield and Sheffield (Autumn term). Help is needed to start groups elsewhere in the region. If you want to see local activities then contact George Blanchard for further information or with an offer of support in organising and running a local group.

#### *Northern Region*

Look out for mailings from your LEA representative about the formation of local support groups. There is a programme of events in the autumn and spring terms at regional centres. If you would like to volunteer to help, then Alison Galbraith would be pleased to hear from you.

#### *North London and Essex*

The local committee can offer workshops on word processing, data handling, adventures and topic work etc. If your school, or a group of members, would like to host such a workshop, or if you have any other suggestions, then please contact Mary Rooney.

#### *North West Region*

MAPE NW is currently based in Stockport. Help is needed to reach other parts of the North West (e.g. Lancaster, Preston and Merseyside). If you can help organise such an event then please contact Fintan Bradley on 061 969 2606.

#### *South London and Kent*

Chris Price would like to hear from anyone interested in starting a MAPE region in this area. Such an initiative is long overdue. Please support Chris in trying to get something started. He can be contacted at Merton Court, 38 Knoll Road, Sidcup, Kent DA14 4QU (tel. 01 300-2112).

**Many committee members have found that being part of an active regional group is an excellent way of keeping abreast of current developments, making contacts and forming mutual self-help links.**

MAPE is also investigating the possibility of offering to members a dial-in viewdata system based upon *Communitel*. Initially, while the feasibility work is being carried out, the host machine will be based at Newman. If the scheme succeeds we may then be looking for a volunteer system manager! In the meantime if you have any suggestions for the type of information that you would like to see available, then please contact Dave Wilcoxon, c/o Computer Centre, Newman College, Bartley Green, Birmingham B32 3NT. Dave is also looking for volunteers to access the system during its trial period (mid-June onwards). If you are interested then please write to Dave and ask for the relevant pack of details. We are looking for both information providers and users.



## Letters to the editor

I feel I must reply to Paul Ernest's article on 'The role of microcomputers in Primary Mathematics' (*MICRO-SCOPE* 26).

In the article Mr Ernest poses a few of the questions put by HMI in 'Mathematics 5 to 16', 1985. He then refuses to answer them and refers us to his bibliography. I feel it is time for *MICRO-SCOPE* to become a real educational publication. Let's have some arguments splashed across at least one of its pages.

*'How useful is telling the time on a traditional circular display? Digital displays of time now dominate the child's experience.'*

One does not tell the time by using a digital display. One simply recites numbers. Have you ever tried telling the unwilling footballers how long there is to go till full time using a digital watch? Firstly read the numbers then subtract those numbers from the numbers which will be reached by the watch when full time is up. Get the answer. Tell the child.

With a circular watch one can see the time left to play. It has a physical presence on the face of the watch. QED.

For further proof simply look at how many people have reverted to traditional timepieces over the last twelve months. Admittedly a digital stop watch is easier to read than a circular display but a stop watch is simply a counter and does not 'tell the time' in any real sense.

*'How useful is proficiency in operations on fractions? Decimal fractions wholly dominate commerce, industry and higher education.'*

Most decimal fractions are simply rough estimates of a true fraction's worth. Do I really have to explain that 1 over 3 simply cannot be expressed as a decimal fraction but 0.3 is simply 3 over 10. As for the difficulty most children encounter with fractions I am not going to throw out the old chestnut of suffering being good for the soul, but I will say that the decimal fraction is convenient only because we have made it so by adopting the metric system in some areas of our lives. (Show me a gardener who doesn't still use feet and inches and I'll show you a man whose rows are incorrectly spaced.)

True fractions still have many uses when a means have to be found to represent an accurate amount and not an approximation. I would also use the argument that I used for circular watches. 1 over 4 can be quite simply

represented physically or graphically. 0.25 by comparison is very abstract. We only see it as 1 over 4 because we know 0.25 is a quarter.

The final use for true fractions is quite simply that they are one of the few reasons that children can see for learning their multiplication tables. By this I mean that children need to see a good reason for bothering to learn tables. The fact that true fractions are far easier to handle if a sound knowledge of multiplication tables has been grasped soon becomes apparent to most children.

This brings us to point three:

*'How necessary are traditional computational algorithms (the four rules)? Anywhere outside school that calculations are needed they are done mentally or with an electronic calculator, or with a computer spreadsheet.'*

My only comment here is simply this. 'What happens when someone pulls the plug?'

Now then, *MICRO-SCOPE* readers, write back and tear holes in that little lot.

Graham Keeling  
65 Catkin Way, Balderton,  
Newark, Notts NG24 3DT

### Is it that easy?

Les Watson is right. It can't be that easy, though the message in the rest of his article (*MICRO-SCOPE* 26) suggests that it is. Writing educational software in any medium is hard because about three-quarters of the work is to do with objectives, outline plans, detailed plans, testing and revising, users' documentation, teachers' notes, technical notes, and last but not least, distribution.

If the results are to be widely used, that is, publishable, then all this has to be done to high standards and it is hard work. It is also very time consuming so if it is not widely used the time/benefit ratio is too high; most teachers could do better exploiting commercial or funded project material.

The question of whether it is better to use a programming language or an authoring system is not just a question of ease or personal preference. Software will only be widely used if its medium has, or is about to gain, wide acceptance.



I recall previous claims (remember *Pilot?*) that some particular authoring system would make it all so easy. They didn't and they didn't prosper. The real issue here is the technical framework for school computer uses. It is a bit of a mess and authoring systems tend to absorb time and effort which is disproportionate to the progress they enable.

Roy Atherton  
Head of Information Technology  
Faculty of Education and Community Studies  
University of Reading,  
Bulmershe Court  
Earley, Reading RG6 1HY

### Help wanted!

Has anyone got access to a database (on a micro compatible with the BBC) on educational software. I'd like to find one which has got a keyword search facility. I'd be even more impressed if one of the fields included information relating to the National Curriculum (but that might be reaching for the moon!). If you know of a comprehensive file, or if you have created such a file, please write to me c/o MICRO-SCOPE.

Des Thomas  
Manor CP School, East Sussex

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## IT in the primary school

Ian Birnbaum  
Humberside LEA

### 1. IT in the School Curriculum

Although many secondary schools have separate IT courses, the main thrust in both primary and secondary education is the permeation of IT through and across the curriculum. There appear to be two reasons why this permeation approach is important. First, because the use of IT can have a beneficial effect on teaching and learning. And second, because experiencing IT in a range of curriculum activities helps to establish pupils' IT capability. It is useful to look at each of these in more detail.

#### 1.1 The contribution of IT to the delivery of the curriculum

One of the main reasons why there is an emphasis on the permeation of IT through the curriculum is the recognition of the effects IT can have on the learning process. We could itemise many aspects of learning which the use of IT affects, and many positive attitudes which it encourages, but it seems to me that there are five aspects which are particularly important. IT appears to encourage: iterative approaches to tasks and problems; collaborative working; a broadening of the styles of learner involvement; a bridging of the concrete and abstract; and a shift towards higher level competencies.

#### *Iterative approaches*

The processes of analysis, design, implementation and evaluation are naturally cyclic, with movement backwards and forwards between the stages. Because the computer allows changes to be made easily and quickly, this movement can occur more rapidly and more often. Moreover, in helping to reinforce the notion that learning itself is iterative, IT turns errors from negative things, to be avoided at all costs, to things which are natural stepping stones on the journey to success.

#### *Collaborative working*

The ergonomics of the computer system itself seem to encourage collaboration among users. The vertical screen proclaims the public nature of what is displayed, and encourages others to look; the text that is displayed is equally legible whoever types it; and the keyboard, although unable to be used by many people at once, is nevertheless equally accessible to most users and is perceived as far more public territory than a piece of paper. Software which encourages group activity tends to encourage focused discussion also. For example, the group is invited to make a decision which will affect what happens next. Consequences of group activity are immediate, and promote more discussion and another decision.



*Learner involvement*

One way of conceptualising the range of learning styles is to use the continuum mapped out by the modes of 'spectator', 'participator' and 'creator'. As spectators, pupils mainly watch, listen or passively respond; the relationship between them and their learning environment is one where they are regarded mainly as recipients. As participators, pupils begin to interact with their learning environment in ways that affect the sorts of outcome; they begin to engage with elements of that environment, though they do not extend or alter the elements themselves. As creators, pupils begin to alter the elements which make up that environment, producing new and different configurations. All three styles of learning are important, and each is appropriate at different times and for different people: the key is to have them in proper balance. Unfortunately, there is still a tendency for the spectator style to be dominant, but it seems that certain types of computer use can allow an unobtrusive and natural shift along the continuum, giving pupils more control over their own learning.

*Briding concrete and abstract*

Evidence from both research and our own experience indicates that much of our learning begins with concrete experiences, and continues to be informed by those experiences. Much has been written about providing an environment which encourages pupils to structure their ideas by reference to their first-hand concrete experience. It is also acknowledged that it is important to include elements in the environment which encourage pupils to make the transition from these concrete, first-hand experiences to more abstract, derived experiences. It is here that IT may be of particular value. The ability to set up and test hypotheses is one which links the concrete and abstract. Often, most typically in science, one is moving from an observable, concrete observation or event to an hypothesis which removes the observation into a more abstract context; and then back again to test that hypothesis. Many IT environments allow this process to operate quickly, and in a range of contexts that extend beyond science.

*Shifting towards higher level competencies*

IT affects not only how learning takes place, but also what is learnt. One of the most important ways it does this is by shifting, for many tasks and activities, the balance of skills and competencies required to ones at a higher level. For example from calculation to choosing the right arithmetical processes for the problem; from

spelling and presentation to style and appropriateness of content; from manual data retrieval to asking relevant questions and assessing evidence; from laboriously monitoring physical processes to drawing inferences from the data produced; from producing graphs to interpreting and judging the appropriateness of graphs; from technical drawing skills to design skills; from learning musical notation to composing at the keyboard and letting the computer automatically notate what is produced. In some cases this shift in balance allows experiences to happen earlier, and so speeds up progression; for example, pie charts are perhaps more intuitive than bar charts to children, and so the ability to produce one without worrying about the calculations involved allows work on them to start much earlier; and in music, the time taken before pupils are able to compose is considerably lessened. And IT can allow high-level competences to be developed and practised earlier: for example, the general shift to pattern recognition and mathematical model-building using spreadsheets and other programming environments.

*1.2 What the curriculum contributes to IT capability*

The above section considered some of the benefits that the use of IT in the curriculum can contribute to learning and teaching. However, the relationship between IT and the curriculum works both ways, because curriculum experiences offer very important contexts for the development of IT capability.

Full IT capability consists in the ability to recognise in which situations the use of IT is sensible; the facility to use IT appropriately in such situations and to evaluate the effects of that use; and an understanding of the range of IT applications in industry, commerce and everyday life, and of their effects on the individual and others. Experiences in the curriculum should be so structured that all youngsters are given the opportunity to realise IT capability as fully as possible.

Experiencing IT through a wide range of curriculum activities is the most accessible and relevant way to develop IT capability systematically, and provides a source of realistic and worthwhile tasks. Moreover, the opportunities offered for the use of IT are related to the pupils's level of maturity and development. The curriculum therefore offers a diverse range of appropriate contexts in which IT capability can be developed and fostered in a natural way.



## 2. IT in the National Curriculum

The Secretary of State has asked each of the subject working groups to take account of IT when it frames its statements of attainment and programmes of study. The Orders for mathematics and science contain references to IT, and we would expect others to do the same as they come through. In those statements of attainment and programmes of study where the use of IT is specified, that use becomes a mandatory part of the work of that subject.

### 2.1 General IT capability

The Design and Technology Working Group has also been charged with drawing up attainment targets (ATs) and programmes of study for the development of general IT capability. There is no doubt that these ATs and associated programmes of study are intended to be delivered through the widest possible range of curriculum activities in the primary and secondary years, and, as far as possible, embedded in teaching and learning across the entire curriculum. It follows that the practical work implied by this programme will be developed by application to worthwhile tasks throughout the curriculum rather than in isolation.

These ATs therefore represent a framework which all areas of the curriculum can use to help them to integrate the appropriate aspects of IT into their statements of attainment and their assessment, their programmes of study, and their schemes of work. I envisage that future subject working groups will make use of those aspects of the general IT statements which are appropriate to them.

It seems likely that the general IT capability profile component will cover five areas: communication, information handling, measure and control, modelling and simulation, and IT applications and their effects.

#### *Communication*

IT allows ideas to be communicated to others in a variety of forms, and also helps youngsters refine their ideas, working both individually and in groups. It also allows pupils to express and communicate their creativity in many ways, and encourages them to experiment and to refine their products.

#### *Information handling*

IT helps us to store, retrieve, alter and present information. It allows us to organise that information in a variety of ways, and also to establish relationships between elements of in-

formation. IT can therefore also be used to help us to apply knowledge to tasks and problems.

#### *Measure and control*

Through sensors and switches, computers can monitor changes in the environment and then respond to those changes by creating effects in that environment. In some cases these aspects of measuring and control can be separated. However, some of the most powerful uses of the computer arise when the dual aspects of measuring and control are combined.

#### *Modelling and simulation*

Computers are very good vehicles for creating models of processes, systems and even small 'worlds', which can then be explored. These models can be of imaginary situations (such as adventure games) or of real processes (such as land erosion). The simulations which result can be used for exploration, and the determining factors of the simulation may be changed and the effects investigated.

#### *IT applications*

IT is applied in many ways in industry, commerce, leisure and other aspects of society, and the use of IT in education, although very important, is just one of these applications. It is essential that pupils get a chance during their secondary schooling to study, experience and reflect upon the wide range of issues arising from these diverse applications.

### 2.2 Assessment of general IT capability

It is likely that IT capability at each key stage will be assessed through tasks set in the context of a range of curriculum areas. It is to be hoped that Standard Assessment Tasks (SATs) designed solely to assess IT capability outside a worthwhile curriculum context will be rare. This should not be a problem in primary schools, where SATs are integrated anyway.

In cases where the Orders for a subject mention IT specifically, then the assessment of that IT element is a mandatory part of the assessment of the related level of the AT where IT is specified. However, it is likely that IT will also figure in assessments relating to ATs where IT is not specified at the appropriate level in the Orders, even though in these cases the use of IT will not be mandatory. It will therefore be open to schools to negotiate across their subject areas to devolve the elements of general IT capability to appropriate areas where they might be experienced, with the proviso that all aspects of the programmes of study for IT be offered to all



pupils at their appropriate level. These curriculum experiences would then provide a framework for the assessment of IT capability. This scheme has important implications for schools and for all teachers. It requires schools to produce policy and strategy for the permeation of IT in its curriculum, to coordinate that work and monitor it. And it requires all

teachers to embed the obligatory aspects of IT into their schemes of work, to consider which other appropriate elements of IT should be included, to teach that work, and be involved in its assessment. All this calls for considerable coordination in the organisation of IT throughout the curriculum, for its monitoring and for its assessment.

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## IT development at one primary school

**Julia Crichton**

### Beginnings

Having been given our first quota of the LEA's chosen micros – BBC Bs – it was not long before the trouble started. Teachers made quite understandable comments such as: 'How can you use the thing in the classroom?'; 'How can we old hands ever adapt?'; 'What are programs?' etc. But with our usual enthusiasm some folk gave it a try. Two per school was a laugh at first, for how can you spread this number thinly whilst folk are trying to use it and learn themselves. Starter courses run by the borough were attended and tentative steps made; then came the realisation that the children were learning at a faster rate! Not the sort of thing teachers were used to at all.

Gradually things got moving. Some staff became adventurous and gave the thing a good whirl or even attempted the next course on offer. Nobody was an expert and we learnt as we went along, expecting the mathematician on the staff to do the organising – well he at least must have a logical mind!

Then came development: the next computers were on offer, a new member of staff was more familiar with its use, and the PTA got interested in bringing their children's education into the 20th century. New programs were coming on offer now and a better variety of work was becoming available. By now even the head was hooked and using *View* as a matter of course when the secretary was overloaded. Things were looking good. But a different problem reared its head: we had more staff wanting to use computers, than we had computers for them to use.

### Era of development

At this stage the school had five or six systems between 13 classes so in order to foster further development we realised that one per class was the only real answer. Step in something called 'match funding', what a godsend to have half your bill paid! Our PTA gave money, we won some in a national competition, raised some more and reached the grand total of 11 systems. However the school secretary was having secret lessons on *View* from a member of staff so she was in need of one in the office to share with the head and thus streamline the school booklet and deal with repetitive correspondence. The fact that we had no money left meant that we had to be very creative with our accountancy – nothing illegal, just a shunting of funds to the right area and Hey Presto! one in the office. Whilst this was going on, we found we had a real need for printers to support some of the applications. We started with two and have crept up to a total of five by ingenious means. Well it's the old story – we couldn't stop there. We were well and truly hooked on the things. 'What about our quota of concept keyboards?' was the cry. 'Let's try a modem link.' 'What about some buffer boxes so we can do control Logo?' 'Have you heard about this thing called Interspan?' and 'We could do with a new turtle, the poor thing in reception is worn to death!' Now in Spring 1989 we have everyone on the staff using a computer in the classroom with varying degrees of versatility; we have done two sessions of our own In-service Training, and we are thinking ahead to the new kinds of desk top publishing and spreading Logo through the school from reception upwards at a steady pace with the top year having a taste of the Screen Turtle.



## Towards a whole school policy

### *The status quo*

At the moment we are in the enviable position of having 11 BBC Masters with 3.5 inch discs between twelve classes and the secretary has a complete system in the office so that she and the head can use it to lighten the load of office work. It also allows us to begin to store some frequently used letters, school notices, school booklet etc. We do have a BBC B but no monitor to go with it, as this is now on a Master system. So after drawing a blank with our begging bowl, we have asked the parents to fund half of the cost so that we can matchfund the other half, and buy a monitor to get the last use of this machine as a classroom supplement. Also it can be of use to our peripetetic Special Needs teacher who has a fund of programs of her own but on 5.25 inch discs.

Recently we have been notified that we shall be able to take delivery of another complete Master system through the Primary Quota so this will take us to one micro per classroom. However, thereby hangs a problem! For with the success of my in-service training has come the problem that even the most reticent member of staff wants a micro now all day and every day. Further to this my willing band of children who set out the systems each day from the 'lock-up' store can no longer cope with this in reasonable time. We took the decision to lock up complete trolley systems if we could and for the rest lock up keyboards with disc drives in the metal safety filing cabinets we have in Upper School rooms as the best security. We are increasingly finding disadvantages with being in a 1936 secondary school building which is also on two levels and has a step to each room. This has not helped the general health of our machines! They have had to be moved about so much each day. In fact we are in a 'Catch 22' situation – do we risk the fact that any burglars are unlikely to bother to break into every room and then every cupboard or do we store centrally? Do we store as safely as we can in our rooms so that the machines are there for our own needs and don't get so much wear and tear from being moved around so much? We opted for the latter as it made life a lot easier all round. A further problem is deciding who should be without a micro till the BBC B is back in use or our quota machine arrives. Nobody would give way, they are all too keen – have I done my co-ordinator's job too well? A lunchtime impromptu meeting voted for a rota of one week to be without a micro for each teacher as a compromise. This has been started

already, and I am only hoping that we will be up to 12 by the end of this term or by September.

We are also finding other problems to solve; many rooms have only one power point in a bad position, due to the fact that the school was built before the advent of regular use of electrical apparatus. This has stumped some of us when we borrow more than one computer for a while, or want to run a listening corner with earphones or use some other electrical apparatus as well as the computer. This is a problem we shall have to push the Borough Office on.

### For the future

*Logo* – This will continue to filter upwards and is already in the top infant classrooms as part of the regular curriculum. We took this decision several years ago as the simplest way of doing it as it also allows staff to learn Logo gradually. We hoped it would lay open the way for keen teachers in the Upper School to experiment and learn at their own pace and with the children they select. This has proved the case, and its use is spreading slowly and at a pace teachers feel happy with. Within three years it will be throughout the school and further development on a more advanced scale will be undertaken – Logo for Art, Logo for Control, Logo for Problems, Logo for Adventure Games – these are but a few possibilities we have discussed.

*Desk-top publishing* – This has been started with the use of *Front Page* by children in the Upper School. We discovered its limitations and problems quite quickly but the children enjoyed the end results. I have undertaken a supported experiment with the use of *Fleet Street Editor* as a next step. This allowed some of us to discuss its viability for the future and we think it is in need of a little more development for ease of use before we take it up fully. That has left us with the new *Front Page Special Edition* as a good and easy-to-use interim product and accordingly all those who may make use of it with their age of children now have a copy. For those who are the teachers of the Lower School children the 'cut and paste' method using one of the word processors is the best till an infant product comes our way in the future.

*Word processing* – As a staff we have got to grips with *Writer*, *Folio*, *Pendown* and *View*. *Writer* is to be used mainly in the Lower School with a gradual development onto *Folio*. The transition classes will do the same and *Pendown* will be introduced as an alternative and for extra fonts when designing pages or booklet covers of their



own. *View* will be kept mainly for staff's own use and for the final year pupils who need an introduction to a more mature-looking result as and when it is applicable to their keyboard skills. All of this will never take place if the children do not get enough chance to practice on the keyboard so we have agreed to encourage the children to use it as early as possible in Reception and to further their skills as soon as they are aware of upper and lower case letters.

### Staff development 1989-90

After informal discussions over the last few months whilst I was in fact out of circulation attending a course, I have discovered that the staff are feeling far more confident about the use of a computer in their classroom. It now appears that they would like several forms of further help:-

1. Classroom support
2. Help with the management of the micro in the classroom;
3. Help with the use of *Grass*;
4. Help with the use of *Logo*;
5. A chance to review some new programs;
6. A chance to review the use of adventure programs;
7. Investigating the use of such things as the trackerball, concept keyboard, digitiser for the video camera, use of the colour printer and how to use the turtle.

This gives a very tall order especially as the staff are at varying degrees of skill and for some of these items only one or two staff are interested at the moment. However, it does show the level of interest that can be generated once staff have regular use of a micro in the classroom.

We have decided to apply, yet again, for classroom help from our very overworked Computer Advisory Teacher. But we do not hold out much hope, as we keep getting told that other schools are far lower in skill and they need support. In this we are yet again in a 'Catch 22' position, for we want to move on and develop further but have to wait in line or plead for a favour, which does get us irregular help.

Further to this we are going to allocate a little of our GRIST money to supply cover again so that I can get out and about in school to help in

classrooms. We are also going to build in some computer time to our staff development time again this year.

The new system of applying for courses months and months in advance of the time of attending does not help staff always as they do not, at that time, know what skills they may be in need of developing. Due to this I have agreed to do some informal lunchtime or after-school sessions in order to cater for individual or small group needs.

### The National Curriculum

As a staff, we have already discussed the implications of the National Curriculum both informally and in staff meetings or training sessions. We realise that IT is already mentioned in the maths document and have already tried to use it for teaching and discovering, i.e. *Logo* for shape work, as well as investigations programs. This will, of course, need some rethinking in the way we teach some areas of mathematics, but we are lucky in having a maths specialist on the staff to lead the way.

We have also discussed the implications of the new Design and Technology interim document and realise that although we can, as a staff, feel quite confident that we are in an already advancing state, we know that there are some areas to deal with. Using the micro for control of models is the biggest gap here, and this will have to be tackled as only two staff have some expertise. Since this is also linked to the teaching of science we know that cross-curricular work on science and technology will need to be done and courses attended.

With reference to the English document we feel happy that we have already got the children using word processors right from reception onwards and are in a position now to deliver some of the more advanced uses of the micro as dictionaries and story builders etc.

The general feeling of the staff is that, although we have varying degrees of skill we can look forward to the innovations which the National Curriculum will bring without too many fears. This has been brought about by our updating of the schools facilities with a great deal of help from parents and match funding and the enthusiasm of the staff themselves.



# School-based INSET

**George Blanchard, Alison Galbraith, Stan Norman, Dave Siviter and Pete Young**

This paper is aimed at those colleagues who are faced with the challenge of designing learning events for teachers.

## Rationale

The entitlement to five INSET training days a year is placing a tremendous strain on support services and means that many class teachers are being called upon to act as INSET providers.

In considering the design of any learning event we feel that the following principles should be upheld.

1. What is important is the development of what goes on between teachers and pupils in classrooms.
2. Teachers have the responsibility for their own professional development.
3. Teachers, like children, learn by doing.
4. Teachers learn best what they themselves feel they need to learn, rather than what someone else feels is important.
5. Professional development is a continual and progressive process.
6. No matter how good an individual teacher's classroom practice may be, there will always be room for improvement.
7. There can be no curriculum development without associated professional development.

It is essential therefore that an INSET event not only meets the needs of the participants but also involves them in the planning process. It is important that participants feel they have had some control over the content and that it is meeting *their* perceived needs.

## Principles to practice

### *Identifying needs*

The first stage in putting principles into practice should be identifying the needs which the event will attempt to satisfy. This is best done through personal contact between the provider and participants.

In the school situation the process can take

the form of informal discussions, between the teacher responsible for planning the event and individual members of staff. This may lead to a more formal, whole-staff discussion, which clarifies individual needs and locates them within the context of the development priorities of the school. One strategy which will be useful is to ask staff to identify the 'things which support' and 'things that get in the way of' the use of the computer in their classroom. Next ask them to consider the factors which they can influence and those which are beyond their control. Focus on those which they feel they can alter and from these draw out the needs.

### *Converting needs to aims*

Having identified needs the next stage is converting these into overall aims for the event. This can be done through individual discussions but at some stage they must be agreed with the whole staff. During this stage the nature of the needs will be clarified still further and this may result in a shifting of the aims.

### *Checking out aims*

As well as ensuring that the agreed aims match the perceived needs it will be useful to check the aims against the following criteria:

Are the aims

- |               |   |
|---------------|---|
| a. Relevant   | Do the aims meet with the overall development needs of the school? Are they concerned with developing classroom practice?                           |
| b. Clear      | Does everyone understand the aims? Does everyone have the same interpretation?  |
| c. Attainable | Will it be possible to achieve the aims within the suggested framework and timescale? How will everyone know whether or not the aims have been met? |

### *Converting aims into content*

Having agreed the aims the teacher responsible can then give some thought to the actual content



of the event, addressing the practicalities of any planned activities. A balance should be struck between the time spent introducing new skills and knowledge and that needed for practice and assimilation.

### *Agreeing the content*

The proposed content would then be discussed with individuals, before being agreed with the staff as a whole.

### *Planning the event*

The course provider now needs to allow adequate time for detailed planning and preparation. Take every opportunity to involve colleagues in this process, so as to foster a sense of corporate ownership. The event must not become 'mine' or 'yours', but must remain 'ours'.

Effective planning takes time, effort and commitment. The following points are worthy of consideration:

1. Establish a clear timetable for the day, with start and finish times, together with any appropriate breaks.
2. Good planning involves the creation of a framework, within which there must be room for flexibility, such that participants can continue to influence the content, direction and pace throughout the event.
3. How will the planned event be resourced? If it is necessary to borrow or bring in resources from outside agencies, then try to involve as many colleagues as possible in sharing the consequent workload.
4. Careful thought should be given to the learning environment. You will find it helpful to consider the following questions.
  - (i) Does the ambience of the room lend itself to a learning situation? If not, can it be improved?
  - (ii) Is the space available adequate to the needs of the event? If not, are there alternatives?

- (iii) Is the furniture suitable? If not, can it be moved or substituted? Should any surplus furniture be removed?

### *Running the course*

As the provider your responsibility is to ensure that the event moves through the program as published. Make sure that you start sessions on time. You need to remain responsive to the needs of the participants. If you feel that it is becoming necessary to deviate from the published program do not be afraid to do so. Any changes however must be negotiated with the participants.

### *Evaluating the course*

Unless you have outside help it will be unrealistic to evaluate every aspect of the event. You should therefore focus on certain aspects only.

You will certainly wish to check that the initial aims have been achieved. If they have not, then you will need to discuss as a staff why this was so. Do not be discouraged if some aims have not been met. It may well be that they were too ambitious or had altered as the event progressed and people realised that there were other more pressing needs. The staff will undoubtedly have learnt a good deal about themselves and their needs.

Other questions to consider are:

1. What kind of things happened during the day which helped progress?
2. What, if anything, held up progress?

### *... Identifying needs*

As well as leading to the development of the providers practice the evaluation should help the staff to re-focus on their current needs.

How have needs been altered by the day?  
How will we move forward from here?

## CASE STUDY

### **Scenario**

The head teacher of a medium-sized primary school, with eight teachers, has asked the information technology coordinator Mrs Williams to run an INSET day to help develop teacher awareness of IT in the school. The head's decision had been prompted by the

pre-teaching practice visit of some students from the local College of Education, all of whom has asked about the use of computers in the school. The County IT advisor had also suggested this course of action.

The Authority required an outline of the use of INSET days for each year so there was plenty of time for Mrs Williams to prepare for the event. The head announced the programme of INSET days for the year at a staff meeting.



*Identifying needs*

Informal discussions with individual members of staff were instigated by Mrs Williams, using break times and other convenient periods. In these some of the individual needs of the staff were identified. There was a certain amount of resentment towards IT in that one member of staff felt that the only use for computers was to play games and that staff involvement would be trivial.

After these informal discussions and at a formal staff meeting, the main needs of the staff were identified. These were, finding out about the concept keyboard and about word processing.

*Converting needs to aims*

Having decided upon the needs more time was spent producing a list of aims.

Their aims were as follows:—

- To use a concept keyboard.
- To get hands on experience with a word processor.
- To make use of a printer.
- To have enjoyable activities.
- To use packages which they could transfer to classroom projects.

*Converting aims into content*

After discussion with various members of staff Mrs Williams suggested that the morning should be spent looking at the concept keyboard. This would include using pre-prepared overlays to write and print stories as well as time spent with staff producing overlays of their own. She also suggested that the afternoon should be spent running a newspaper simulation with the staff dividing into two groups each producing an A3 broadsheet using data from the programme *Newsroom Extra*.

*Agreeing the content*

The proposals were readily accepted by staff at the next staff meeting.

*Planning the event*

Mrs Williams spent several weekends preparing concept keyboard overlays, a newsroom file and sufficient copies of all the software she anticipated using.

She also arranged to borrow a number of machines from neighbouring schools making it possible to have one machine for each member

of staff. A similar number of concept keyboards were obtained by borrowing some from the County IT organiser which supplemented one which the school had just purchased. They managed to get four printers.

*Running the course*

Several members of staff arrived at school early and helped in setting up the equipment. The course itself started at 9.10.

Several minutes were spent demonstrating the concept keyboard using a pre-prepared overlay and the program *Concept Writer*. Each teacher was asked to create and print out a story using one of two overlays provided and previously installed on the computers. After the first story, following another demonstration, they were encouraged to swap machines and use the other overlay to create a second story and present it in a different size of print.

Whilst these activities were taking place Mrs Williams was on hand to answer questions and help with individual queries such as how to rub out mistakes and get capital letters. A problem quickly emerged when it was discovered that one of the borrowed printers had an unfamiliar plug socket which was eventually identified as a 'serial interface' which would not fit the leads available; this resulted in one of the printers not working.

Next, Mrs Williams demonstrated how the overlays had been programmed into the computer. The staff then tried the same exercise themselves and tested the overlay to make sure they had been successful.

**10.30 COFFEE** Following the coffee break and a recap, blank planning sheets were provided so that pairs of teachers could produce new overlays. Help was needed when one of the leads fell off a keyboard. During this session there was a good deal of discussion about appropriate language and overlay layout. There was also an interesting debate about whether or not the children would be expected to make up stories by only using words from the concept keyboard overlay. Older children, it was decided, should be encouraged to make use of the QWERTY keyboard for words not included on the overlay.

During the last few minutes of this session some teachers looked at other programs which use the concept keyboard. *Moving In*, *Design7*, *Owl Pack* and *Windows* were available.

**12.00–1.00 p.m. LUNCH**

During the lunch break the following four programs were loaded into the groups' machines.



*Concept/Writer, Folio, Front Page Extra and Interword.*

*Newsroom Extra* was loaded into a machine, with a printer which was placed so that both groups could gather news as they required.

Each group was equipped with glue, scissors, craft knife, safety ruler and a selection of clip-art pictures.

1.00 An introductory session was used to explain the task and to give a choice of format for the news-sheet with the explanation that not all the software needed to be used. Work space and resources were allocated followed by an immediate start prompted by the first item of news from *Newsroom Extra*.

Further items of news were produced until 2.15 leaving a clear hour before the approaching deadline.

The results of the workshop were displayed.

### *Evaluating the course*

A brief evaluation session produced the general sentiment that the day had been a success, though some of the staff expressed reservations

about the transfer to classroom activities. One teacher said that she would perhaps try doing something after completion of her present project. One 'convert' at least said that a similar sort of 'News Day' would fit in perfectly with his project on communication, and that an immediate start would be made to organise a similar type of activity with his class. It was decided to stop at this point and resume discussion at the next staff meeting.

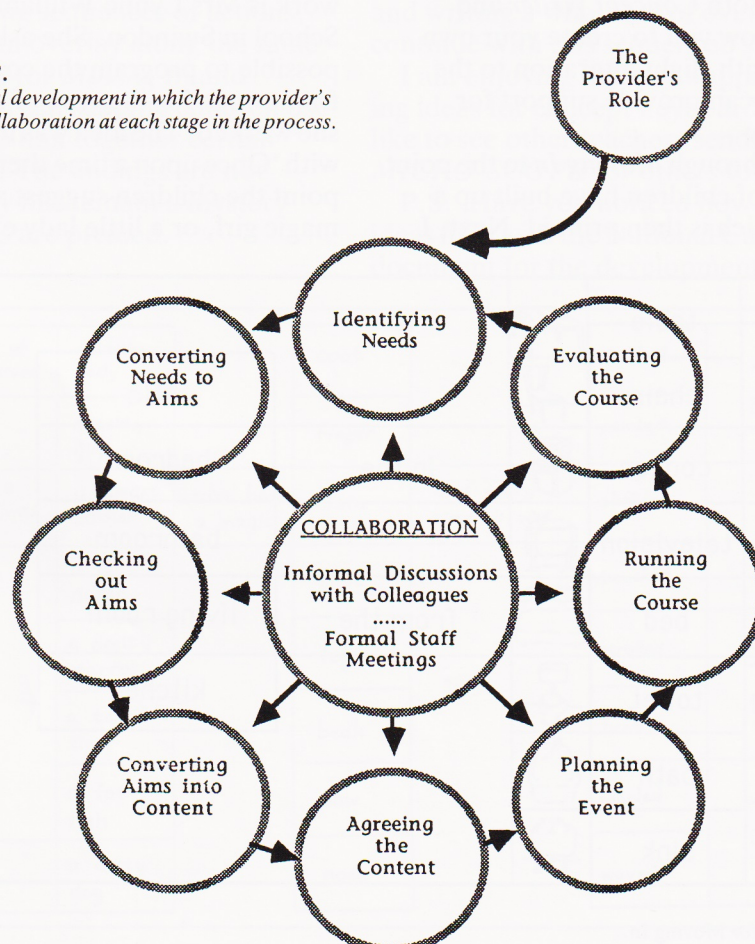
The staff stacked all the borrowed equipment in a stock room ready to be sent back to the other schools the next day.

### *... Identifying needs*

The next staff meeting was quite encouraging because most of the staff expressed the wish to participate further in INSET days focussing on Information Technology, and felt that this one had given them a greater insight into cross curriculum matters. The discussion eventually moved round to the thought that there should be an IT policy for the school, and a small working party was formed to get some ideas down on paper before the next staff meeting.

### **A model of school-led INSET.**

*A cyclical view of professional development in which the provider's role is to promote effective collaboration at each stage in the process.*





# Using your concept keyboard to support and extend language activities

**Reg Eyre**

*Advisory teacher for IT, Swindon, Wiltshire*

Recently I was fortunate enough to be seconded to work as an advisory teacher for Wiltshire. This has enabled me to see a different range of schools from those I usually work in. For most of the Wiltshire schools, a computer system is considered to be incomplete unless it includes a printer and a concept keyboard. Much current software makes use of the concept keyboard, if one is fitted, and it might seem that making further overlays is unnecessary. However, I would like to make a case for making your own overlays, especially for the word-processing aspects of your classroom work.









Two particular programs which are very popular in Wiltshire infant schools are *Moving In* and *Elmtree Farm*, both of which come with two overlays which can be used as the basis for follow up work. Both *Concept Writer* and *Prompt/Writer* allow you to create your own overlays which, with slight alteration to the original wording, can provide support for writing activities.

I usually work through *Moving In* to the point where the group of children have built up a detailed scene which is then printed. Next, I

discuss the picture with the children, including questions about why they put certain things where they did and why they removed certain things. I then load the word processor with the adapted overlay and ask them to record what they did. Where we have included the editing features, such as the delete, return, space and cursor keys, the children have been able to edit their work.

The problem with *Concept Writer* is that you cannot put the editing features on the overlay, and with *Prompt/Writer* you have to play with two discs to make an overlay. However, *MAPE Disc 6* includes an updated version of *Concept Writer* called *Stylus* which allows you to include editing features and only requires one disc.

One teacher with whom I have been doing this work is Mrs Lynne Williams, at Lawn Infant School in Swindon. She asked me if it was possible to program the computer to produce a framework for the type of stories upon which she worked. The idea was for the teacher to start with 'Once upon a time there was a . . .', at which point the children suggest a character such as a magic girl, or a little lady etc. before the story

	table				
	chair			attic	
put a	cooker		in the	bedroom	
	television			bathroom	
take away the	bed		from the	living room	RETURN
	toilet			kitchen	
	bath				
	sink				RUB OUT

**Fig. 1** Original overlay for *Moving In*.



	table			<table border="1"> <tr> <td>↑</td> <td>↓</td> </tr> <tr> <td>←</td> <td>→</td> </tr> </table>	↑	↓	←	→
↑	↓							
←	→							
	chair		attic.					
I put a	cooker	in the	bedroom.	RETURN				
	television		bathroom.					
I took away the	bed	from the	living room.					
	toilet		kitchen.					
	bath							
	sink							
		SPACE		RUB OUT				

Fig. 2 Adapted overlay for Moving In.

continued with 'who had a magic . . .'. At this point, the children suggest an object such as a finger or a shoe, with an appropriate, associated, action. Because we had seen the value of the concept keyboard for facilitating word entry into the word processor as well as for providing experience in recording sequences of actions, we decided to make an overlay along the same style as that produced for *Moving In* and *Elmtree Farm*. As you can see, the children use it to create text and to link together certain elements of the story. The endings are not printed on the overlay but remain a mystery until one of the ? keys are pressed.

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

Another teacher is taking this idea a stage further with the children in a special unit. She is using pictures as well as words on the overlay and writing a whole set of overlays which continue with this sequenced story theme.

I am enjoying myself swapping and developing ideas for concept keyboard use and would like to see other teachers sending their ideas to *MICRO-SCOPE* for others 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?

<table border="1"> <tr> <td>←</td> <td>→</td> </tr> <tr> <td>↑</td> <td>↓</td> </tr> </table>	←	→	↑	↓	In the land of Nidd there lived	a lovely lady		coat		rubbed	?
	←	→									
↑	↓										
		a golden girl		finger		pointed					
<table border="1"> <tr> <td>←</td> <td>→</td> </tr> <tr> <td>↑</td> <td>↓</td> </tr> </table>	←	→	↑	↓	Once upon a time there was	a smart soldier	who had a magic	brain	and every time it was	shaken	?
	←	→									
	↑	↓									
		a nice nurse		shoe		touched	?				
		a pretty parrot		leg		stroked					
	a terrible tiger		beak		bent	?					
	a fat fish		paw		wiggled						
	Rub out	a dirty dog		nose		waved	?				

Fig. 3 Magic overlay.



# The Owl Pack

**Michael Leahy**

*Hill Of Slane, Slane, Co. Meath, Eire*

Why this enclosed article? There are a few reasons as follows:

1. All my requests and queries to MAPE have received friendly and prompt replies.
2. In *MICRO-SCOPE 26* you asked the question 'What did you do with the Owl Pack?'
3. My pupils loved working through my scheme based on the Owl Pack. They refer to it as OUR OWLS. I am confident that they are growing in love and respect for all their feathered friends out there.

Class size: 28 pupils

Average age: 9 years

School: 6-teacher rural

Computer: BBC Master 128 (shared with five teachers)

Software: Owl Pack, *Folio*, *Concept Writer*, *Story* (Daco), *Logo*, *Tray* and *Create*.

So this is a rambling report on most of our class efforts at using your super pack.

I read aloud the story 'The Owl Who Wanted to Fly'. I gave my pupils a copy of a few pages at a time. They began to fill their lists. Progress was slow until the class got a feeling for what was wanted. Mostly as homework, pupils searched through books on nature, calendars, postcards, wallcharts, encyclopaedias, etc. Their lists grew. Here *OurFacts* was very useful. The *Sunday Times* wallchart on British Birds was also useful. After a month or so each pupil had four lists in his or her copybook. All the lists were different. A master set of four lists was now selected through class discussions and it was mounted on the display board.

We set about using our lists. When tackling the following tasks I advised my class to use words from our four lists where possible.

1. Creative essays on Owls.
2. *Make a Story* from Owls Pack (Fig. 1).
3. Making a file for *Wordplay* (Fig. 2).
4. Writing a story with *Story* (Daco Software).
5. Writing free poems in *Wordplay* style away from computer (Fig. 3).
6. Writing stories and poems in *Create* to be used in *Tray*.
7. *Concept Writer* stories.
8. Music.

## English

We began by exploring *Lost Owls* for one lesson. We then developed *Owl Talk* orally through the English and Irish languages. We progressed to *Make a Story*. Groups then constructed stories, saved them and retold them (see *Wild Owl Chase*).

Then we left the computer for a few weeks. We began drawing up four lists of words or phrases, all with a general Owl theme.

List 1 Naming Words (nouns);

List 2 More About Naming Words (adjectives);

List 3 Action Words (verbs);

List 4 More About Action Words (adverbs).

Where did the words come from? There were many sources.

## Poetry and Drama

1. Teacher reading of 'Rouel The Owl'. This is a short story.
2. Pupils recited and dramatised some poems such as *The Owl Critic*, *The Owl and the Pussycat*.
3. Children composed and recited their own poems written in *Wordplay* style.
4. See Music and P.E.

## Music and P.E.

My class and I listened to and talked about Saint-Saens and his *Carnival of the Animals*. In particular we listened to The Swan, Hens and Cocks, and especially The Aviary. While listening to The Aviary the whole class strutted,



## Investigations - with a Mathematical Flavour

"..some mathematician has said that true pleasure lies not in the discovery of truth but in the search for it"

Tolstoy, Anna Karenina

### Background

Originally, as part of MAPE Tape 6, it was intended to support a number of existing problem solving programs by producing further teaching resources and ideas. The programs would have been issued on the reverse side of the Stylus disc. At the end of the day it was decided to include the 'Orb of Zalibar' with the Stylus pack and to issue the problem solving programs as part of Micro-Scope. Hence the first of these programs, the Knight's Challenge, is included in this edition. The Autumn edition will contain similar resources based upon a revised version of the Topol program, although the program itself is available now. To obtain both of these programs send a blank formatted disc (only BBC 40T or Nimbus PC please) and a self addressed adhesive label, plus 35p in stamps, to the MAPE Information Officer (KG), Computer Centre, Newman College, Bartley Green, Birmingham B32 3NT. The materials are copyright of MAPE, but may be freely copied for educational purposes.

We are grateful to Sue Underhay, Berkshire LEA, with support from Mike Partridge, Stockport LEA, for compiling these resources, and to Les Watson of the College of St. Paul and St. Mary, Cheltenham, for 'pagemaking' the results.

In its original report to the Secretary of State, the Mathematics Working Party set out a range of attainment targets, mainly in the form of curriculum content. The style of teaching and learning, which was described as Profile Component 3, has been reduced and assimilated into Components 1 and 2 in the National Curriculum Council response. We feel that this is a retrograde step and reproduce here paragraph 7.5 from the original document since this reaffirms an ideal environment in which mathematical activities should take place.

7.5 When they use mathematics to tackle real life problems pupils should be able to:

- \* formulate a plan of what needs to be done, identifying any sub tasks;
- \* decide whether there is enough information - and if not, decide what they need and where to find it;
- \* distinguish between important and irrelevant information;
- \* see how the task is similar to, or differs from, earlier tasks;
- \* recognise patterns, relationships/connections and/or general rules;
- \* select the appropriate mathematics to create a model;
- \* apply commonsense and reasoning skills;
- \* select and use the most appropriate technology;
- \* recognise that the 'best' mathematical solution may not be the 'best' real solution;
- \* complete the task.

This paragraph builds on the foundations laid in the Cockcroft Report which stressed the need for a problem solving approach to mathematics learning. A similar structure to the problem solving process above has been outlined by Polya in his book "How To Solve It".



# KNIGHTS' CHALLENGE

## Teacher's Page

Knights' Challenge is a strategic game for two players. It is based on a 5 by 5 grid with pieces which have the move of a knight in chess. The object of the game is for the Blue Knights to trap the Black Knight. (not to remove it from the board as in chess), while it is the object of the Black Knight to try to outmanoeuvre his opponents for twenty moves. The Black Knight is trapped when there are no legitimate free spaces for him to move to. **No piece is allowed to return to the square that it left on the preceding move.**

### STARTING POINT

The game of strategy is set in the context of a medieval challenge, where the Black Knight wishes to join the Fellowship of the Blue Knights. The Blue Knights, however, are keen that he should prove himself, and only after the Black Knight has succeeded in outwitting them for twenty moves will they allow him to join them. The action takes place in a large cave in the Blue Mountains.

Before tackling the game it is important that the children have a basic understanding of letter by number co-ordinates, and are familiar with the moves of a knight in chess. With this in mind several simple introductory activities have been included in the pack. The 5 by 5 grids and the cut out knight figure can be used in a variety of ways for the children to develop their understanding of the patterns created by the knight's move. The map and co-ordinate activity not only enables the children to gain experience of using letter by number co-ordinates, but also helps set the scene for the challenge.

### THE CHALLENGE

The purpose of the game is for the children to devise a strategy which enables the Blue Knights to thwart the Black Knight. It is possible to trap the Black Knight in fewer than 7 moves, although 10 would be a more realistic target. In order for the children to begin to develop their strategy it is suggested that they start in a small group playing against the computer. Record sheets have been included to enable the children to keep a note of their moves. It is suggested that they look for a pattern to help them formulate their strategy. The children can record their moves in terms of co-ordinates, or colour their paths on the 5 by 5 grids, whichever is more appropriate.

Having successfully outwitted the computer as their opponent the children can then move on to playing each other, where it becomes the aim of the Black Knight to remain free for 20 moves and thereby gain admittance to the Fellowship.

### EXTENSION ACTIVITIES

A number of game plan cards have been included to enable the children to develop and test their strategies from a variety of pre-set starts. Comparing their records with other groups should also prove interesting. It is also possible for the children to set their own game plan for another group to follow.

From this the children could then go on to investigate such situations as :

- What would happen on a larger grid?
- In which case does there need to be more knights?
- Does it have to be a square grid?
- Can they develop their own version of the game?



## KNIGHTS' CHALLENGE

### Pupil's Page 1

On a far distant continent, in a far distant time, there was the rugged land known by all as the Land of Honour. The land was protected from marauding tribes from the neighbouring lands by a group of brave knights who belonged to the Fellowship of the Blue Knights. They were a very close knit group and did not allow outsiders to join without first proving that they were capable of outwitting the Fellowship.

The Black Knight has just arrived in the Land of Honour from battles in far flung lands. He has heard of the Fellowship of the Blue Knights and would like to join them. However, the Fellowship want the Knight to prove himself, and have thrown down the Challenge! He must meet them in a dark, distant cave, deep in the Blue Mountains, where they will set him a test. If he is to join them and help protect the Land of Honour, it is important that he is able to outwit many opponents. The Blue Knights must develop a strategy to help them pose a difficult test for any new-comers. Can you develop a strategy that will help the Blue Knights to succeed? Is it possible for the Black Knight to outwit them and gain admittance to the...



### *Fellowship of the Blue Knights*



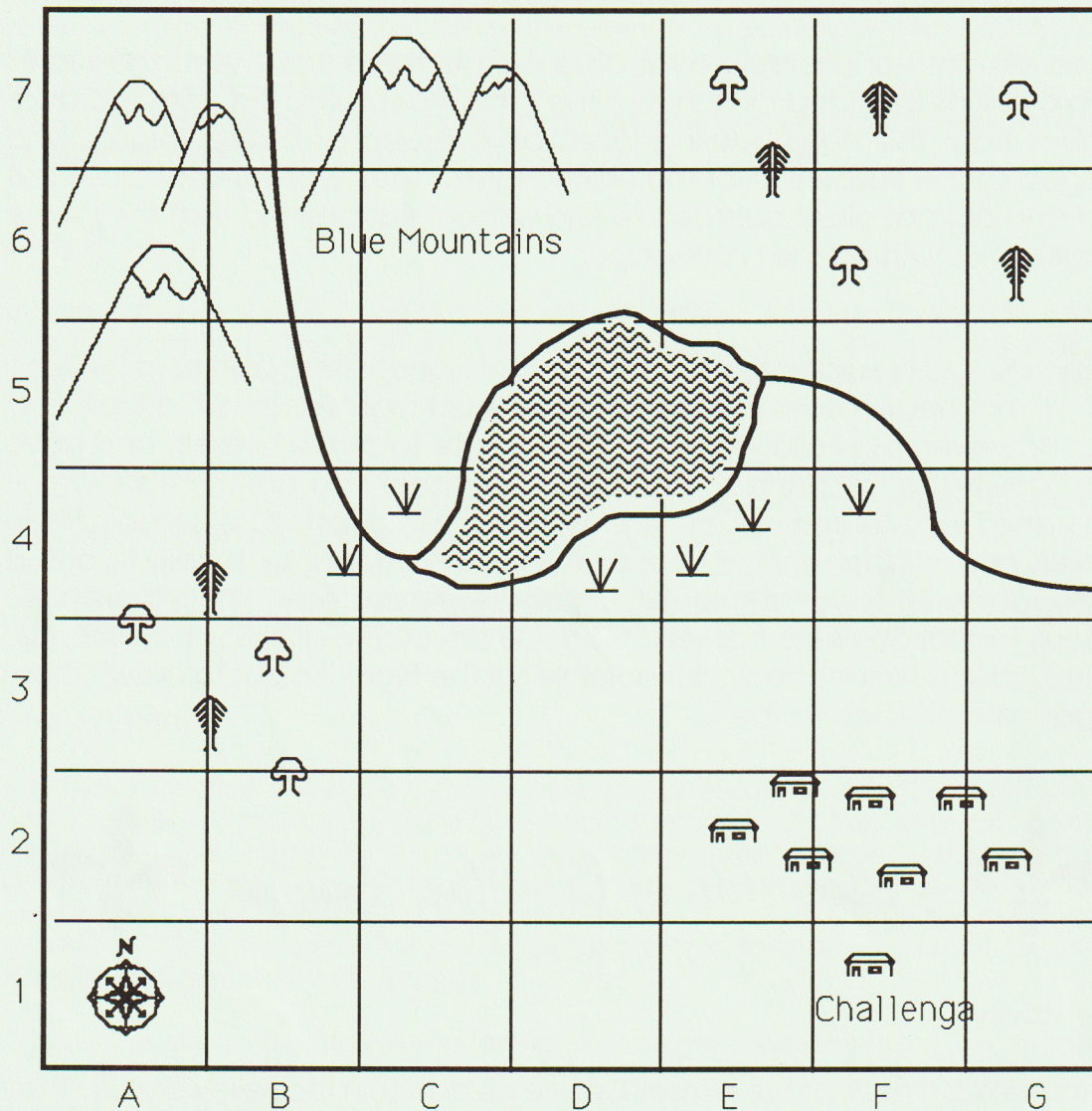
#### Map Activity

The Black Knight must prove himself before he can join the Fellowship, so they have thrown down a Challenge! He must meet them in a deep distant cave where they will set him a test, but first he must get there. The Blue Mountains are many kilometres away across rough and rugged terrain. This is the route he took. Can you mark his path on the map?

The Black Knight left his home in F1 and travelled west around the outskirts of the village. At midday he met a farmer in E3 who told him to beware of the marsh land immediately to the north. So the Knight travelled east and crossed the river at a ford in square G4. To the north there was deep forest which he wanted to avoid if he could. Following the river he travelled towards the west. At sunset he set up camp for the night by the edge of a lake in E5.



## The Land of Honour

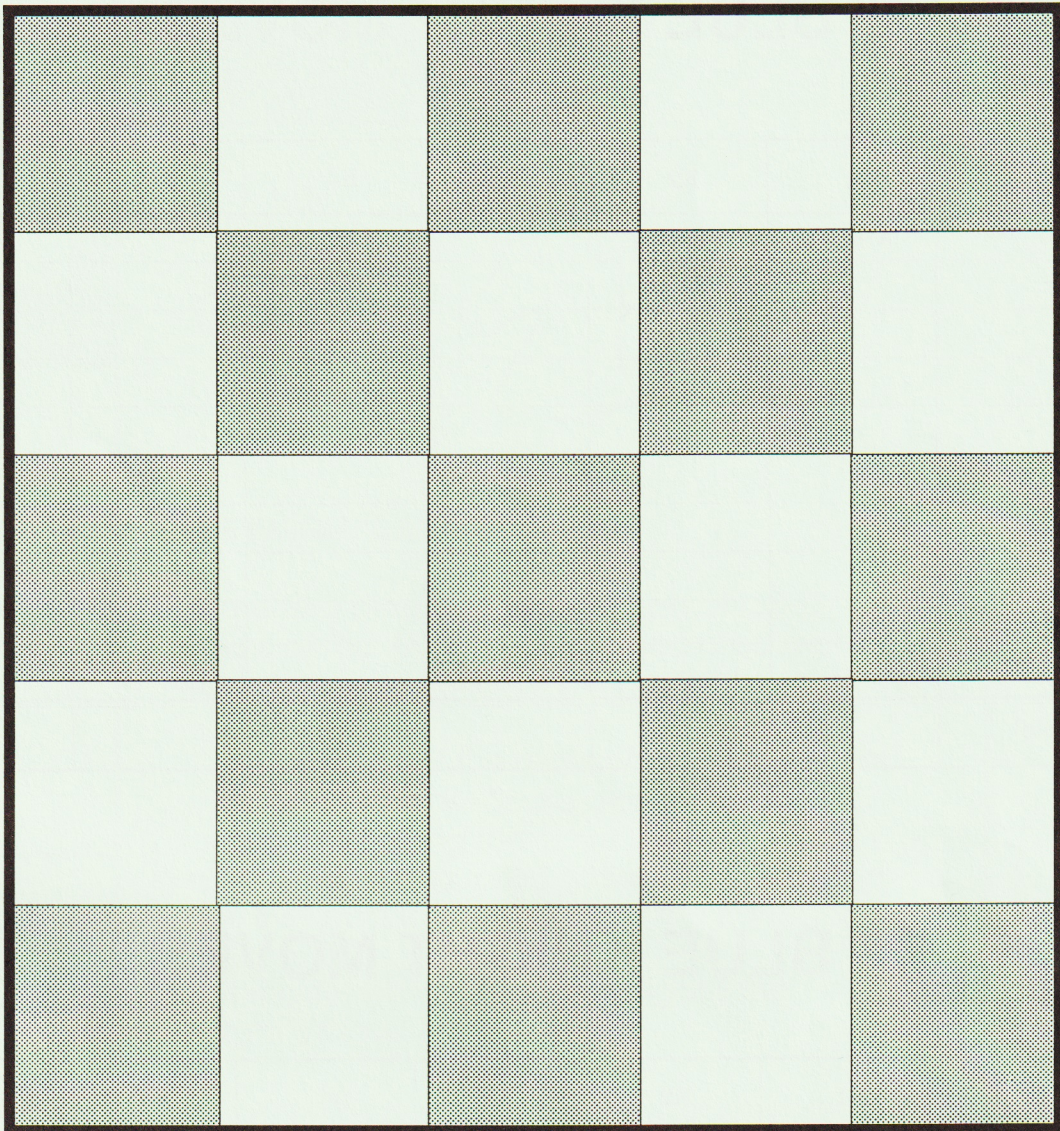


When he awoke the following morning the Knight could see in the distance, the snow covered peaks of the Blue Mountains. He skirted the edge of the forest in square E6 and then set off westwards towards the mountains, but a land slide in C6 caused him to turn south once more. As he travelled south to avoid the land-slip he noticed the ground beginning to get wetter. Coming to the edge of the marsh in C4 he could hear the sound of running water - it was the river in B5. Now he could travel north along the river valley. The going was rough and he had to scramble over slippery boulders. At midday he stopped to eat in square B6. Almost there! The cave was at the foot of the highest peak in the Blue Mountains, the Mountain of Ice. Feeling worn and weary he scrambled up to the cave entrance in C7.

**Now for the real challenge!**



## The Knight's Move



### Investigation of the Knight's move.

Before you can work out a good strategy for the Blue Knights, it is important that you understand how they move. All the Knights in the Knights' Challenge move in the same way that a knight does in the game of chess. That is:

2 squares horizontally (forwards or backwards) followed by one square up or down OR 2 squares vertically (forwards or backwards) followed by one square to the left or right.

Try it and see.

Use the cut out Knight to find out as much as you can about the Knight's move.



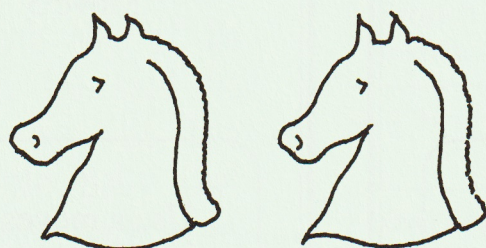
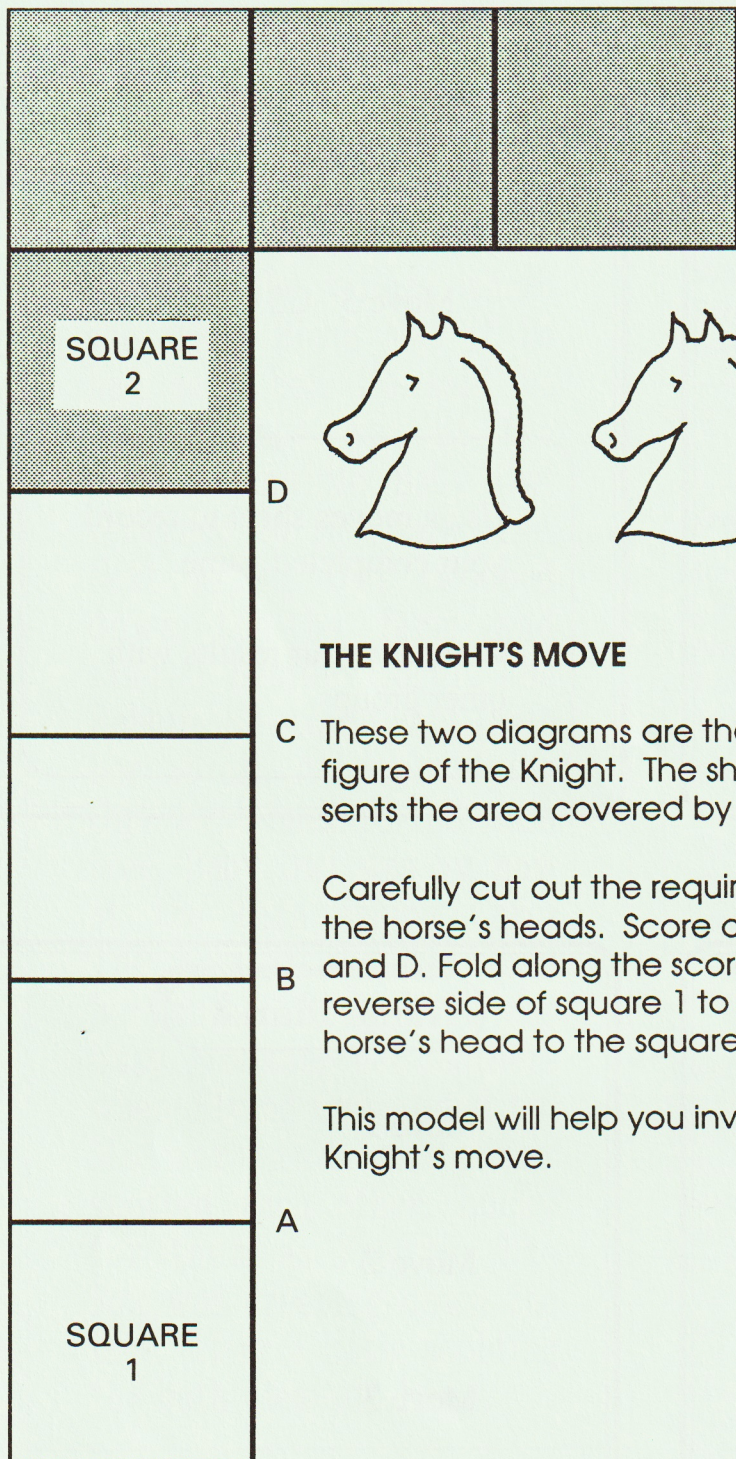
## BLUE KNIGHT MOVES

Black Knight's Moves	K1	K2	K3	K4	K5	K6
--	A1--	C1--	E1--	E5--	C5--	A5--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
Total						

## BLUE KNIGHT MOVES

Black Knight's Moves	K1	K2	K3	K4	K5	K6
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
Total						





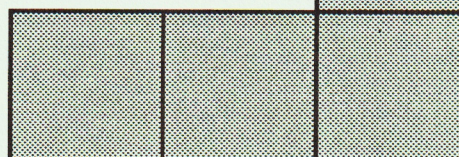
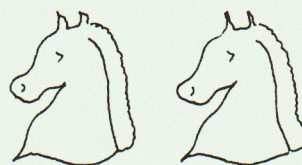
### THE KNIGHT'S MOVE

- C These two diagrams are the nets of a 3-D figure of the Knight. The shaded area represents the area covered by the Knight's move.

- B Carefully cut out the required net and one of the horse's heads. Score along lines A, B, C, and D. Fold along the score lines. Stick the reverse side of square 1 to square 2. Stick the horse's head to the square at the front.

This model will help you investigate the Knight's move.

A





### Game Plan 1

Move 1 E1 - D3

Move 2 A1 - B3

Move 3 C1 - A2

Use a moves sheet to record  
your completed game.

Compare your results with  
other groups.

### Game Plan 2

Move 1 A5 - C4

Move 2 E5 - D3

Move 3 C5 - B3

Use a moves sheet to record  
your completed game.

Compare your results with  
other groups.

### Game Plan 3

Move 1 C1 - A2

Move 2 C5 - E4

Move 3

Use a moves sheet to record  
your completed game.

Compare your results with  
other groups.

### Game Plan 4

Move 1

Move 2

Move 3

Use a moves sheet to record  
your completed game.

Compare your results with  
other groups.



### Wild Owl Chase.

One day Baby Owl went missing. Flying Owl went after her. First of all she went to the village where she asked Black Mac if he had seen her. He said he thought she was at the farm. Meanwhile Baby Owl returned to the main tree. Next Flying Owl swooped down to the farm and landed beside Roger The Rabbit. He could not help her at all. At dusk Flying Owl went back to the main tree. Baby Owl was by now at the barn asking Carol The Cow if she had seen her mother. Dolly Duck was busy grooming her feathers when Flying Owl glided by. Mother and daughter spotted each other. Lucky for them as Freddie The Fox was creeping down the lane. After a little scolding the<sup>y</sup> both flew off home.

Fig. 1 Make a Story.

### OWLS

Furious, nocturnal,  
Nocturnal owls hunt a bit further,  
As night falls,  
Disgorge, perch,  
Warmly hollow, in readiness fluffy  
Stretch boldly, above the trees,  
Inkblack eggs, hollow dusk.

Fig. 2 Wordplay poems.

### Owl Actions.

Barns squeak in twilight.  
Juicy morsels.  
Nocturnal owls hunt as night falls.  
Pellets topple.  
Fluffy feathers fall.  
  
Owls perch in twilight  
Owlets flutter  
Sharp talons curl at last  
Owlets disgorge  
Hollow ruins shriek.

Fig. 3

dived, swooped and stumbled around the P.E. hall. During our next lesson we added shrieks, whistles, mews, etc. Organised chaos prevailed. Pellets were disgorged and worse things were suspected but a great time was had by all. (Note that all actions and sounds were taken from the four lists of words described in the English section).

Soon we will try to draw a line graph over the stave in music lessons. As a pupil sings his or her owl sound I will begin drawing a line graph over the five lines of the stave. I will be guided by the children who will indicate whether the sound is getting higher or lower or remaining level.

During P.E. lessons we hope to move like the Logo Turtle as we talk about owl neck rotations etc.

### The Irish language

1. A short vocabulary of Irish words relating to owls.
2. A few joint class efforts at creative writing in Irish.
3. Irish conversation lessons using *Owl Talk*.



**Art and Craft**

1. Drawing owl pictures, having solved a simple quiz.
2. Papier maché owls.
3. Wire trees (owl roosts).
4. Scraffiti owls.
5. Later on we hope to attempt a fret saw owl.

**Mathematics**

1. Logo. My class were unfamiliar with Logo. We spent two half-hour lessons playing with the turtle. I then introduced the procedure:

```
TO CURVE :N :LENGTH :ANGLE
REPEAT :N [FD :LENGTH RT :ANGLE]
END
```

We called our effort 'Owl Flight Path'. Each boy or girl typed in three different numbers. I suggested a BACKWARD or a FORWARD or a LEFT or a RIGHT between each pupil's input. We ended up with a screen full of criss-crossed lines and curves. We called it our 'Owl Range'. (This prompted an idea which I describe under Environmental Studies.)

2. Graphs from *OurFacts*.
3. Measurements of length and weight using the bird file and *OurFacts*.

**Environmental Studies**

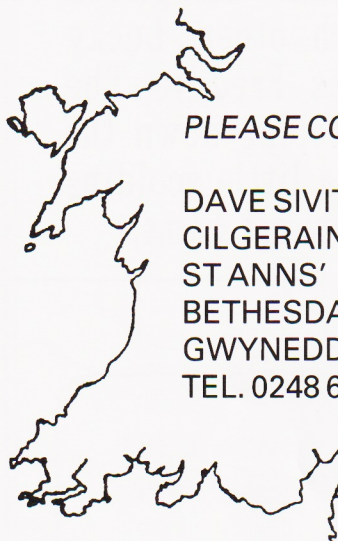
1. Creating a database of information about our Parish using the field names Townland, Size (in acres), Population, Number of Pupils (from each Townland), Number of Farms, Length of Roads, Number of Historic and Industrial Sites, Number of Homes.
2. Creating a database of Information about European Countries with the following field names: Country, Size, Population (in millions), Capital, Money, Language, Sport, Climate, Industry.
3. A lesson on The Country Code.
4. A lesson on how pollution affects the owl's food chain.
5. Viewing and discussing a video on owls.
6. Our Logo Owl Range suggested a way of correlating Nature Study, Local Geography and Local History. Every pupil will soon receive a copy of a map of his or her townland. They are already familiar with townlands, having created an *OurFacts* data file on townlands. Likely owl haunts will be marked in on the map. These haunts will be connected with intersecting lines and curves to form an imaginary owl range. My aim will be to encourage the pupils to put on their wellies and traverse their immediate locality, becoming familiar with old gnarled oaks, mud, flora and fauna, local people, the great outdoors, etc. (Not all areas will be so owl-friendly.)

**WE NEED YOUR HELP!!**

ANYONE IN THE NORTH  
WALES REGION WILLING TO  
BECOME PART OF THE  
NORTH WALES REGIONAL  
COMMITTEE OF  
MAPE

PLEASE CONTACT:-

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CILGERAINT FARM  
ST ANNS'  
BETHESDA  
GWYNEDD LL57 4AX  
TEL. 0248 600612

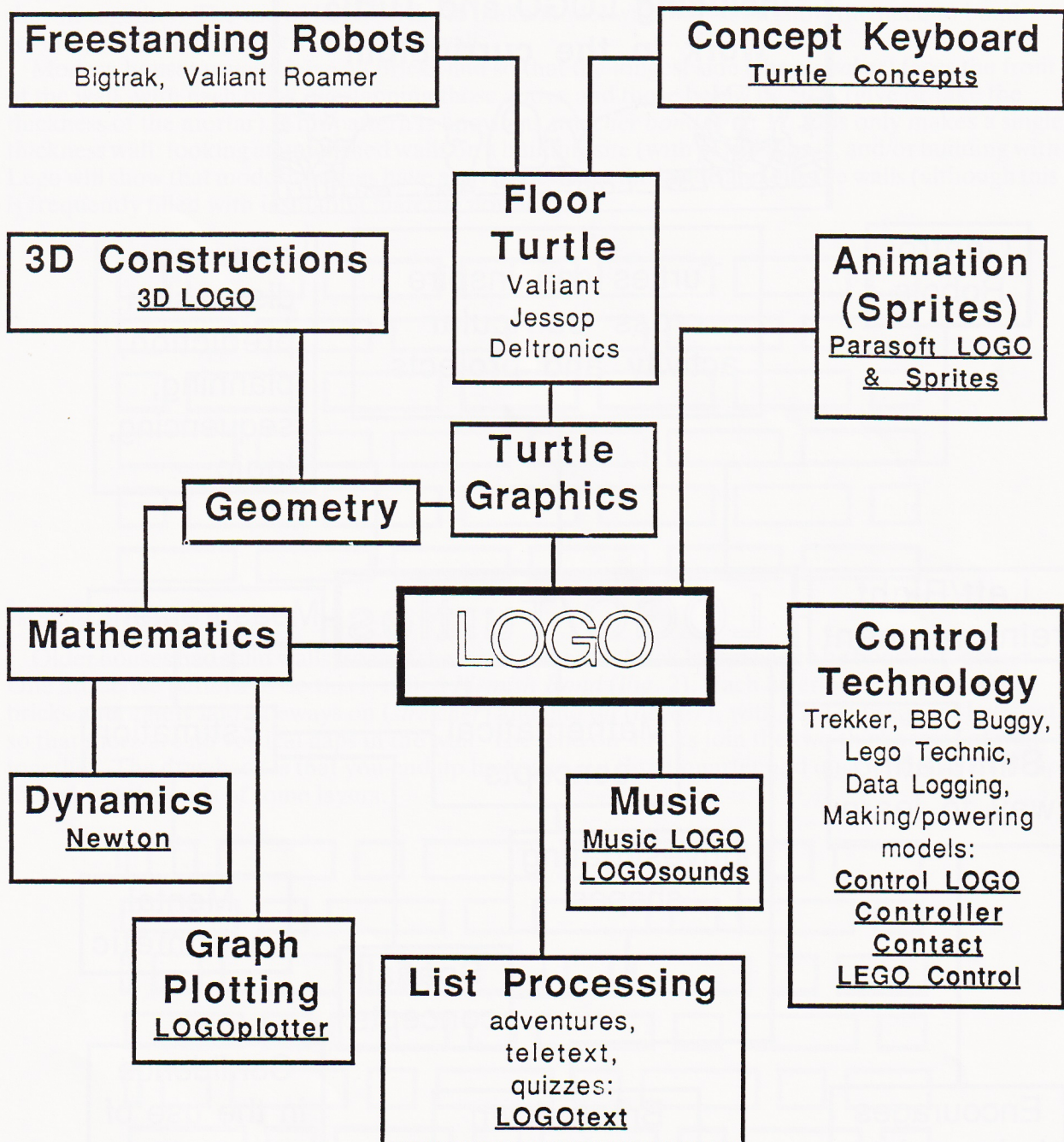




# Logo notes

## Logo: a family of microworlds

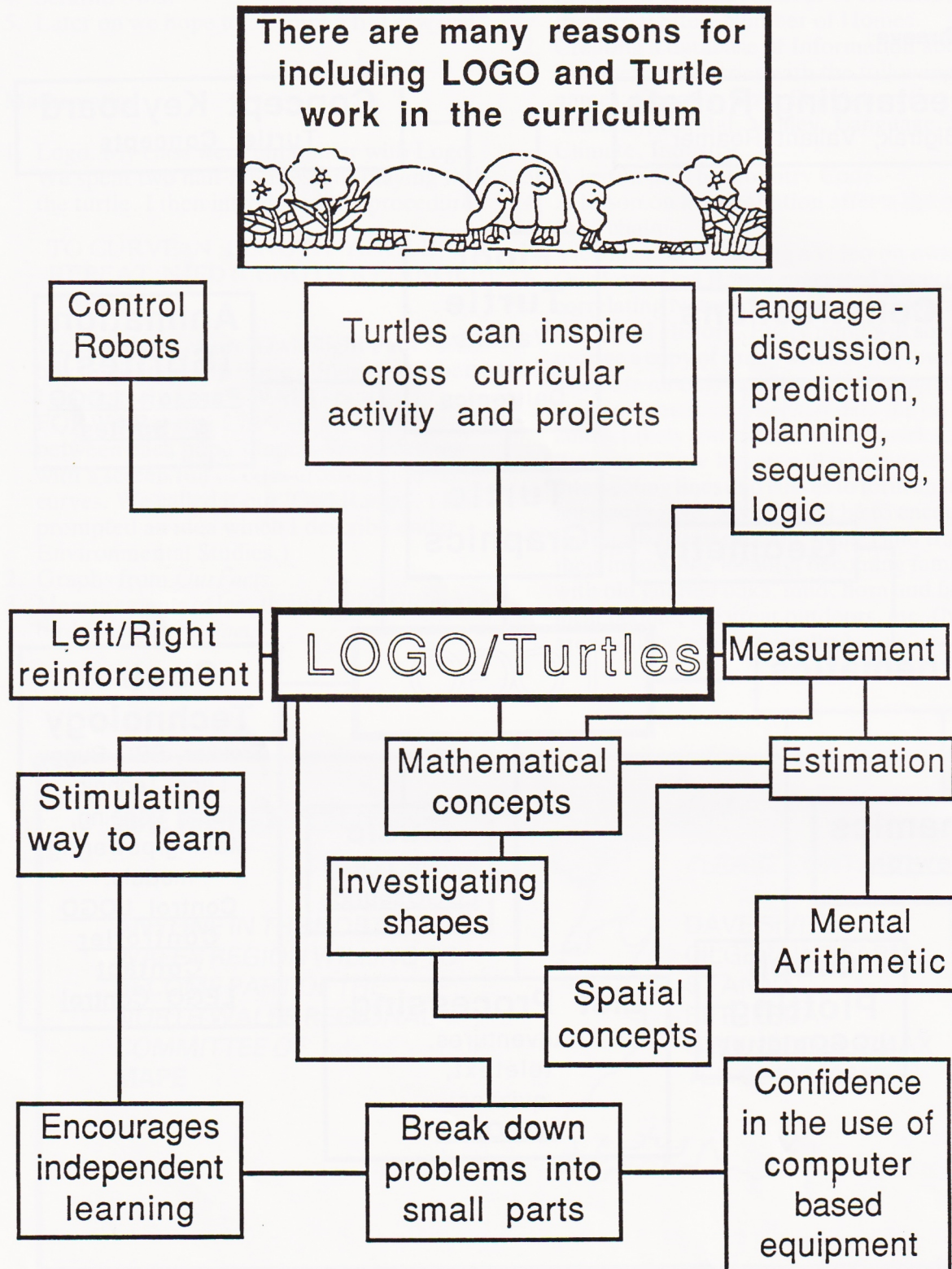
Paul Shreeve





## Logo / Turtles

Cath Parker and Paul Shreeve





## Brick Walls

### Paul Shreeve

If your class topic or project is related to buildings and architecture, a study of brick walls can be useful. You could start by looking at bricks in detail – including measuring them, and seeing how they fit together. The use of Lego bricks to make model walls will soon show the need to bond (overlap) bricks, to give strength to the wall.

Modern houses usually have all bricks laid so that the longest side (the *stretcher*) faces the front of the wall, with each brick overlapping those above and those below by 50% (give or take the thickness of the mortar). This pattern is known as *stretcher bond* (Fig. 1). This only makes a single thickness wall; looking at unfinished walls on a building site (with permission!), and/or building with Lego will show that modern houses have a cavity between the inside and outside walls (although this is frequently filled with insulating material nowadays).

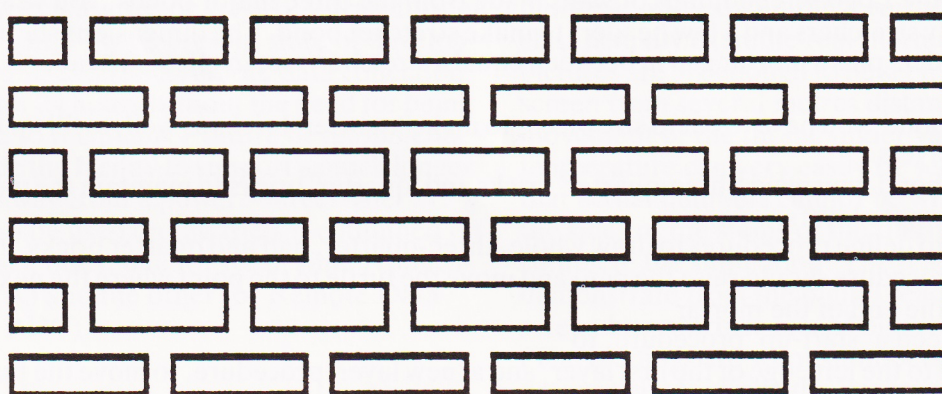


Fig. 1 *Stretcher Bond*.

Older houses had solid walls, so that the inner and outer brick layers had to be bonded together. One attractive pattern to do this is called *Flemish Bond* (Fig. 2). Each layer of bricks is made of bricks alternately laid sideways on (*stretcher*) and end on (*header*), with each subsequent layer set so that there are no vertical gaps in the wall. The 'end on' bricks join the two thicknesses of wall together. The drawback is that you end up having to cut three-quarter and quarter bricks to fill up the gaps at the ends of some layers.

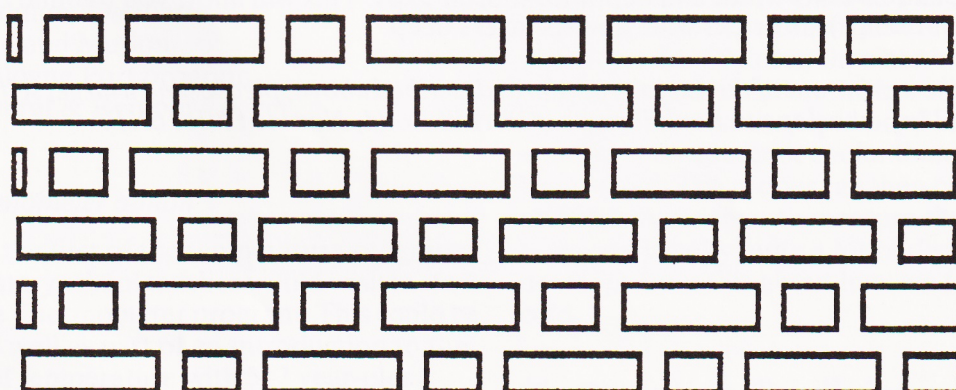


Fig. 2 *Flemish Bond*.

Another way of making solid walls is called *English Bond* (Fig. 3). One layer of bricks is made of stretchers, and the next of headers, then the next of stretchers, and so on. The header layers join the two thicknesses of wall together. This method is used most frequently in building strong garden walls nowadays.



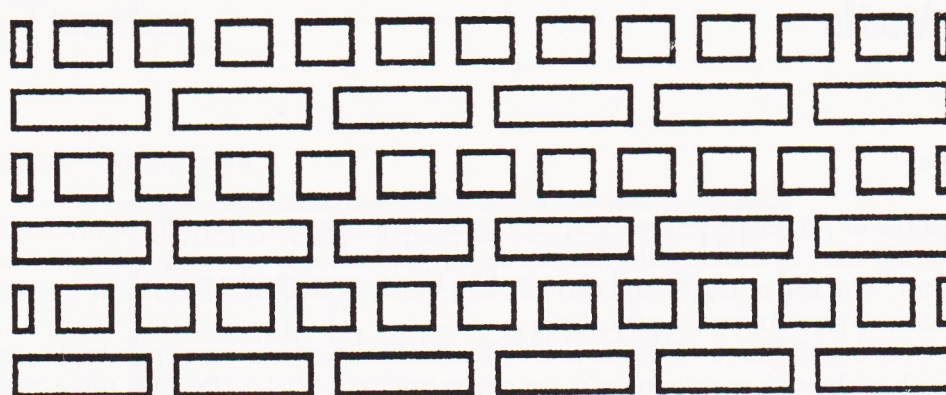


Fig. 3 English Bond.

As well as making and testing model walls of Lego or other interlocking playbricks, and looking at real walls, the pattern aspect of wall building can be shown using Logo.

If you study the Logo screendumps of walls made from the three major bonds, you will see that you need mainly stretchers and a few headers to make stretcher bond. The dimensions should be set so that two headers plus a mortar gap in between equal a stretcher – so, in effect, a header is a ‘half’ brick.

For English bond, you have to cut to size pieces to make ‘quarter’ bricks as well, to fill up the ends of the header layers.

For Flemish bond, you need ‘three-quarter’ bricks and ‘quarter’ bricks to maintain the pattern at the ends of alternate layers.

So, we need to define procedures to draw whole, three-quarter, half and quarter bricks. The end of each brick procedure should raise the pen, and move the turtle to the point where the next brick will begin – at the end of the mortar gap. We also need a ‘start-up’ procedure, to

move the turtle to the left edge of the first layer, and a ‘new layer’ procedure, to move the turtle back to the left edge, and down a layer, when the previous layer is completed.

From then on, it is a case of noting the repeating patterns in each layer, and between layers, to make procedures for the different wall bonds. To maintain accuracy and save time, this project would be more suitable for the screen turtle than the floor turtle.

As well as all the measuring and pattern work involved in making the basic wall bonds, it is possible to make more complex patterns by assigning different colours to bricks, even if they are the same (as in stretcher bond). Photocopies of the screen-dumps could be made, and the children could work in groups to look for patterns, and colour in the bricks to show them.

Good brick dimensions for the screen turtle are 100 units long (stretcher), 40 units wide (header), 30 units deep, and 20 units width and depth for mortar gaps. This will allow you to build up walls (like the screen-dumps) six bricks wide and six layers deep.

*If you would like a print-out of the Logo procedures described above, please send a large, self-addressed, stamped (28p), envelope to Paul Shreeve, 428 Hall Road, Norwich NR4 6NF.*



## Review

### Sense and control: evaluation of trials package

**Dr David Wharry**

Sense and Control (SaC) is produced by NCET at the University of Warwick in conjunction with the Trent International Centre for School Technology. It is a microcomputer which can be programmed via the serial port of the BBC B and Master computers to receive data from sensors connected to it. The unit measures 20 x 16 x 4.5 cm and is powered by internal rechargeable batteries or via a 12V transformer from the mains. At its present state of development the unit can run a remote data collection program for 24 hours without the need for being connected to the mains – future developments will include the facility to support a much longer duration away from a power source. The software to be used on the trials is contained on two 40-track discs, one for Real Time Applications (RTA) and the other for Remote Data Capture (RDC).

#### Real Time Applications

Using the software on the RTA disc, I will try to suggest how the SaC equipment can be used in the area of primary science.

1. Temperature–Time
2. Thermometer
3. pH & Temperature
4. Pendulum/Oscillator
5. Time and Motion
6. Analogue Port program
7. General & Remote Logger.

#### *The Thermometer option*

Probably the first of the temperature programs that a primary school teacher would wish to start with is the Thermometer program. This could be used very well as part of an introduction to the concept of temperature with 5–7 year-olds (National Curriculum, Attainment Target 12). The program offers on screen the possibility of using either one or two of the temperature probes connected to the analogue inputs (numbers 1 and 2) and will show picture(s) of the thermometer(s) on the screen with a simulated

mercury thread on an uncalibrated scale. The temperature(s) are shown on the screen in very large numbers for each of the probes. When placing in warmed or cooled water, or held in the hand these probes show the new temperature and a stable reading is reached within about 20 seconds. It would probably be better to demonstrate to the class the parts of the thermometer and explain the terms used before the class actually examine real thermometers. The pictures are big enough to be seen clearly on the screen from several metres distance and the movement of the thread under variations of temperature can very easily be seen. It is a pity that actual numbers cannot be written against the sides of the stems of the thermometers to complete the simulation. The teacher can demonstrate from the digital read-out on the screen how warmer means bigger numbers. (The readings are whole numbers only, and a prerequisite for using this program is, of course, that the pupils can read one and two digit numbers and have some idea of a number line. Perhaps these sorts of experiences can help in that respect.)

The pupils' experience can then be built up in stages through such experiments as are described in the *Science 5 to 13* series 'Ourselves' (Macdonald Educational). For example, three bowls of water are provided by the teacher, one definitely hot to the touch, one tepid, and the third icy cold. Children then are invited to immerse a hand in either the hot or the cold and then go on to test the tepid bowl and declare whether it is warmer or cooler than the first they have tested. The probes can then be used by the children themselves to measure the temperatures and usually quite a lot of discussion develops from this about how we feel heat and cold.

#### *The Temperature–Time option*

This is the first program on the menu and is designed in a quite flexible manner to allow the probes to be used for the measurement of temperature, with the measured temperatures being plotted in colour on the screen by the



computer. The National Curriculum (Attainment Target 12 for 7–11 year-olds) suggests that children should carry out investigations of changes that occur when familiar substances are heated and cooled. Up to three probes can be used at one time, depending on the initial selection by the user, and the axes of the graph (time along the x-axis and temperature vertically) can be selected to suit the sort of experiment that the class has chosen to carry out.

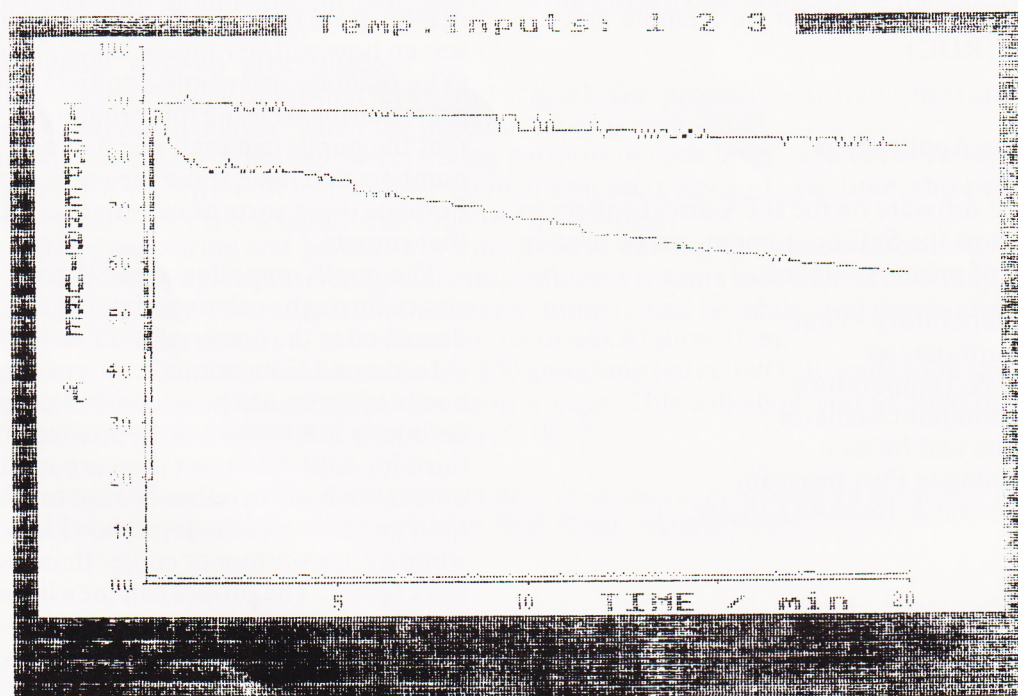
For example, one experiment, which needs a bit of vigilance by the teacher to avoid scalds, is shown in Fig. 1. Equal quantities of hot water from a kettle were poured into an open mug and a narrow-necked vacuum flask (both already had temperature probes placed in them). Previously another wide-necked vacuum flask had been filled with a mixture of ice cubes and water. (N.B. do not be like the author and use an ordinary glass-walled flask. The new one I had to buy now is lined with polythene and resists breaking when carried around with ice cubes floating in it.)

The program is started and the graph plotted over a period of twenty minutes. The only explanation we could come up with for the initial

quick drop of temperature in the open mug is that the mug itself had to be heated up by the water and that must have cooled the water fairly quickly. (Is that why Mum always pours some boiling water into the pot and then pours it away before putting the tea in and filling with some more boiling water?) Other experiments in this area could deal with the changes of temperature that occur during the heating, melting and cooling of wax, and the results of mixing substances of differing temperatures – although at this level one would not expect any theoretical calculations such as might be expected for 11–14 year-olds pursuing the same topic.

#### *The Pendulum / Oscillator option*

The apparatus for use with this program consists of a very high quality potentiometer (10 kilohm, with no end stop). When connected the SaC puts a steady voltage across the ends of this device and the centre tap, which is turned by the spindle, takes the voltage to the SaC box. A voltage of nought indicates the position of the spindle to be at one end of the potentiometer's range and a maximum voltage means it is at the



**Real time Program Time & Temperature**  
**Cooling of Hot Water**  
 1 vacuum flask; 2 cup; 3 ice/water



other extreme. If the tap-off point is exactly at the half-voltage then the spindle is exactly halfway along the resistor. If a rigid thin rod with a weight at one end is attached to the spindle, the program allows for the rotation of the body of the potentiometer until the mid-way point is found and this is shown as the middle of the scale on the computer's graphical display.

The pendulum so formed can now be set swinging and the second part of the program started. From the points obtained the program will, when so instructed, draw a graph of the displacement of the pendulum from the centre of swing with time. As time progresses this gets smaller and a wiggly curve gradually getting smaller is seen on the screen. If the distances along the time axis are measured it is found that they are equal! A point which will doubtless surprise all the class and many of the teachers who may not have investigated pendula during their younger days at school science classes. Within limits the size of the swing of a pendulum does not alter the time of swing. The program goes on to display other derived quantities such as velocity and acceleration etc., but surely to children in the 'concrete operations' stage of development these would have little significance.

### *The Time and Motion option*

This program uses the digital input ports A and B on the SaC box, and provides a number of alternative methods of using the two integral light gates. Most of these are designed for secondary pupils to investigate laws of motion, velocity and acceleration. The broad idea of the experiments appears to be to attach a vertical card of, say, 10 cm length, to a laboratory trolley and then run it along a track. The digital light gates can be arranged strategically so as to measure the speed of the truck at various places, and the program can work out speed and acceleration. The program shows the calculations on the screen. This is very secondary orientated and probably would not be of use in the ordinary primary class, except possibly in the following circumstances. If the class has been investigating model trucks or cars with the idea of making a fair test to see which is the best runner, they may have come up with some such idea as a sloping track to give the cars all the same start with a horizontal length of track along which they run until they stop of their own accord. The one that travels the furthest is obviously the winner.

But pose the question – what would happen if we used trucks with varying weights in them?

Would the truck with the heaviest weight travel the furthest? Would this be the one that travels the fastest when it's just passing the bottom of the slope? How can we find out how fast it is travelling at the bottom of the slope – and at other places along the track? These types of questions, until now, have not really been capable of solution by experiment within the primary class; they are very relevant in the context of the National Curriculum ideas on Technology work in Primary Schools (Attainment Target No. 3: knowledge and understanding of forces both static and dynamic).

But with this program we can now do this. All it needs is a length of stiff card fixed vertically on the truck so that the card interrupts the light beam that passes between the two ends of the horseshoe-shaped digital light gate. The computer very accurately measures the time taken for the piece of card to pass the light gate and says on the screen how long it was – the minimum time appears to be 1/10,000 seconds, but you would not get those sorts of speeds with your average toy truck carrying a 10 cm long piece of card. It is probable that not all the children in a standard four class will understand the import of these calculations, but for those who have asked the right questions it would probably be worth allowing them to investigate this as far as they might wish.

### *The General and Remote Logger option*

This program is the only one on the RTA disc which allows the SaC box to be disconnected from the host computer and taken away to make its measurements. However, to do this the pupils must have a very clear idea of what they want to measure and exactly how they are going to set about it, because apart from pressing the GO button on the box they will see absolutely nothing happening – and for a child in the 'Concrete Operations' stage of Piaget, this is so discouraging that they would probably not wish to pursue the matter. In order to see the results the box must be reconnected with the computer and the retrieval part of the program run to drag the collected data out of the SaC box's memory, process it and graph it onto the screen; see Attainment Target No. 11 in the National Curriculum . . . Use of Information Technology for storing, processing, retrieving and presenting information. However, if the children are sufficiently motivated and able they may be able to suggest applications for this type of process once they have had a lot of experience using the RTA programs on Time-Temperature, especially the parts where the computer remembers



the data collected and redraws the graphs on the screen after they have been wiped out. Once this principle has been well established then the concepts are there for remote investigations over longer periods of time.

A suggested investigation might be something like the following. Does the temperature of the classroom fall while we are away at home during the night? Or, what happens to the temperature inside the fridge when we do not open the doors? How can we find out if it gets warmer inside the fridge as it gets hotter during the day in the kitchen? What happens at night when it gets cold?

The General and Remote Logger is a very versatile program that essentially allows one to complete data collection in the Real Time mode or in the remote, stand-alone mode. The time axis for the data collection can be chosen in advance to be as short as two minutes (120 s) or as long as 48 hours – enough time to investigate what happens in the school over the weekend. The vertical axis scale may be changed from the standard 0–100, but it appears that since one cannot get the cursor to travel below zero, then the temperatures in a very cold fridge might not be able to be remotely determined, although it appears possible to set the upper temperature limit as low as 10°C by using the cursor. In the temperature mode it is possible to have up to three inputs, so one could imagine having a probe outside, one at the top inside, and one at the bottom inside. The thickness of the probe leads is about 2.5 mm and one would have to check that the fridge door seal was still effective when the probe leads were passing through. It might be possible, using the % INPUT title for the analogue quantities being measured, to make only two of the inputs temperature, and the third one a light probe. This should be able to register on the graph whether the light actually does go out when the fridge door is closed! More seriously, it would also register every time the door was opened and give an idea how the opening of the door affected the temperature regulation within the fridge.

### Possible future developments

In this section of this review a few ideas will be put forward arising from the materials evaluated in the hope that some of them might prove

useful in the materials being presently developed for primary school use.

### *Counting and Statistics*

(Nat. Curr. Technology Attainment Target 1 – collecting data for traffic flows before devising controlling systems)

It appears that a program could be constructed using existing apparatus to allow children to investigate and log the frequency of events, and to present the data on screen as histograms or bar charts showing the numbers of events detected in pre-specified periods of time. Thus the program would pause until, say, a light beam was interrupted and then record another event for the particular time period that was currently passing and would augment the count for that period by one unit. The events could be signalled for small passing objects with the use of the digital light gate, and for bigger items such as people passing along a passageway, by use of separate light source and the light probe. An alternative system might be able to be connected to the SaC's input sockets which would permit the easy connection of a micro-switch or pressure mat for counting operations.

### *Weather Station*

(Nat. Curr. Science Attainment Target 8)

I understand that plans are already afoot for the implementation of a weather station program. This might include a wind vane operating a position sensor potentiometer, which could pass information to store relating to the quarters from the wind is blowing during predetermined periods of time and plot these as a radial bar chart in the form of a wind rose. Another position indicator could be incorporated by children in some sort of anemometer – possibly of the shoe-box design, or maybe a rev counter could be attached to a rotating propellor. Whatever the final outcome, the items would need to be sufficiently flexible so as to be incorporated in apparatus which the children would design and construct themselves. Meanwhile the light probe could be recording general light levels during the day. Possibly a fourth detector could measure conductivity simply across a gap and signal the presence, or onset, of rain?



# A glimpse into the future

**Don Walton**  
Cambridgeshire LEA

By the time this edition is printed the news will be out; Acorn have spawned another machine which primary schools may consider buying to replace those ageing BBC B machines which have lasted about twice as long, so far, as their critics forecast. The new machine is of course based on the Archimedes RISC technology which if you ask, Acorn will tell you, is supersonic everything, with WIMPS, 32 bits (although if you look inside there seem to be more than that), large dollops of memory and all kinds of other things which Acorn say are good for us. The real question is, how will all that power and speed be translated into worthwhile educational activities for little Mary in Mrs Smith's 3rd Year Junior Class?

To begin with, there will be a big demand for BBC software to be translated straight across to the RISC machine. This has already been done for many software packages. It was the only way that Acorn managed to make their software booklet respectably thick in the early days of the Archimedes. Generally what you see is exactly the same screen and operation as you would on the BBC B or Master and shows no advantage over these machines. There is software, however, which has crossed 'the great divide' and which takes on another dimension because of RISC's extra speed and memory. More of this later.

One or two pieces of software have been re-designed to work exactly like they did on the BBC B or Master, but have taken advantage of the graphics facilities to create very much better graphics and/or use the mouse. There are several of these around – *Dread Dragon Droom* and *Fairy Tales* from RESOURCE are examples of this sort of thing.

There is software which has been transferred from other machines to give the Archimedes some sort of respectability in secondary schools and the business world. Names to conjure with in this section are *System Delta Plus*, *Logistix* and *Firstword Plus* which, although extremely powerful, are not the sort of software that I would advise for any primary school classroom or its teacher.

Finally there is software around which is being specially written for the Archimedes and it is this sort of software which really shows the machine off at its best – *Artisan*, *Numerator* and *Mouse Plotter* are excellent examples of this new generation of software.

You may well feel that it would be best to wait to buy the RISC based machine until the imagination of the software developers bends itself around the new technology and makes it work for them. To some extent you could be correct – but there is an area of work at which the RISC machine is truly superb and which the BBC B or Master can never approach, and that is the area of art, design, graphics in general and

desk-top publishing. If I were in a primary school which had more money to spend on computers, or if education manages to catch a few more crumbs from the DTI table, then that is what I would go for, a graphics work-station which would double as a desk-top publishing workshop.

## RISC Grass

Having said all this, one of my best buy Archimedes packages is good old *Grass*. A package which has been transferred across and tweaked to give even more user-friendliness, power and speed, it still has the same old *Grass* look and feel without fancy icons which people over 35 forget, and neither does it use the mouse. The advantages of Archimedes *Grass* are that both the Editor and Query applications are on the same disc along with the files. It is so easy and quick to move from one to the other.

There are two new search facilities which make Archimedes *Grass* easier to use. There is a facility which allows a search to be made in Editor mode so that it will find the records relating to any simple search, set up using the usual *Grass* search options, and then allow you to edit them, the cursor very handily appearing on the field you searched on. Another search, in Query mode, which is very convenient is a keyword search. This shows you in alphabetical order the range of words in any selected text field and if it is a numeric field it shows you the range of numbers available. This facility is so useful when you are not sure what sort of parameters a field covers when preparing a search.

These notes do not convey the detailed changes which make this version of *Grass* such a joy to use. Buy a copy from Newman College and try it for yourself. The County licence price is a giveaway!

**Compose Play** (for the BBC B and Master and ready by the time you read this)

Well away from the publicity of the RISC machine (I don't know its name yet), I have been using *Compose Play* designed by Andy Pierson for the BBC B and Master computers. If you took my advice in a previous review and bought the original *Compose* for your classroom, you will no doubt have had your children composing their own tunes, writing the lyrics, dancing to the music, creating incidental music for their assemblies and Christmas productions etc. *Compose* will have become a creative tool which can be used by any child. If this is the case then you and your children should be looking at *Compose Play*.



*Compose Play* offers all the facilities of the original *Compose* and so much more, so much in fact that I can only open a small window on the extra facilities.

On the screen you have access to mouse and windows control with the same sort of linked pictures and musical phrases as you had on *Compose*, except that there is an increased range to choose from at any one time. The pictures can be placed by mouse at any position on the compose screen which is four lines deep and up to nine across. The big difference is that the top three rows play in parallel with one another, giving harmony or disharmony as the case might be. In addition to this there are forty rhythms to choose from which are fitted onto the bottom row of the compose screen for percussion backing. This page of music can be one of ten different pages all of which can then be laid out on a long track in any order or

sequence you wish with repeat loops and using each page as many times as you like.

Got it! You haven't. The only way you can find out how addictive it is, is to buy a copy and if you can, link it to a midi keyboard for extra sound quality. Looking to the future, this standard of software ensures the future of the BBC B and Master for as long as you can keep them in working order.

### References

*Archimedes Grass*, Newman College.

*Artisan*, Clares Software.

*Mouse Plotter*, Shell Centre, Nottingham University.

*Numerator*, Logotron.

*Compose* and *Compose Play*, E.S.P., Holly Tree Cottage, Strelley Village, Nottingham NG8 6PD.

## MAPE news

### Conference '89 – news and comments

#### John Chamberlain

Sunshine and summer warmth were two of the features that I will remember most about the annual Conference/Course that was held in Caerleon in Gwent. The sunshine was not only in the sky, it was in the warm smiles of the delegates who had assembled from all over the country and from as far afield as Belgium and Portugal. The warmth was not only in the air, it was to be found in the atmosphere that the delegates created in and around the College.

There is no doubt that the site, overlooking the Usk Valley, was one of great beauty, a beauty that could be relished in those few quiet moments that occasionally invaded the hustle and bustle that is commonly found at a MAPE Conference. An experiment, forced on us by the strange dates of Easter this year, was to see if a conference would be successful during the Easter holidays. The experiment was successful and the numbers broke the previous best. There were 232 residential, and a total of 47 day delegates or non-residential delegates attending.

The usual blend of themes and presentations was arranged together with lectures, exhibitions and demonstrations. As there were some families staying in local hotels, Sue and Alan Barker arranged a family trip around the beauties of Gwent and a shopping trip to Cardiff. There were three wine receptions and we are grateful to Philip and Tacey for funding one of these and to Research Machines for funding the other two. The final one provided delegates who were attending their first conference with an opportunity to meet the members of the National Council and the area representatives on the terrace in the warm afternoon sun.

We provided the option of either following one of ten themes for the whole of the three days, or selecting from a total of 21 presentations. Those following the theme trail also had the opportunity to take advantage of two free sessions. They could either visit the presentations, see the exhibition areas, or just slip down to Caerleon town to visit the Roman amphitheatre and museum. We were able to

cater for most people's interests with the variety of themes arranged. Desktop publishing, control technology, Logo work, beginners on the computer and special education formed the basic part of the menu. Three integrated courses using simulations were also included. The first used policemen and various arresting experiences; the second saw the participants working with puppets and music; the third used animation and music. We also saw the use of interactive video which provided a stimulating experience for one group, involving a video disc being cut during the conference. The 21 presentations covered a wide range of subjects and provided an opportunity for most people to find something of interest or something new.

The three speakers provided us with a variety of interesting ideas and thoughts. Mr Hardwick, HMI, opened the conference with an address entitled 'An HMI's view of Information Technology'. His talk was frank and helpful and gave a clear indication of how HMI viewed the future, taking into account the National Curriculum and the place of computers within it. The final speaker, Mr Anthony Adams from Cambridge University, spoke on the development of the English language and the place of the micro in the school curriculum. His address was very well received and left many of the delegates with a much clearer understanding of the road ahead. Our speaker on the Thursday evening provided a contrast. Mr Tudor Williams is a probation officer in South Wales and he entertained us royally with many anecdotes about life in South Wales and his experiences as a probation officer.

The exhibitions demonstrated a variety of software and hardware including many new ideas that are just being launched. The three days were hectic, full of enjoyable experiences and provided all delegates with the opportunity to meet old friends and make new ones. The thoughts of all now move on to Nottingham in 1990. Good luck to the organising committee and we hope you have as much fun organising the conference as we had.



## IT in the AT's . . . a decade of change

Pat Miles

(IT Support Officer, Buckinghamshire)

[Memo for next year: go to the MAPE Conference, enjoy myself, but don't enthuse about it to the editor of *MICRO-SCOPE*!]

The final keynote address to this year's Conference was given by Anthony Adams of the Cambridge Institute of Education, and a leading member of NATE. Three years ago at Manchester Mr Adams spoke at the MAPE Conference as a guest. He liked what he saw, paid his subscription, and this year he was speaking as 'one of us'.

Mr Adams spoke first about English and the National Curriculum. The National Curriculum working party report (the Cox report) says very little about IT: a one and a half page section near the end marginalises it. However the Orders recommended by the National Curriculum Council build IT into the programmes of study. Mr Adams considered that this was not enough. Assessment would be seen as the dominating factor. As Kenneth Baker said, 'I want these children tested at 7, 11 and again before lunch.' If IT is to be valued by teachers, governors and parents then its use should be required in the Attainment Targets. The National Curriculum is not forward looking. The Attainment Targets should specify IT skills such as the ability to use a wordprocessor. He felt that MAPE should be pushing for these skills to be included; only then would equipment be provided.

Education is too slow at adapting to change, said Mr Adams. Television has been with us for years, yet very few children take media studies. New technology is all around us in shops, garages etc. The world is changing and we should adapt our curriculum to match. We should also be equipping children with the skills and attitudes to cope with change itself.

The wordprocessor is becoming ubiquitous: no child should reach the age of seven without learning to use one. He had given a lecture in South Australia recently where a row of IT advisors were tapping away on their laptops as he spoke, printed their notes at coffee and queued up afterwards for him to check their printouts! (One wonders if this is an appropriate use of technology. Notes prepared and photocopied by the lecturer would free the audience to listen and think!)

We need to reduce the horrific amount of writing that secondary pupils do. The National Curriculum has raised the importance of talking and listening at all ages. Word-processing and desk top publishing are being stressed almost too much. It's important to use the computer to stimulate discussion – the interaction between child and child is the important thing. The computer is totally silent, an impartial chairman that gives some structure. The computer lets children make mistakes, from which they learn.

Using a wordprocessor requires a different technique from writing with a pen or pencil: one accepts 'mistakes' while entering the text. As adults we have a lot of 'unlearning' to do, whereas children who grow up wordprocessing from the age of five will learn the appropriate technique. Another danger is to go on re-drafting forever; one needs to set a deadline.

A wordprocessor can be used effectively for group collaborative writing: this works better with some types of writing, reports for example, than others like storywriting. Mr Adams described a collaborative writing project involving four primary and four secondary schools. They are producing an epistolary novel (not a mystery novel, as reported by the *TES*!), writing letters to each other and to

the central character, a writer in residence. Another collaborative activity is the use of electronic mail for 'live adventuring'. We should extend the range of writing tasks children undertake. Function and audience are important for children's writing: let them write letters to people in the 'real world'.

We should use different types of wordprocessor for different children, while ensuring continuity and progression; but children must use a 'proper' wordprocessor from the start. (Unfortunately Mr Adams never defined a proper wordprocessor!)

Some teachers – and student teachers – are resistant to IT. They raise objections such as 'I don't like chunky teletext graphics'. He counters this one with 'You never say "I don't like chunky Byzantine mosaics", it's in the nature of mosaics to be chunky.' He described an Institute course he runs. Even the most technophobic student has to use a wordprocessor. The first handout is a blank disc. The first assignment is on the tutor's disc and the students have to transfer it to their own!

Mr Adams ended with a quotation from NAACE, the National Association of Advisors for Computer Education. They say that IT has more potential to affect English than any other subject, and to put the child in the centre of the learning process, the centre of using technology.

## Letter from a delegate

Janette Diomede

(Advisory Teacher for Computers, Wiltshire)

Thank you to everyone who helped to make the MAPE Annual Conference such a success.

This was my first MAPE conference and I chose to follow a theme rather than participate in several presentations. In so selecting *Puppets on a Micro* I joined a group of teachers who had a common problem – to write a script, to publicize, to orchestrate etc. a play for a band of marionettes, which was to be videoed and presented on the final day. My task, with colleagues, was to produce a programme for the play. So, while others collaborated over the script, composed theme tunes or whatever, we embarked upon drawing Dottie Dottette (the newly qualified probationary teacher and heroine of our epic – 'Follow the Chalk Dust Path').

Well, the hours flew. I even passed up the opportunity to go along to a presentation; I was hooked . . . what a machine the Apple Mac is! I was, and still am, thrilled with the figure we were able to draw with *MacPaint* (I must confess my partner and I were worried at times that our 'teacher' would rub too much out, or alter something we didn't need help with . . . sorry Stan!). This drawing took several hours but by now the script was taking shape and we were able to get the additional information necessary for inclusion in the programme.

If I reproduce two verses (out of six!) of the theme song you may get the flavour of the play (and see why we had such fun).

(to the tune of *Old MacDonald's Farm*):

Kenneth Baker had a plan, E i E i O  
And in this plan was NCC, E i E i O  
There were interims,  
Consultation Plans.  
Final Drafts, Statute Books  
And nobody had time to look,  
Kenneth Baker had a plan, E i E i O



Kenneth Baker had a plan, E i E i O  
 And in this plan were acronyms, E i E i O  
 TVEI and LMS,  
 TRIST and Grist, LEGATS, PIST,  
 TEGAT, SEAC, BRAHMS and LIZT,  
 Kenneth Baker had a plan, E i E i O.

The 11.30 a.m. deadline on the Friday was met . . . just.  
 The final scene was videoed at 11.05 and we were able to  
 run across to the hall with five minutes to spare!

Looking and listening around the hall it was clear that  
 everyone else had had as much fun as we had. . . . there  
 were Fabergé eggs (looked like Cadbury's to me!)  
 displayed, yet protected with alarms, using *Control*; there  
 was impressive music to moving pictures and poems; there  
 was the satisfactory conclusion to the crime (Murder,  
 Mystery and Suspense) with Reg publicly identified as the  
 culprit.

Do I need to say that I learned a lot too? I used a new  
 computer and new software (thanks for the help, Stan!). I  
 learned new skills and picked up tips from colleagues. The  
 guest speakers told us of their perception of IT in the  
 curriculum and gave us much to think about. I made  
 friends.

And there I will end. Please book me a place at next  
 year's conference in Nottingham. . . .  
 See you all then.

P.S. The blisters on my feet (after the barn dance) are  
 better!

## Conference Acknowledgements

MAPE would like to thank everyone who contributed to  
 the success of this year's Course/Conference.

The theme leaders gave us the best part of three days in  
 addition to all the work they had done before the event. We  
 are very grateful to them all:

Jon Coupland  
 Reg Eyre  
 Keith Hemsley  
 Jean Johnson  
 Derek Maxted  
 Stan Norman  
 Andy Pierson  
 Brian Richardson  
 Dave Siviter  
 Mike Treadaway

and their teams of able supporters (and equipment movers).  
 The presenters allowed us to offer a wide range of sessions;  
 we are grateful to each of them for allowing MAPE dele-  
 gates access to their perceptions of Information Technology.

We would also like to thank Philip and Tacey for  
 providing a wine reception, and Apple UK for the loan of  
 equipment.

Once again Research Machines supported the Course/  
 Conference in a number of ways, including the provision of  
 two wine receptions. The smiles of delegates must have  
 been due, in some part, to the warm feeling that arises when  
 someone else has most generously supplied the drinks!

# MAPE news

## Northern Ireland

### 1989 MAPE Regional Conference

The first Annual MAPE Conference held at Stranmillis  
 College, Belfast on Friday and Saturday, 3 and 4 March  
 was attended by 120 primary school teachers from all over  
 Northern Ireland and the Republic as well as IT advisers  
 from the Education and Library Board. Delegates gained  
 practical experience of a wide range of IT applications  
 including desktop publishing, Logo, concept keyboards,  
 spreadsheets, illustrated story writing, AMX art and  
 software for infants, in workshop sessions as well as  
 attending presentations on 'special needs' software and  
 control technology.

In his inaugural lecture to conference, Roger Keeling  
 from Newman College called on the government to spell  
 out in practical terms the range of competencies children  
 would be expected to acquire as a result of the cross-  
 curricular use of IT in the forthcoming National Cur-  
 riculum. 'It is not sufficient to state that children should  
 have a knowledge and understanding of the nature and  
 range of IT applications,' he declared. 'We must be told  
 precisely what children should know, understand and be  
 able to use the technology for at each stage of their  
 education.' Responding to this call, in his keynote address,  
 John Anderson (DENI) called on delegates to present their  
 views to the Cross-Curricular IT Working Group (CCIT)  
 on a number of issues including:

- a definition of Information Technology;
- a pupil profile component;
- subject-based attainment targets;

- mechanisms by which attainment targets could be  
 mapped to age-related criteria;
- ways in which cross-curricular IT might be  
 assessed; and
- the support implications of a more extensive use of  
 IT in the curriculum.

The MAPE Regional Committee agreed to make a  
 response on behalf of all Northern Ireland members.  
 Anyone wishing to contribute to that response should  
 contact the regional representative, Pete Young, at 78  
 Gilnahirk Road, Belfast BT5 7DJ (tel. 793136). Individual  
 responses will be co-ordinated by Alan Nixon, Secretary  
 CCIT at NICED.

In the closing lecture, Andre Wagstaff from the National  
 Council for Educational Technology urged delegates not to  
 view IT as a panacea for the ills of the educational system  
 and urged those responsible for producing computers and  
 software to agree on standards which would make the  
 technology simpler to operate while at the same time  
 meeting the needs of ever-busier teachers.

The regional representative, Pete Young, invited those  
 wishing to set up a MAPE group in their own local area to  
 contact him at Belfast 793136.

The first MAPE event in the Autumn Term will be a  
 Wine/Cheese Open Evening on Monday 11 September in  
 Belfast Teachers' Centre. A range of MAPE software and  
 resources will be on display and members are invited to  
 bring guests. Fee: £2.00.

The Northern Ireland Regional Committee Office Bearers  
 for 1989 are:

Chairman: Michael Canning, Sacred Heart PS, Belfast;  
 Reg. Rep.: Pete Young, Stroud PS, Belfast;  
 Secretary: Mavis McKeown, Kilmaine PS, Bangor;  
 Treasurer: Rosemary Irwin, Belvoir Park PS, Belfast.



## South East

Mary Rooney has recently taken over from Liz Evans as rep. for this region since Liz has accepted a headship. Liz represented us for three years and MAPE South East Group would like to thank her for the hard work she put in on our behalf and to wish her all the best in her new post.

Our recent Roadshow, entitled 'Adventures and Topic Work', held at Hadleigh Junior School on Monday 27 February, was one of our most successful events – thanks to the faithful few who always turn up to demonstrate software and discuss computing in the classroom. The Roadshow was well attended and the majority of those who 'dropped in' arrived at the start of the evening and remained right through until the end.

*Jane Sealy*

## West Midlands

*AGM + wine & cheese + 'activity' – 8 February*

As an AGM this was quite well attended with over 30 people present, enough to ensure a large committee, including now a representative from the private sector too. Roger Keeling instigated the most complicated and nail-biting computerised 'whodunnit' ever which, plus the free- (well, almost) flowing wine and cheese, meant a good time was had by all.

*Regional Conference – 'Better Writing in Schools' Saturday 11 March, Newman College*

This was the first major attempt to open out the scope of our MAPE activities with a focus on writing by 'non-computer specialists'. There were various presentations on 'Word Processing in the Infant Classroom', Using the Concept Keyboard, Progression in Writing, *Front Page Special*, *Caxton*, *Minnie*, DTP' and so on, plus a 'help' room. But the two main speakers, Ann Davies, a local advisory teacher and chairperson of the Birmingham National Writing Project, and Dave Reeves, a local 'professional poet', were both extremely interesting and extremely instructive. The informal verdict of some of the 200 participants was highly favourable, quite a few adding 'That was the best MAPE DAY yet'!

This term's events are:

*MAPE Surgery* – Saturday a.m. 20 May, Newman College. A sort of 'open-house' for anyone to pop in, have a coffee, and sort out any nagging problems.

*IT in the National Curriculum* – Saturday a.m. 17 June, Newman College. A variation in format again, with three short lectures (on one LEA's approach, one primary headteacher's approach to the NC and a report on the Design and Technology Working Group document followed by a plenary session. Further details will be circulated to schools.

If you want further information or have any ideas for future meetings or indeed any criticisms, please let us know. We will respond to your needs!

*Barry Wake*

## Southern

The region held its first AGM in Winchester on Saturday 22 April. Anita Straker addressed the meeting and talked about the place of IT in the Maths National Curriculum. About 50 members attended and every education authority was represented, even the Channel Islands thanks to Paul Strother from Guernsey.

A constitution was formally accepted and a regional committee formally endorsed by the meeting.

Peter Aitchison is the new Regional Representative for the region and the new Regional Committee is:

Chairman/Treasurer: Dave Kitching, Isle of Wight;  
Deputy Reg. Rep.: John Bennett, Dorset;  
Secretary: Linda Cahill, Isle of Wight;  
Committee members: Chris Robson & Mark Gunn, Berkshire; Newton Coen & Lynda Woods, West Sussex; Victor Lane, Guernsey; Paul Savage, Jersey.

The Committee are enthusiastic and keen to promote MAPE in the region and will circulate dates and venues as soon as possible.

*Dates fixed so far:*

Dorset – 10 June, Wimborne Teachers' Centre:

10 a.m.–1.00 p.m. – 'Computers and Special Needs'.

Regional Committee meetings – 20 May and 30 September.

A one-day Regional Conference is planned for next year.

Thanks to all for your support over the years. I hope you will give Peter, your new regional rep., the same support and encouragement.

*Dave Kitching*

## Great Western

Somerset Section held a very successful weekend mini-conference in an Okehampton Hotel. The theme of the conference was 'Continuity and Progression' and welcome sponsorship came from British Telecom. A full report follows.

Avon Section have held several workshop sessions on various themes and are now keen to recruit more committee members. Please contact me or Ann Keenan at the Avon IT Centre.

Gloucestershire Section continue to have low attendance for Saturday events, even for our 'biggie' Software Day. After-school meetings are still well attended and we intend to hold events in other areas. If you want to offer a venue please contact me.

Wiltshire Section held their first-ever session on Saturday 29th April and suffered from a low turnout. The organisers will need encouragement from members and more committee members if they are to stage similar events. Please contact Ann Davis at County Hall, or me, with your offers of help.

Over the region as a whole, your local committees would welcome either support for the events organised, or some communication from you indicating the type of events you will support. I am quite happy to act as a central agency for your letters.

*Reg Eyre*

## Somerset

The Somerset branch of South West MAPE, with the help of some funding from British Telecom, held a very successful weekend of lectures and workshops at the Manor House Hotel in Devon last term. The aim of the weekend was to provide a venue for teachers (cross phase) to find out about or extend their use of the computer for a variety of purposes, in a relaxed but stimulating, supportive atmosphere. Workshops included Writing, Infants, Maths (Logo and Numerator), Science (Data Handling and Adventure Games), Special Needs, Lego and Logo, SEQ, Art and Music.

MAPE, MESU and British Telecom provided stands to



allow people to browse through their publications and software. Domesday was available for people to dabble, and there was an exhibition of artwork done on the Amiga.

Speakers included Tina Preston, who talked about British Telecom's involvement in educational computing and Roz Sutherland who spoke of her extensive research with children using Logo.

Around 70 teachers attended the weekend, mainly from Somerset and Devon. There were representatives from Opportunity Playgroups to Comprehensives. Most people brought along their own computers, so there was plenty of scope for 'hands on'. There was lots to choose from and the chance to drift in and out of sessions to see what others were getting up to... like getting to grips with DTP and digitising, making and testing models with Logo, putting SEQ through its paces, being scientific and entering the results on a database, playing around with Infant programs and making concept keyboard overlays, playing turtle, finding out all about IT and special needs, making pictures with an Amiga and a mouse, number functioning with *Numerator*, creating music with *Hybrid*.

From the number of requests for more of the same, as people left, we judged it to have been a success, but maybe they had been influenced by the food! Their enthusiasm during the weekend made all the effort of organising feel very worthwhile.

We would like to take this opportunity of thanking British Telecom for their generous support, Somerset and Devon LEAs, Logotron, Clark's, Hybrid and Cow & Gate, but especially all the speakers and workshop leaders who gave so generously of their time.

### East Midlands

Hi, folks!

On a bright sunny day in April, the MAPE roadshow was again in operation. Over thirty people had an enjoyable day at Earlesfield School in Grantham.

Two themes, one on Newspapers and the other on Creativity were running as well as shorter sessions on a variety of topics. For some strange, inexplicable reason the most popular session did not involve a single computer!! It was, however, very topical at this present time. You've probably already guessed that it was concerned with the National Curriculum and IT.

Participants expressed a desire for a roadshow in the Grimsby area. If there are members in that area, or any other, who would like to host a day, please get in contact with me (Barbara Moore, 17 Highcroft, Mapperley, Nottingham NG3 5LP) and I'll see what can be arranged.

I feel that I must apologise for the absence of a MAPE roadshow in Notts during the Spring term. Although one was planned, it had to be postponed due to circumstances beyond our control. You will no doubt be pleased to know that 7 October is now the date and it will be held at College House Junior School, Chilwell, Nottingham. Details including booking slips for places will be circulated to schools at the start of the Autumn term. *Please put the date in your diary now.*

Another important set of dates for your diary is:

6, 7 and 8 April

If you haven't heard...

### MAPE CONFERENCE 1990 is at NOTTINGHAM UNIVERSITY

so mark it in your diary now. Further details will be forthcoming in *MICRO-SCOPE* or are available from College House Junior School, Cator Lane, Chilwell, Nottingham.

As East Midlands MAPE is hosting the conference, there will not be any roadshows in the Spring or Summer Terms 1990. However, do watch out for any local events in your area.

I hope to see many of you at the University in April, if not before.

Barbara Moore



## MAPE National Committee Members 1988

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#### LEAs

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#### Code 01

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#### LEAs

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#### Code 13

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# **ANNUAL CONFERENCE 1990**

## **Nottingham University**

***Friday April 6th–Sunday April 8th***

Conference 1990 is being hosted by the East Midlands Region. The Conference will be held at Nottingham University from Friday 6th April to Sunday 8th April 1990. The committee anticipates that some 250–275 places will be available. As in past years the conference will be a mixture of main speakers, themes and presentations. Representatives from the National Curriculum Council (NCC) and the Schools Examination and Assessment Council (SEAC) have been invited to deliver two of the main lectures.

The focus of the Conference will be IT within the National Curriculum. A range of themes will be offered covering the main areas as highlighted by the Design and Technology Working Party Report.

Conference 90 will be formally evaluated and a group from Nottinghamshire LEA have been commissioned to carry this out.

Because of the need for forward planning and the expected demand for places it has been decided to introduce a scheme whereby delegates can book an early place with a non-returnable deposit of £10.00. A cheque for the balance, post-dated to March 31st 1990, will also be required. The cost of the Conference will be as follows:

Residential	MAPE members	£70.00
Residential	Non members	£80.00
Non-residential	MAPE members	£50.00
Non-residential	Non members	£60.00
Saturday only	MAPE members	£25.00
Saturday only	Non members	£30.00

Further details and a booking form will be sent to all delegates to the '89 Conference during the early part of the Autumn term, and will also be included in the Autumn term edition of *MICRO-SCOPE*.