MICRO-SCOPE

Information Handling Special

- Making sense of information
- Getting the most from census data
- Our day today
- 'Ourselves' – information handling in KS1
- The tyranny of the technological imperative
- E-mail and the Internet

NEWMAN COLLEGE with MAPE

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Information Handling Special

Editorial

The case studies in this *MICRO-SCOPE Special* have been selected to show the range of different activities which fall under the general description of information handling. Some of the work has been done with very young children with little experience of working with data and some with older pupils who are sophisticated users of modern technology with well-developed information handling skills. Some of the activities are projects which lasted for a whole term, others were completed in an afternoon. The IT used includes CD-Roms, spreadsheets and the Internet, as well as database programs – and some of the work described makes hardly any use of IT at all.

My lead article (Making Sense of Information) sets the scene by looking at the nature of higher order information handling skills and considering how these may be developed. In a number of the examples in the article, the role of IT is minimal. The focus is on the development of thinking skills which children may use both at the computer and away from it.

Eunice Seaman describes a typical Key Stage 1 programme of work on the topic of Ourselves. Her contribution is particularly interesting because she has been reflective about the activity in a way which shows that she has seen it as an opportunity to develop her own practice as well as the skills and understanding of the pupils. The main focus of the work is looking at similarities and differences and it is this type of analysis which is at the heart of all information handling. The article also considers differentiation within the class, describing how some children are able to go further than others in their use of graphs or other strategies for querying their data. Finally, by analysing the progress made by all the children, Eunice is able to make plans to move forward with a new project in the coming term.

Other classroom-based case studies are reported in the articles on Teddies and Baskets from Moira Rose and Susan Fox and Helen Armstrong, all teachers lucky enough to work in schools in the Lake District. 'Teddies' shows how one school made a start on information handling work and in the 'Baskets' activity, IT is integrated into a wide ranging project which addresses many areas of the curriculum. The use of graphs as tools for a purpose, as opposed to simply presentational devices, is a particularly interesting feature of this work.

When using more complex and extensive collections of data, the key issue is asking the right sort of questions. In her article on census work, Rhona Dick offers more than 50 questions to ask about census data and lots of hypotheses to test. Although her article is based on the Greenfield Road Census Data (available to all MAPE members on disc – see the box at the end of the article) most of the questions and activities could easily be adapted to your local census records.

Census records have been used in schools for quite some years now but CDs are still relatively new. The amount of data they can contain is quite awesome but they are often used in a rather disappointing way as little more than animated picture books. Harriet Martin analyses some of the skills that children need to use information sources (including CDs) effectively.

And what of the very latest system for sharing information, the Internet. A group of articles in the centre of the magazine looks at this newest technology, with an introduction by Rosey Andrassy, Trevor Owers extolling the virtues of the superhighway and Bob Fox taking a more cynical view. Finally, in this section, Phil Redman describes a superb project involving sixty-six schools from around the world sharing information about their school day. This exciting piece of work must surely convert even the most hardened sceptic to the possibilities of Internet communication.

The pull-out section includes two activities for infants which make almost no use of IT (Shopping and Families Game) and two activities for juniors which use a database and a CD-Rom (School and Mammals' Faces). The KS1 activities prepare the ground for later information handling work by developing sorting and classifying skills in the context of a class topic or table-top game. The CD-Rom activity is that described in the lead article – asking children to link form and function in animals and Bob Fox's activity 'School' provides a number of ideas for using the SCHOOL database. This file and the Greenfield Road Census Data File (see Rhona Dick's article on page 9) are available on disc from MAPE free of charge. Simply contact Yvonne Peers at Newman College and let her know the type of computer and the name of the data-handling package you wish to use and we will send you the appropriate files.

We hope that you will enjoy this *MICRO-SCOPE Special* and would, as always, welcome your comments. Please send any reflections/contributions either to me at the address below or by e-mail to individual authors who are on-line and whose addresses are given at the tops of their articles.

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Making sense of information

Heather Govier (hgovier@rmplc.co.uk)

Imagine a typical, Year 2 or Year 3 class undertaking a typical, science-based project on Minibeasts. How might IT be used to enhance this work?

Well perhaps there is still an old BBC computer in a corner of the classroom and from a dusty box on the lower shelf of the trolley, has come a disc labelled *Branch* or *Sortgame* or even *Animal*. A group of children is working with this to develop a branching tree which other children can use to identify any minibeast they find. The program asks the children to think of two minibeasts and to compose a question to distinguish between them. They start with a spider and a worm and the question 'Does it have legs?'. When these have been typed in the program presents the following dialogue.

Computer asks	*Children type*
Think of a minibeast.	
Does it have legs?	No
Is it a worm?	Yes

Now the children begin with a different minibeast – a snail.

Computer asks	*Children type*
Think of a minibeast.	
Does it have legs?	No
Is it a worm?	No
What is it then?	A snail
Write a question to distinguish between a worm and a snail	Does it have a shell?
OK I'll remember that.	

The database is thus built up, one creature at a time and each time a new minibeast is added, the children have to think about what features make it distinct from others in their collection.

But there is also a more modern computer in the classroom with a mouse to drive it and a much bigger memory. Another group of children is using this machine to construct a different type of database. Here the teacher has set up a file structure for them and the group is completing a record for a butterfly. They are working from a picture in a book because although Gary saw the butterfly in his garden yesterday he felt it would be kinder not to catch it!

Name of Minibeast	Butterfly
Colour	Yellow
Number of Legs	6
Number of wings	4
Where found	Garden
Length	3 cm

There is yet another computer available to that lucky class – the brand new CD-Rom machine in the school library. A third group have gone along to use the *Minibeasts* CD-Rom and are busy exploring it. They have found a movie of a scorpion and are watching it excitedly.

Here are three different uses of the computer, of increasing levels of sophistication in terms of the equipment required. But which of the three activities gets the children thinking the most? The CD-Rom users are really doing little more than browsing through a picture book, albeit one with moving pictures. The group with the photograph of a butterfly are being challenged a little more, as they are required to look carefully at their specimen to complete its record card. But those using the branching program are engaged in a dialogue which encourages them to think quite deeply about the significant features that can be used to distinguish between different creatures, and about how to formulate questions which can be answered either 'Yes' or 'No'. The simplest software is fostering the most sophisticated thinking.

The ability to identify important features and to spot similarities and differences is at the heart of all information handling. This is what can take children beyond simply collecting facts, to asking interesting and demanding questions about those facts and seeking meaningful explanations for their answers. When children use this simple program or any similar branching database, they are involved in an activity far more demanding than much typical CD-Rom work – one which develops higher order information handling skills which will serve pupils well in the wider curriculum and in life outside school.

So what are these higher order information handling skills?

The first steps in information handling involve collecting (or accessing) and storing information. This requires what we might term lower order skills – looking carefully, using an index or contents page to work efficiently with reference books, copying accurately, filling in computer records, writing pages

of text, learning the names of all the dinosaurs. When I was at primary school I did a project on birds. I started with a brand new exercise book – one of those that has a plain page alternating with a ruled one. On each plain page I drew a picture of a different bird, carefully copied from a textbook and on the adjacent ruled page I wrote about the bird under a number of category headings HAUNT, NEST, EGGS, FOOD, SONG. I was a careful, hard working and tidy little girl and my project was pretty and neat. I also learned quite a bit about birds as I did it. But I learned very little about information handling because the project made so few intellectual demands.

The higher order information handling skills could be listed as:

Decision making	Classifying
Questioning	Analysing
Explaining	Presenting

My bird project involved only the last of these. Yes, I was presenting my findings, but little thought had gone into the form of that presentation and the media at my disposal placed very severe constraints on the possibilities.

One way of looking at these higher order skills is to think of information handling as a process which can be represented by the loop shown in Fig. 1. The National Council for Educational Technology has developed a pack of materials to support teachers working on the information handling skills of their pupils. The pack explores this process loop and presents suggestions and case studies to show how higher order information handling skills, such as decision making, classifying, questioning, analysis and explanation, may be developed across the whole curriculum of the primary school (see full reference at the end of this article).

The Starting Point must be determined by the teacher, based on her understanding of what the children can already do, what they already know and how ready they are for development. It involves selecting a programme of work appropriate to the pupils' existing skills, knowledge and experience. While older pupils may, themselves, have a contribution to make by identifying their own strengths and weaknesses, most children of primary age will need to be guided by the teacher at this stage of the process.

At the Engagement Stage children are required to use and develop decision making skills. They need to decide on the purpose of their enquiry, and what data, from which sources, will be useful to them. For example, a Year 6 class were studying diet as part of their KS2 science and the school's programme of health education. Their teacher suggested that they should find out what each member of the class ate in order to ascertain whether they were all eating a healthy diet. But it was left to the children to decide what aspects of the diet to look at (the whole diet or just sugar consumption, for example), how to collect the information they needed and how to store it in such a way that they could find the answer to the teacher's general question or to specific questions of their own, for example, was the girls' diet healthier than the boys'?

They decided to look at the whole diet (in retrospect this was rather over-ambitious). They devised a chart to help them classify each food item as carbohydrate, protein etc. They drew up a data collection sheet and set up a file using the *Key* database in a form that would allow them to sort, search and draw graphs from the data.

With a younger class, many of these decisions at the Engagement Stage would be taken by the teacher (see for example, Eunice Seaman's work in this *MICRO-SCOPE*), but any IT scheme of work should plan for the development of independent enquiry so that pupils at the top of the school have the skills to enable them to make their own decisions about purpose, about what data to collect and about how best to collect it.

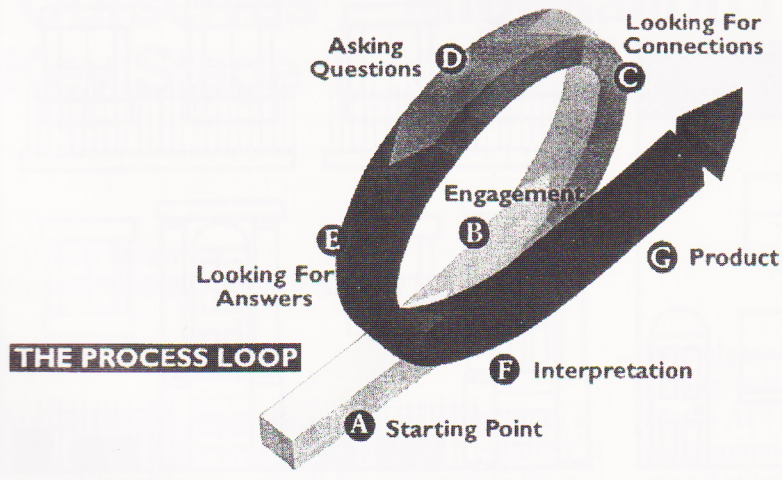


Fig. 1. *The Process Loop for information handling.*

It is at the next stage, Looking for Connections, that the real power of the computer can be seen. This is well illustrated by a piece of work carried out many years ago in the early days of primary school computing, by Alistair Ross and his Year 5 class. (For those long-term members of MAPE who are also hoarders, an introduction to this study may be found on page 10 of *MICRO-SCOPE 6*!) The class was studying local history through the use of census data. This is a fairly commonplace activity today, but in 1982, Alistair

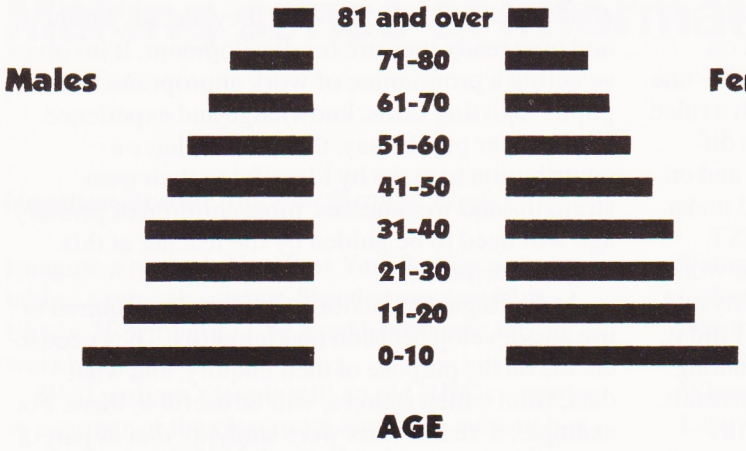


Fig. 2. *An age pyramid.*

and his class were trailblazers. The census data for the streets surrounding their inner city school had been obtained from the local library and the class entered all of the data into a primitive data handling program which nonetheless had the power to sort and search the data and to represent it in simple graphical formats. One such format was an age pyramid, a graph showing the distribution of males and females in each ten year age bracket (see Fig. 2). This usually has a smooth and balanced profile when it is drawn using a large population but with a smaller population the graph may show interesting blips. Age pyramids for several of the streets around the school were drawn and a strange anomaly was spotted. Some of the streets seemed to have too many teenage girls while other streets had too few. Because this was a local study the children were able to go out to look at the streets in question – and to discover that the houses in the streets with too few teenage girls looked like house A (Fig. 3), while those with too many looked like house B (Fig. 4). At that time the television series 'Upstairs, Downstairs' was popular and some of the children suddenly understood why their graphs looked the way they did. The work triggered an investigation into what life was like 'in service' enabling the children to understand a little more about Victorian times.

The age pyramid was just one of the many ways in which those children were able to use the computer to present their data. Many of the graphs and charts were less fruitful but the ability to represent the data in many different ways at the touch of a button allowed the class to explore the census records in far more detail than would have been possible without the help of IT.

This work also clearly demonstrates the next two phases of the loop, Asking Questions and Looking for Answers. The anomalous age pyramid provoked the children to ask why the teenage girls were distributed in this way and they looked for answers by visiting the streets in question. The key, at this stage of the process loop, is asking good questions which challenge children's thinking. Devising such questions many require teachers to do a lot of hard thinking too!

Much of the CD-Rom work currently seen in schools fails to challenge because it does not

Fig. 3. *House A.*

Fig. 4. *House B.*

require children to think analytically. By contrast, a Year 4 class set out to learn something about mammals with the aid of a CD-Rom on the subject. They began with free exploration of the disc, looking at the classificatory systems and searching out their favourite animals. Then their teacher asked a challenging question – what can you learn about a mammal by looking at its face? The most obvious relationships were quickly spotted. The teeth indicate diet; the length of nose shows the power and importance of the sense of smell; the position and manoeuvrability of the ears tells us about hearing. But what about the eyes? What can be learned by looking at a mammal's eyes – in particular the position of the eyes on the face?

Children started by exploring, looking at just one or two examples of forward and side facing eyes. The cheetah's eyes point forwards and the cheetah is famous for being the fastest animal in the world. Perhaps animals with forward facing eyes are fast and those with side facing eyes are slow? But then, of course, there are horses and deer which can run almost as fast as the cheetah. They have to, in order to run away from their predators. Perhaps that is the answer! The hunters have eyes at the front and the hunted have eyes at the side.

Even before they had looked at lots of examples to test this hypothesis, some of the children were postulating an explanation (the Interpretation Stage of the loop). The animals that could get eaten, need side facing eyes so that they can keep a good look out all around. The explanation for the eye position of the predators seemed less straightforward but a few experiments on binocular vision, in particular the difficulty of judging distances or seeing stereoscopic pictures with only one eye open, gave the vital clue. Several video clips on the CD-Rom showed predators making a kill, and the importance of being able to gauge distance with pinpoint accuracy could be clearly seen.

The Product of good information handling work may take three forms. There will be new knowledge – about minibeasts, about diet, about Victorian life or about animal physiology. There should be a development of IT capability and independent use of the computer. There may be a deeper engagement with learning such that the children want to go on to find out more. A class of children who had been looking at local weather patterns, for example, ended their project by wondering how their weather differed from that in other parts of the British Isles and the wider world. Here the Product of one investigation became the Starting Point of the next with a second process loop developing from the first.

Any model of teaching or learning is only valuable in so far as it supports educational practice. The purpose of the process loop is to help us analyse what is happening when children handle information and, in particular, to focus on the core elements of the loop Asking Questions, Looking for Answers and Interpretation. Any information handling activity should provide scope for questions which get children thinking and challenge them to seek for meaning in their data. All children need to be able to handle information skilfully and to process it intelligently. They need these skills now, while they are children, to help develop their naturally inquiring minds, and they will need them in the future, when they are grown up, in their work and in their leisure activities. Computers, information handling activities and, most of all, teachers, can foster these essential skills.

Reference

Making Sense of Information, NCET (National Council for Educational Technology) 1995, ISBN 1-85379-319-1

'Ourselves' – information handling in Key Stage 1

Eunice Seaman
Edenfield C.E. Primary School, Lancashire

Introduction

My aim was to introduce a database program to a class of vertically grouped Year 1 and 2 children. It was intended to be a vehicle for science investigation concentrating on AT1 (Experimental and Investigative Science) and AT2 (Life Processes and Living Things). In addition to this it was hoped that Maths AT4 (Handling Data) would be covered and the Communicating and Handling Information strand of Information Technology.

My class (class 2) has seven Year 2 children and

20 Year 1 children. They have, over the year, had a lot of experience with the computer but they have not experienced or even seen a data file program being used. We have a Nimbus 186 computer and printer permanently in the classroom.

Planning

The topic for the term was 'Ourselves'. This is largely a science-based topic with emphasis on similarities and differences. It was intended that the information handling work should be used to explore these ideas, to encourage the children to be aware of the many ways in which people can be different and to approach sorting and questioning in a more scientific way.

Because the class had no experience with a database program, I chose to use *OurFacts* as it is relatively simple to enter and access information. I also decided that all computer work would be carried out in pairs (carefully selected so that no one would struggle), sometimes using the cascade system described below.

What we did

To start the topic the class was asked to fill in a prepared sheet about themselves. This was introduced to the class as a whole and we filled in my details on a big sheet so that they knew what to do. The children were then put in pairs and asked to fill in the sheets. I had prepared prompt cards to help with spelling and colour identification (we had talked about this previously). The weighing and measuring were more difficult to complete than I had envisaged. The majority of the Year 1 children had not yet used standard units for weighing and measuring and had a lot of difficulty producing accurate results (I had one entry of 55 kg!). I had a very quick rethink and organised a group of five Year 2 children (who can use standard units) to take over the weighing and measuring and enter the numbers correctly on the

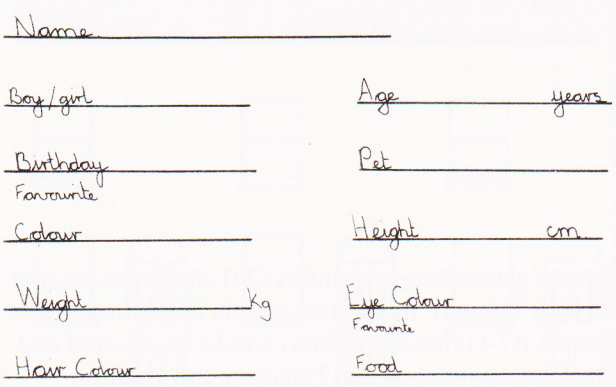


Fig. 1. *Data collection sheet.*

sheets. This worked smoothly and in no time at all we had completed the sheets. I collected them in and corrected spelling mistakes so that the sheets were ready to copy on to the data file.

In groups of five or six, I showed the children how to enter the information on the data file, which I had prepared in advance. I explained the need for accuracy, particularly in spelling, and I also explained why we couldn't write November (and other too long words) and talked to all of the children about their sheets so that I could highlight any words that might cause problems. One child then entered her details with me with the rest of the group there watching. Once this was completed number 1 child helped number 2 and then number 2 helped number 3 and so on until all of the group had entered their details. The above process was repeated with the remaining four groups.

Except for the odd hiccup, all of the above was completed quickly and with reasonable accuracy. The children had no difficulty using the program but spelling was the major problem experienced. When all the children had entered their details I checked every entry and made a few spelling corrections. Children are not expected to be able to edit data files until Key Stage 2 so this strategy seemed appropriate. I also did this because I wanted the emphasis to be on using the data file and I felt that enthusiasm and interest might wane if we all had to mess about with corrections before we could use the program. I did explain to the children that I had made some alterations and showed them how, but for the sake of speed I did the work.

In groups the children were shown how to retrieve their own file and print it. I made a prompt card which the children could refer to if necessary. Then one child retrieved and printed her details whilst the rest of the group and I watched. Then child 1 helped child 2, child 2 helped child 3 etc. until all of the group had completed the task. This method was repeated with the other four groups and was completed very quickly. All children were able to retrieve their own information. A few relied heavily on the prompt card and their partner but no one needed me to help after the initial introduction.

The children were then asked to print out their own details and those of a friend. I provided a class list so that there would be no spelling problems. The children were allowed to use the prompt card and again worked in pairs although most children could complete this task on their own and the partner was not really needed. We had a few problems with spelling and this emphasised the need for accuracy because the screen message '**No such CHILD in File**' usually indicated a spelling mistake!

Once the details had been printed the children were asked to look at both sets of details and see if

anything was the same and anything different. Each child then talked to the rest of the class about the similarities and differences. This was great fun and the children enjoyed talking about themselves and their friends. It also encouraged them to be specific about similarities and differences. This activity took place over several days, as it obviously took a lot of time and would have been too much for one session. All the children were able to contribute and even children who do not normally like to think for themselves were able to talk about something!

In groups we looked at the other options available such as graphs, questions, etc. The children were encouraged to play with the options (again in pairs). After a short while I joined the children working at the keyboard and asked them about the information they were able to access. Only two groups of children really understood what was happening. With the other groups I asked questions such as 'How many boys?'. They were not able to find the answers on their own (unless by accident) and when I produced the graphs they had difficulty understanding what they represented particularly when more than two columns were involved and letters were used to represent a category. They just couldn't grasp that a letter stood for an animal, for example.

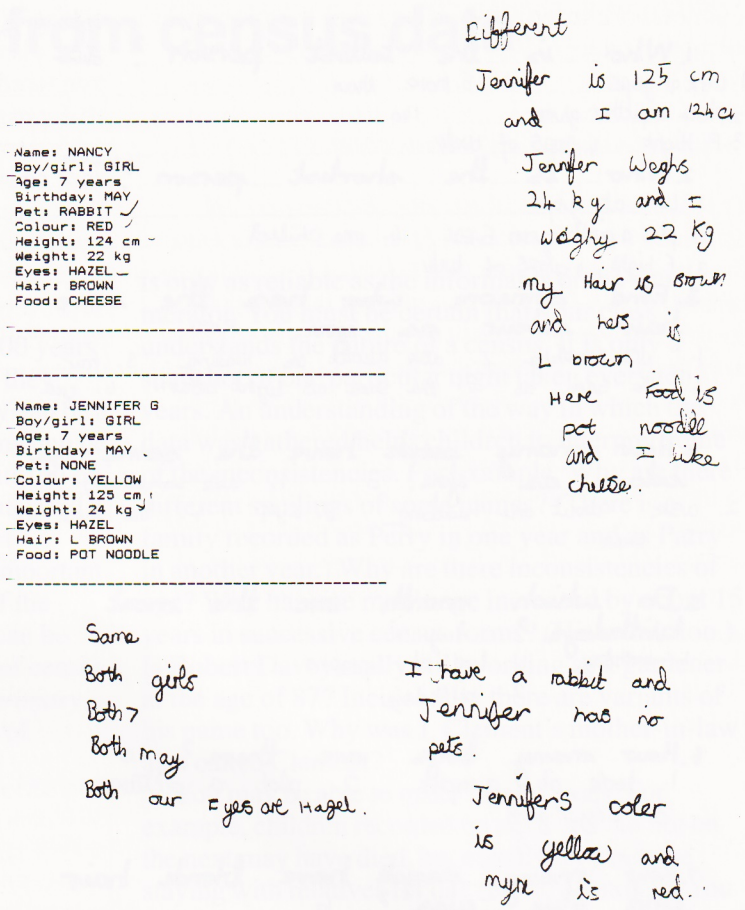


Fig. 2. *Similarities and differences between friends.*

Differentiation

Only two groups continued with the next activity because the others were not confident with the thought processes required. These groups were asked to find the answers to specific questions and I asked them to write down whether they found the answers using questions, graphs or both.

The children greatly enjoyed this and treated it like a competition. They were able to use their initiative and, although not always following the quickest route, got there in the end. When this was completed we talked in our groups about how they had got their answers. It was interesting that when different routes were taken to find an answer the children were able to compare the methods. There were several shouts of 'Next time I'll use the graphs . . . etc.' as they realised that their route was perhaps not the quickest. The children then printed out graphs of the categories and wrote a short analysis of each one. They presented their findings to the rest of the class and we put all of the information together under the heading of Class Facts.

Conclusions

All of the children are much more confident with the computer and this was obvious in the way they tackled this new work.

The majority of children were able to use the *OurFacts* program at a simple level to print out their own and other children's personal details. They were all able to pick out similarities and differences when comparing themselves to a friend and this was very encouraging as we had done a similar exercise

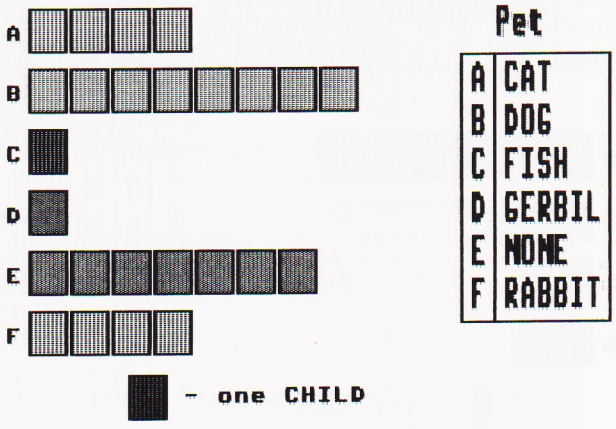


Fig. 3. *Typical block graph.*

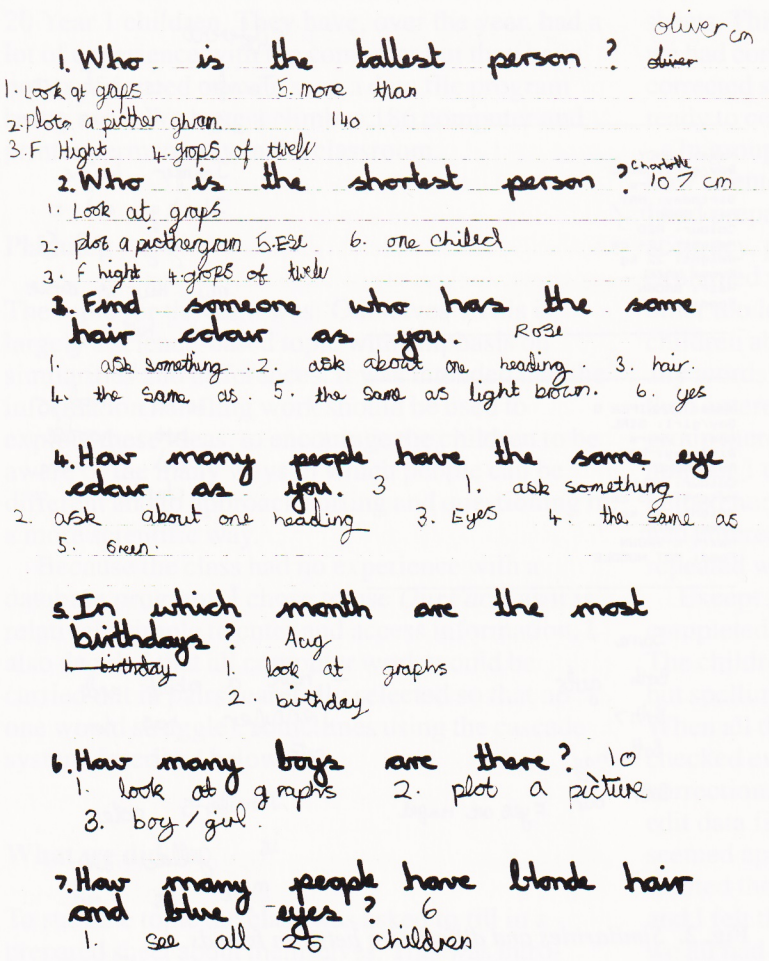


Fig. 4. *Answering questions.*

(comparing two people) before starting the computer work and many of the children had great difficulty identifying similarities and differences. The printed sheet certainly helped them to focus their ideas and the whole class could confirm their statements by simply looking at the two people involved. This was a very worthwhile activity; some very uncertain children grew before my eyes as they talked about themselves and their friend very confidently.

The Level Description for Information Technology Capability at Level 2 states that children should be able to, 'retrieve and store work' and 'use IT to sort and classify information and present their findings'. The children were demonstrating this level of capability although further work using the graphing, sort and search facilities would be necessary to be fully satisfied that the children were entirely confident at this Level. As most of the children involved were Year 1, good progress was made towards achieving a high standard of IT Capability in Key Stage 1.

Only a few children were ready to move on to more challenging work and they completed this very successfully. The rest of the class clearly need a lot more hands-on experience. Perhaps regrouping with a more able child might, in some instances, enable some children to explore the *OurFacts* type of work more fully. I think that the children who had difficulty using the other options were just not ready and need a lot more experience with other data handling work before they will be able to use this type of program more effectively.

I feel that the science aspects of the topic were not fully exploited because the technology and maths aspects took over. Apart from the work on similarities and differences and the final 'Class Facts' work, we were more involved with other curricular areas rather than science. As this was the first time we had used a data file, learning how to use the program obviously had a higher profile than it would with future data file work. Because of this, I intend to use the *OurFacts* program again this term for a mini-beast topic we are doing. Hopefully this time the emphasis can be on science.

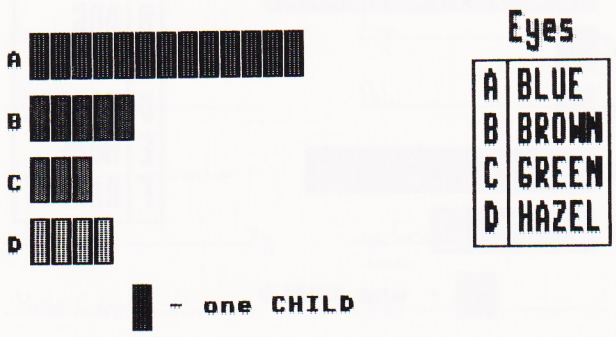
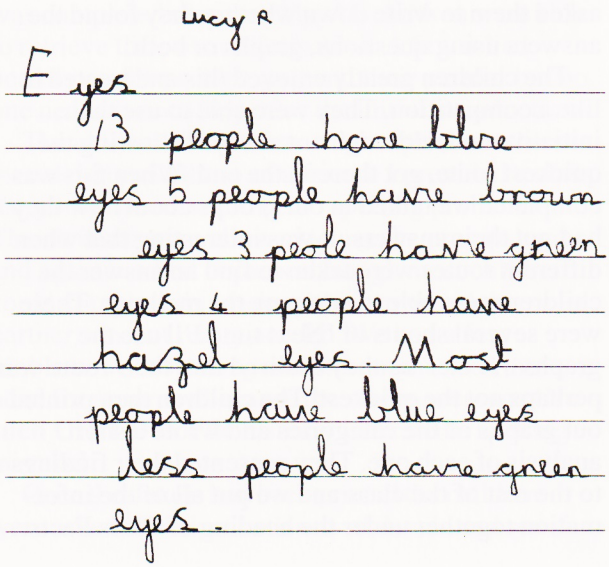


Fig 5 (a and b). *Interpreting a graph.*



Getting the most from census data

Rhona Dick

Databases and history

Copies of census return forms more than 100 years old are available, usually in libraries. While they make fascinating reading for historians they can be a real turn off for children. The spidery writing can be almost indecipherable, and time also takes its toll on the legibility of the forms (Fig. 1). A computerised database can help, but there is no doubt that constructing it is very time consuming. It is important to be clear at the outset about the purpose of the census work and the type of questions that can be asked of the data. Lez Smart details his use of census material in *Computer data handling in the primary school*. He particularly recommends the use of contemporary maps.

What might you hope to find?

Census forms are a great source of information, but you must remember that the information contained is only as reliable as the informants or the enumerator. You must be certain that your class understands the nature of a census. It is only a snapshot of one particular night taken every ten years. An understanding of the way in which the data was gathered helps children to interpret some of the inconsistencies. For example: Why are there different spellings of some names? (There is a family recorded as Perry in one year and as Parry in another year.) Why are there inconsistencies of age? Why has one man's age increased by about 15 years in successive census forms? (His wife's too.) Is Robert Davey really still working as a gardener at the age of 87? Incidentally there are variants of his name too. Why was J. Clement's mother-in-law also called Clement?

You may be able to make suppositions. For example, children recorded on one form but not on the next may have died, but equally they may be staying with relatives for one reason or another. You must also bear in mind that values have changed, and what is quite acceptable now may have been very

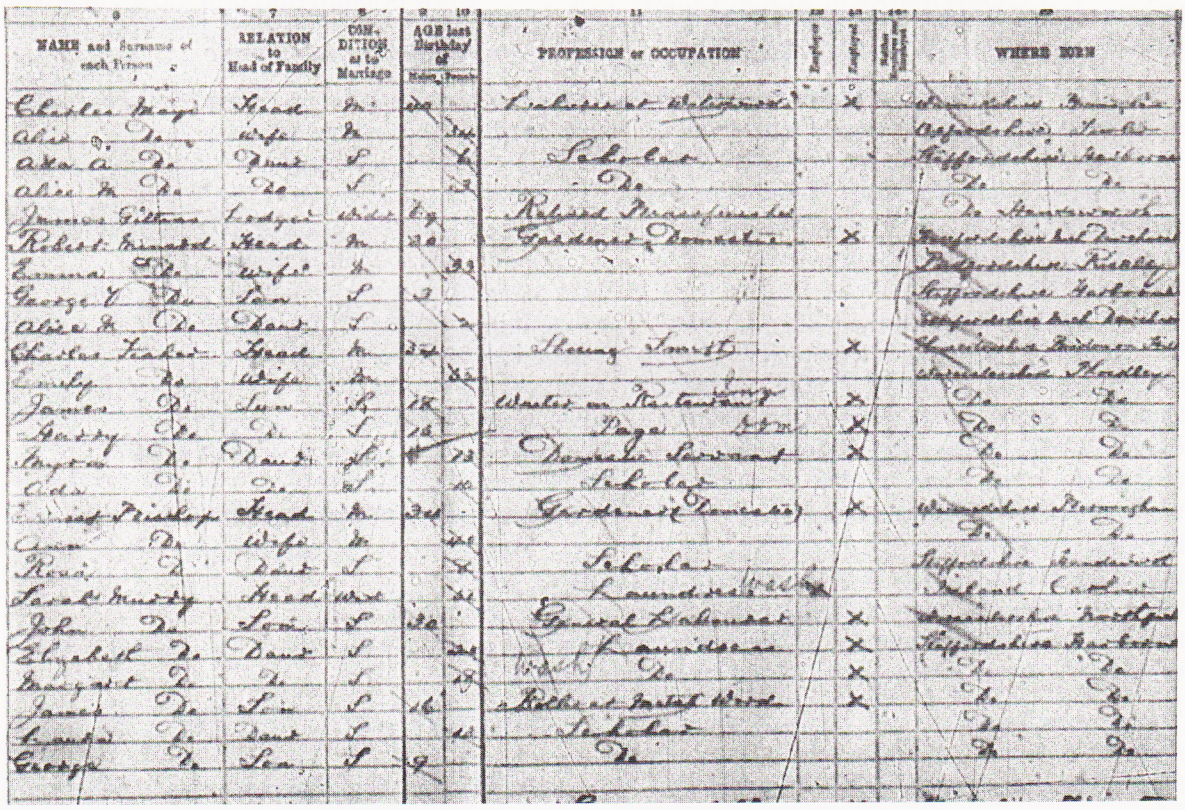


Fig. 1. *An original census form.*

shameful one hundred years ago, and for this reason informants may have lied to the enumerator.

Some activities using census data

This article presents some sets of questions and activities which have been developed for use with the Greenfield Road Census File (for availability see box on page 12). However, most of the questions and activities could easily be adapted to any census data. You may find that not all of these searches will be valid, depending upon the piece of software available to you. There are about 850 records on the Greenfield Road data file, and so you may wish to subdivide it into several smaller files, to concentrate only on specific dates, for example. It will certainly be beneficial to have a printout of the data; many interesting facts, or relationships come to light only when seen in conjunction with others which may not be highlighted by computer searches. After all a computer does not say 'I wonder why . . . ?' or 'I wonder if . . . ?' The computer provides you with statistical data, but history is more than that. Look at copies of the original forms if you can. Try to imagine the reality of the scene.

It is also worth considering what questions cannot be answered with ease. (What is the commonest name? Who was born abroad? to name but two.) Is there a way that the database could have been structured to allow for questions such as these? This does highlight the need to know the information you are looking for before you set up the database.

The activities in the box fall broadly into two categories, those which are principally IT based and those which, in addition, support history teaching.

Simple sort activities

Who is the oldest person?
Who is the youngest person?
Which household has the most people in it?
Whose name would come last in alphabetical order?

Simple search activities

Is your first name on the census returns?
How many people were called Bramich?
Where was the school?
Who was the farmer?
Who worked with stone?
Which houses were empty?
How many clerical workers were there?
How many people were lodging in G. Road?
Who had grandchildren sharing their house?
What about your surname?
Who lived alone?
How many people worked with metal?
Who was the screw nicker?
Who lit lamps?
How many professionals were there?
How old were the governesses?
How many people were visiting G. Road?
How many servants were nurses?

More complex tasks involving searching and/or sorting two or more fields

How many adult (over 21) males were there?
How many females lived in G. Road in 1871?
How many children lived in G. Road in 1851?
How many girls were there in 1861?
How many agricultural workers in 1861?
How many servants in each census?
How many agricultural workers were women?
Which man in trade was 36 years old?
Who was the youngest person born in Scotland?
How many professionals were born in Staffs?
Occupation of the youngest working female?
Occupation of the oldest working female?
Were there any female professionals?
How many adult women were there ?
Which was the largest household in 1871?
How many boys were there in 1881?
How many babies (<1 year) were there in 1871?
How many clerical/office workers in 1881?
How many agricultural workers in each census?
What were the occupations of skilled female workers?
Where was the oldest employee born?
What were the occupations of female manual workers?
How many males were born in London?
Occupation of the youngest working male?
Were there any male teachers?
Who had a parent living with them?
How many people who were not working and were not scholars had an 'occupation'?
Which agricultural worker was born in Northfield in about 1867 ?
What was the occupation of the man called William born in Worcester?
How many of the people on the 1841 census were born in the 18th Century?
Which servant lived in Greenfield Road for more than ten years?

The following searches may throw up points worthy of discussion which cast more light on life in Victorian times.

How many women were heads of households?
Who was the youngest servant born in Harborne?
How many of these women were married?
How many adult males were not in work?

Using data to support hypotheses

The information contained in data files can help formulate, support or refute hypotheses. A word of warning, however, do not try to read too much into the data available here. There are not enough records to be statistically significant, although the evidence may suggest trends, or support information from other sources.

These statements should provide plenty of scope for discussion!

Which of the following statements may be true (based on the evidence in the files)?

Women live longer than men.
Married men live longer than single men.
There were no one parent families in Victorian times.
There was no official retirement age in Victorian times.
Families were larger in Victorian times.
Children left school at a younger age in Victorian times.
Population grew rapidly in the second half of the century.
There was street lighting in the last century.
The West Midlands became increasingly industrialised during the last century.
Jewellery work and gun making were important industries in Birmingham.
More families had servants in Victorian Harborne than now.
Richer families lived in higher numbered properties in Greenfield Road in 1881.
More people moved to Harborne from other parts of the country towards the end of the century.
(Use a map of Britain to plot the birthplaces of the inhabitants of Greenfield Road).
Benjamin Rose was married twice and died in the 1860s.
Alfred Johnstone was married twice.
The Dawkins, Coleman and Reece families moved frequently.

Detective Work

Turn your children into detectives by setting up a spurious company – in this case Greenfield Genealogists – a company which aims to supply information about inhabitants of Greenfield Road in answer to requests (Fig. 2).

The Rose Society
London

Dear Greenfield Genealogists,

We are nothing to do with flowers! Our task is to locate as many people who share our name as possible. Please could you search your database and send me all the details you have about people named Rose. If you could send me a family tree, and include dates of birth, and possible dates of death that would be very helpful.

Yours faithfully
for the Rose Society

Sheila S Rose

45 Norfolk House
Norfolk Road
Norwich

Dear Sirs,

I am trying to find some information about an ancestor whose name may have been David. I do know that he was a groom and did definitely live in Greenfield Road in Victorian times.

Please can you help?

Yours,

David Masters

163 Porter Avenue
Middleton
Yorks

Dear Greenfield Genealogists,

I am researching the history of nail making in the West Midlands. I believe that a lot of nail makers used to live in Harborne. Can you tell me if any of them lived in Greenfield Road?

Yours faithfully

Michael Thompson

Fig. 2. *Letters to the Greenfield Genealogists.*

Another idea would be to produce record cards with some parts obliterated. Ask your children to create new record cards filling in the missing gaps from the information on the database.

Figure 3 gives a few ideas to get you started.

Reference

Smart Lez : Databases, History and Young Historians in J Lodge Computer Data Handling in the Primary School David Fulton Publishers Ltd. 1992

DATA FILES ON DISC – FREE TO MAPE MEMBERS

The School Database used in the activities suggested by Bob Fox (see pull-out section) and the Greenfield Road Census Data File are available on disc, from MAPE, **free of charge**.

Simply contact Yvonne Peers at Newman College and let her know the type of computer and the name of the data handling package you wish to use and we will send you the appropriate files.

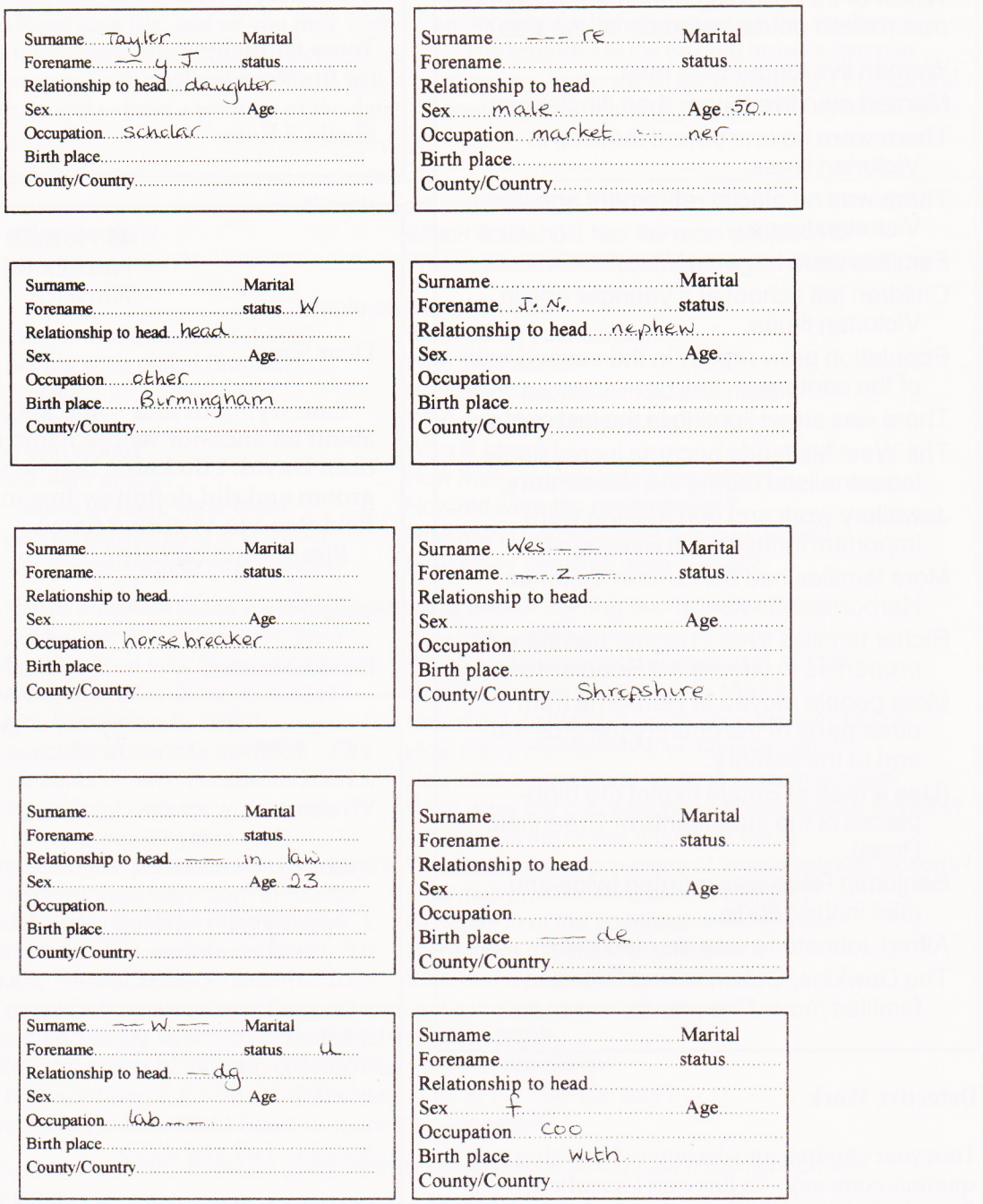


Fig. 3. *Partially completed record cards.*

The Internet and primary education

Rosey Andrassy
Class Teacher, Glebe Junior School, Derbyshire

During the nineteenth century, the industrial revolution brought about some of the most significant economic and social changes in history as a result of new scientific knowledge methods and techniques. Equally, the twentieth century 'high-tech' world owes its existence to the information technology revolution which began with the development of the computer. Computers have opened a new era in technology at home, in business and in schools, by making a wide variety of information available, through the storing and handling of data and by enhancing modern communication systems. The development of local and wider area networks, using telecommunications to link computers, has made it possible to communicate and exchange information electronically. The most recent development in computer networking is the Internet. The Internet, the world's largest computer network, uses satellite, cable and other telecommunications to connect thousands of other independent networks, linking computers globally to the 'information superhighway'.

The Internet connects computers to thousands of organisations, including universities, research centres, museums and libraries, through the World Wide Web (WWW). The WWW allows the user to visit sites around the world, accessing vast amounts of free information, for example, journals, maps, weather details and science research, in the form of pictures, text and video files which can be loaded and stored on the computer for personal use. Electronic mail, or e-mail, is a fast, efficient and cheap facility on the Internet, allowing people to transmit messages electronically from one computer to another, anywhere in the world, in seconds. Joining one of the thousands of topical discussion groups provides the opportunity for people to exchange ideas and information and debate current issues. Clearly, the Internet has something for everyone and therefore it cannot be regarded as just the domain of the computer expert or enthusiast.

It is not difficult to see the educational potential of the WWW and e-mail facilities on the Internet and it is in the area of education that some of the most recent developments on the Internet are taking place. The Internet was not initially designed for educational purposes and until recently, educational information and resources on the Internet were only appropriate for use in universities, colleges and secondary education. However, many organisations, for example, the National Council for Educational Technology (NCET), EdWeb, Heinemann (UK), The Educational Resources Information Centre (askERIC), KIDLINK and Kidsphere have established web sites and on-line e-mail services which provide information and resources for teachers and children in the primary classroom.

Through the Internet it is possible to access a vast amount of educational information and resources which will enrich children's learning across the primary curriculum. For example, using the WWW would enhance geographical studies of places and themes by providing current global weather and climate data, satellite maps and information about land use. Scientific data and photographs provided by NASA (http://www.nasa.gov/) would be a valuable resource for a topic about the earth and space (Fig. 1).

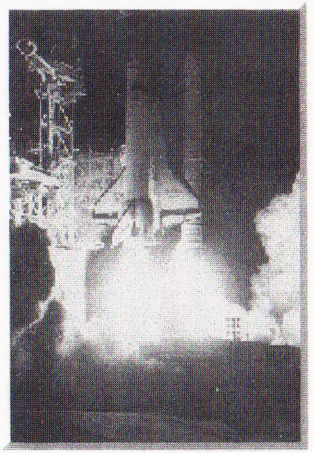
The web site at the Louvre, Paris allows children to browse works of art. Children can study history by reading on-line memoirs and oral testimonies, e-mail 'virtual' King Henry VIII with questions about his life through Kidsphere (http://www.hmco.com/hmco/school/index.html) or visit previously inaccessible places and archaeological sites through 'virtual' field trips. Using e-mail services, children from all around the world can undertake collaborative projects and exchange information and ideas through KIDLINK (http.//www.kidlink.org/), whilst developing an awareness of audience and the importance of punctuation and spelling. These examples only represent a few of the current educational applications of the Internet in the primary classroom and offer only a glimpse of future possibilities.

In order to use the WWW and e-mail facilities, the computer needs to be connected, through a web browser (graphical interface) to the Internet. This requires the purchase of a modem in addition to a subscription to a service provider, for example CompuServe or America on-line (AOL) and the cost of the phone call. Although the financial cost of any new equipment or facility is relative to its educational value, connection to the Internet is not cheap and certainly not within the budget of most primary schools. However, some companies and organisations, recognising the practical and financial problems facing primary schools, are

National Aeronautics and Space Administration

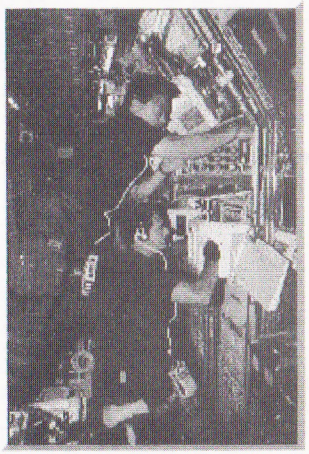
Human Space Flight

Human Exploration and Development of Space Enterprise (HEDS)



Space Flight

Space Shuttle missions and schedules
Apollo, Gemini, and Mercury information
International Space Station and Mir missions
Space Hotlist
Satellite orbital and viewing data

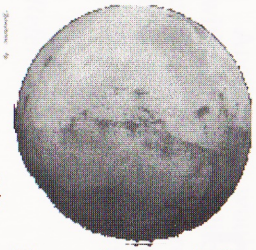


Life and Microgravity Sciences and Applications

NASA Research Announcements
Past and Future Shuttle Science Missions
Microgravity Science Research Program
Life Sciences Research Program
Global Health and Telemedicine
Occupational Health

Fig. 1 (a and b). *Information from the NASA site.*

LIFE ON MARS?!



A NASA research team at Johnson Space Center and Stanford University has found compelling evidence that life may have existed on Mars 3.6 billion years ago.

Organic molecules and other evidence of biological activity were found in a meteorite, thought to be of Martian origin, found in Antarctica in 1984 after having fallen to earth approximately 13,000 years ago.

A detailed description of the evidence of this startling discovery and images of the meteoric evidence itself can be found at the following sites (please be aware that all of the sites listed below are very busy and you may experience temporary difficulties connecting to them):

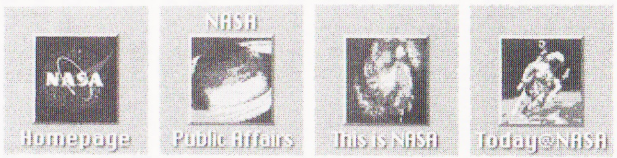
Ames Research Center
Johnson Space Center
Goddard Space Flight Center

Additional information is available on the following press releases:

"Statement from Daniel S. Goldin, NASA Administrator"
"Meteorite Yields Evidence of Primitive Life on Early Mars"

Goals of the HEDS Strategic Plan are to:

Increase human knowledge of nature's processes using the space environment
Explore and settle the Solar System
Achieve routine space travel
Enrich life on Earth through people living and working in Space



If you have any QUESTIONS, please first refer to the NASA Question and Answer Page, which contains answers to the most frequently asked questions we receive.

Curator: Woody Smith
Last Updated: August 8, 1996

designing packages specifically to meet the needs of primary education. For example, an increasing number of primary schools are connecting to the Internet through British Telecom's Campus 2000, making connection to the Internet easier and reducing costs significantly.

Once connected to the Internet, the user can access the vast amount of information and resources available. It is easy for the user to be overwhelmed and understandably, this could be off-putting for both the teacher and child. Furthermore, searching and obtaining information can be difficult, time consuming and sometimes frustrating and consequently, the use of the Internet could be expensive, ineffective, inefficient and inappropriate in a primary classroom. However, by adding the name or names of web addresses to a special menu on the web browser prior to a lesson, the children would be able to connect to topic-related web sites simply, easily and quickly. For example, *Internet Explorer* allows the user to add the names of web sites to a 'favourite places' menu. Thus, the teacher can search for and preview topic-related information or resources and add the web sites to this menu. Children would then select web sites quickly and easily from this menu, and in this way, the time the children spend on the Internet is minimised because time-consuming searches are avoided and therefore costs are kept down.

To find relevant material for classroom use, search engines such as *Excite*, *Yahoo* or *Webcrawler* can be used to locate information on a specific topic, if the web address is unknown. This is not only time consuming, but often unfruitful and again, expensive. Furthermore, web addresses need to be typed in accurately; the smallest error makes access impossible. In recognition of the needs of teachers and children, educational organisations have attempted to make the locating and obtaining of information and resources easier, quicker and thus cheaper. EdWeb (http://edweb.cnidr.org/resource.cntnts.html), provide a detailed practical guide to educational information and resources available on the WWW. NCET (http://www.ncet.org.uk) also provide a wealth of information about research and development in all aspects of IT together with a comprehensive directory of educational web sites which is updated monthly (Fig. 2).

Similarly, Heinemann (UK) Subject Links (http://www.heinemann.co.uk /heinemann/index. html) and AskERIC Toolbox (http://ericir.syr.edu/) provide regularly updated links to educational web sites. For ease of reference, directories are usually arranged according to subject area and by selecting any of the directory addresses (highlighted text) on the screen, the user can link directly with any of the web sites on the list. For example, selecting http://www.nasa. gov/ (NASA Information Services via World Wide Web) on the NCET list of educational web sites, connects the user directly to the web site at NASA.

In addition to providing educational web site directories, Heinemann (UK)–Heinemann World is a WWW site which contains a material and information appropriate for use in primary education. Heinemann Hot Topics is a topic-based resource bank related to the National Curriculum and designed for use in the primary classroom. It contains information, questions for discussion and investigation and details of other Internet resources. This resource base, which is updated monthly with new topics added, is a rich source of information appropriate for primary children and will enhance learning in almost every area of the primary curriculum. Heinemann (UK) Keypals enables children to send e-mail to children in other classes anywhere in the world. In this way children can undertake collaborative projects, collecting and exchanging information and ideas with other classes or schools locally, nationally and globally. There are many other similar e-mail facilities currently in operation or under construction, designed specifically for children. Kidsphere is an online e-mail service dedicated to developing an international communications network for children and teachers. Similarly, KIDLINK encourages global dialogue between children aged 10–15 years, in 87 countries.

The Internet is still only in the earliest stages of development and is constantly changing and improving. Consequently there are still many problems which need to be overcome. Information can be disorganised, the system is temperamental and prone to failure and many web sites are still under construction. 'Heavy traffic' on the information superhighway causes congestion, particularly during the middle of the day, which means that locating and obtaining information is slow, inefficient and therefore, expensive. However, many of these problems are already being overcome with further advancements in communications technology. For example, with the expansion of the cable network and the change from analogue to digital telecommunications, the Internet will become faster and more reliable.

Access to unsuitable, violent or pornographic material on the Internet is also an issue. This does not mean that this vast store of information which has huge possibilities for primary education should be avoided, but that teachers, aware of potential problems, should be vigilant. Although it is impossible to gain access to some pornographic web sites without a password which is issued when a user subscribes to a particular organisation, there are several other precautions that teachers should take. Many service providers offer censorship programmes which continually monitor and control access to unsuitable material. For example, CompuServe offer

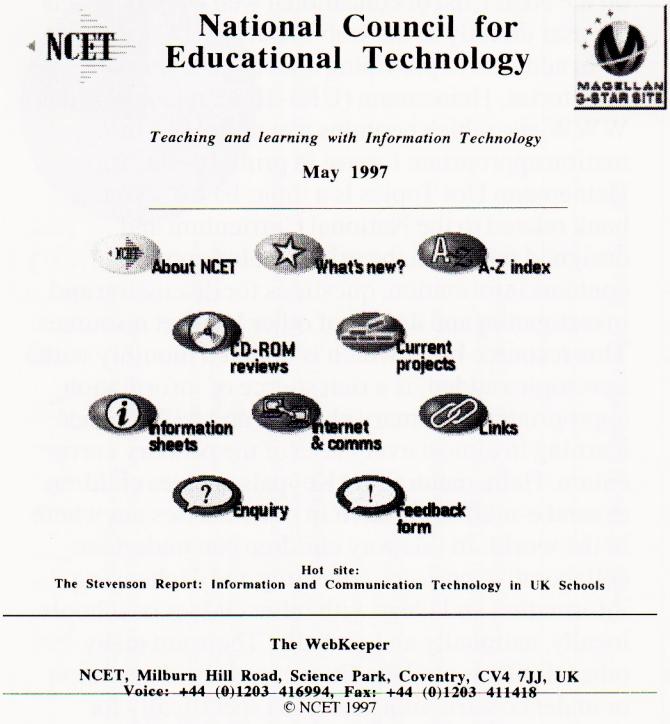


Fig. 2. *NCET home page.*

a free program called *Cyberpatrol* which can be downloaded onto the computer. This program ensures that no material which is violent or pornographic becomes accessible to children. Furthermore, connection to the Internet can be password protected and materials for use in the classroom should be previewed by the teacher. Most importantly, children using the Internet, should be closely supervised by an adult. It can be difficult for a teacher in a large class to do this effectively but, alternatively, children could be supervised by parent helpers who have existing knowledge of the Internet or who are willing to learn.

Despite some of the problems encountered on the Internet and the costs involved, many changes are rapidly taking place. Whilst it is true that there is only a small amount of educational material designed specifically for primary schools and the majority of educational materials available on the Internet are, in general, only appropriate for use in secondary and higher education, the educational potential of the Internet in the primary curriculum, is being increasingly recognised. As a result web sites and e-mail services aimed at primary education are continually being constructed, improved, updated and expanded. Indeed, many primary schools already use the e-mail facilities on the Internet and visit the WWW sites established by educational television programmes.

As yet, it is too early to accurately evaluate the use and appropriateness of the Internet in the primary classroom; there needs to be much research as the educational use of the Internet grows. In 1995, NCET was commissioned by the Department for Education and Employment to examine the potential of a UK education superhighway. This involves 23 educational projects, such as Superhighways for Able Children in Small Rural Schools and the Education On-Line Network, and includes 47 primary schools. The projects aim to assess the potential of the Internet to enrich teaching and learning, to identify the services which are most beneficial to education, to identify the best conditions and strategies for the successful use of the Internet and to recommend future directions for the use of the Internet. Recommendations will be made in the final report, available later this year.

What is clear is that the Internet is here to stay. It is the communication of the future and consequently the future for our children. Therefore, teachers have a responsibility to educate children in all aspects of information technology, including the Internet, equipping them with the necessary skills, knowledge and understanding for their future. The future is not very far away and both schools and teachers need to be aware of the rapid changes taking place in communications technology and be prepared for the impact of these changes in the primary classroom.

The Internet has made the idea of the 'global village' or 'world wide community' a reality, with the disappearance of location and distance. It is radically changing the way people interact and challenging existing social institutions. For some, it is a vehicle for unity and peace, a place where people can communicate free from the prejudices of sex, race, creed and colour. Others consider it to be a network of surveillance, a tool which will enable governments to monitor, manage and control all aspects of our lives. Whatever the implications for the role of the Internet in the future, it is the communication of the 21st century. It is a powerful tool which is increasingly becoming a part of everyone's life at home and at work. The Internet is not only a library of resources and a tool that can access information but using the Internet will motivate children and capture their interest and enthusiasm whilst encouraging them to become independent learners. Using communication technology develops the learners' skills of selecting, assessing, manipulating and evaluating information and learning to learn is a vital key to improving proficiency across the whole curriculum. Children need to develop the confidence and skills necessary to equip them for the changing climate of communications technology.

(*N.B.* The web site and e-mail addresses given in this article were correct at the time of writing.)

The tyranny of the technological imperative

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Worcester College of Higher Education (b.fox@worc.ac.uk)

The development of information technology in primary schools over the past fifteen years or so has not been without its hiccups. The problem is that the technology has not always synchronised with the pedagogy, and we tend to find, sometimes quite expensively, that what looked like a breakthrough has in fact led us up a blind alley, liberally sprinkled with red herrings. Our lives have been 'revolutionised' many times in the last decade.

The trouble is, we are all victims of the tyranny of the Technological Imperative. Because it has become *possible* to do whizzy things, it is assumed that it is *desirable* or even *essential* to do them. This assumption should not be allowed to go unchallenged.

Remember your first school computer? If it was a BBC 'B' you ran a tape which spent several minutes producing funny numbers on your monitor screen (remember your first floppy disc drive? remember how much it cost?), then delivered you a *Hangman* program. All sorts of claims started to be made for the educational value of *Hangman*. A lot of that early software was designed to match what computers were seen to be good at, rather than what teachers wanted to do in their classes. As a consequence there was a lot of dubious drill-and-practice stuff about. Computers were, after all, seen as infallible and infinitely patient, and all sorts of nonsense was perpetrated in the name of 'computer awareness'.

One major triumph, however, was really quite fortuitous. As it soon became apparent that there was very little money to be made from educational software, many large commercial publishers lost interest in the market, leaving it to a few enthusiasts, many of whom were, or had been, teachers. Consequently, we have developed perhaps the best educational software in the world, grounded, at least in part, in a professional understanding of the way children learn.

But beware the Technological Imperative! Cast a cold eye over another development, the CD-Rom. Publishers like CD-Roms because the actual discs are cheap to produce and you can't copy them (or at least most of us can't – at the moment). But what should we be doing with all that awesome storage capacity? If we are not careful, we can find ourselves being led up another anti-educational blind alley, in which our children are encouraged to become passive recipients of someone else's knowledge. Do you really want the curriculum to be decided by encyclopaedia salesmen? There are lots of flashy 'edutainment' CD-Roms about, and in truth a large proportion of them do not significantly support or enhance children's learning in any genuinely useful way. Children should be active agents in their own learning, and the term 'interactive', when applied to CD-Roms, is frequently a gross misrepresentation.

Another recent development, which cannot have escaped your attention, is the way in which information technology has become a subset of the telecommunications industry. Suddenly, for the ordinary home or office computer user, it is no longer sufficient to be in a two-way dialogue with your machine. The Technological Imperative insists that you should be *connected*. There seems to be a widespread assumption that we will soon all have e-mail addresses and Internet accounts – and indeed the exponential expansion rate of the Internet in the last couple of years has been very impressive. But the central question we should be asking ourselves is the same as for other technological developments – in the context of primary education, *what is it actually useful for*?

Of course, on-line systems are not new. I was a beneficiary of the DTI modems scheme in the mid-1980s, and got quite good at creating viewdata screens – big text and chunky graphics like Ceefax pages. The snag was that I could not actually send them anywhere, as my school was too remote from the central LEA system. It all seemed a good idea at the time: schools would place pages of information on a centralised host system, and others could log in and read those pages. Unfortunately, it never really reached critical mass. Because there was nothing interesting on the system, people did not log in, and therefore did not send anything interesting. I tried logging into other people's systems and bulletin boards, but all I ever seemed to find were chunky Mode 7 graphics pictures of snazzy cars, made by 13-year-old lads who were, no doubt, very proud of them.

Actually, where viewdata did work effectively was in a cluster of small village schools, who maintained their own system and produced collaborative topic work over a period of several terms. But all such initiatives tend to depend on the flair and energy of one or two individuals, and individuals with flair and energy tend to get promoted out of the classroom environment. When the enthusiasts leave, such projects fold.

Then there was Interspan. It was recognised that

a major obstacle preventing effective primary school use of electronic mail was the need to dedicate a telephone line to it. Most primary schools only have one line, and cannot afford more, and it is simply not sensible or feasible to tie up that line with e-mail, when a parent ringing in with an emergency message might well be met by a burst of cyber-babble (you will know the phenomenon if you have ever rung someone's fax number by mistake). The Interspan solution was ingenious. The last person out of the building at night switched the telephone connection across to the modem. Interspan rang round its users in the middle of the night, collecting messages from mailboxes, and then rang round again, delivering those messages. Bravely, I set the system up in several clusters of small schools. Most of the time, however, I was left feeling that it existed for its own sake, and schools did not have a real use for it. Overnight systems are all very well, but if you want to get a message to someone quickly, it's easier to telephone them.

So now we have the Internet, by which we seem to mean two things. On the one hand there is electronic mail, and on the other, the World Wide Web. I suppose I ought to like it, as it seems to be creating itself spontaneously, and it's not something someone is trying to sell me, and today's hardware is much more able to handle it, and modems are now fast enough for it (more or less), and all sorts of different files can be sent, and it actually works. It all sounds marvellous, and I'm privileged to be on JANET, the universities' system, so I have no phone bills or subscriptions and my phone line is not clogged. It is, however, much slower than the hype leads you to believe, particularly in the afternoon, when America has woken up.

But let us keep in mind the central question – *what is it actually useful for*? What is really worth doing with the Internet, in a primary school context? How will it make classroom life better, can we afford it, and what do we gain?

I am reminded of a similar, if smaller, phenomenon of recent years – citizens' band (CB) radio. It proliferated spontaneously and rapidly, it worked, its users developed their own patois, and in some specific areas it was genuinely useful; but scanning the airwaves for enlightenment could be very wearisome, as mostly what one encountered was a horde of semi-articulate youths babbling inanities and obscenities to each other. Having the means to communicate does not of itself endow you with something worth communicating, the signal-to-noise ratio was extremely low.

Surfing the web is rather better than that, as you can at least use a search engine to help focus your attention; but there is an enormous amount of stuff out there, almost all of it is irrelevant or poorly matched to a primary school's specific needs, and the information comes with no automatic guarantee of veracity.

NCET research suggests that whereas 80% of secondary schools have on-line capability, the figure for primaries is currently about 4%. Sooner or later there is bound to be an initiative to provide the Internet for all schools. Conditions I would wish to see laid down for the acceptance of this would be:

- free installation and maintenance of a dedicated phone line, fibre-optic cable etc.;
- free, or heavily subsidised, local call charges on that line;
- affordable Internet accounts, with no hidden charges;
- free, or subsidised, cabling of school buildings to allow access to the system from all parts of the building (and most specifically not just from the school office);
- adequate free training for headteachers, teachers and administrative staff in the use of the system.

That would take care of the technicalities, but what about the pedagogy? There are, of course specific examples of teachers with flair devising creative ideas for things to do, but I fear we are still at the *Hangman* stage – we are teaching children about it rather than teaching with it. How does it translate into the stuff of daily classroom life, and how could it transform what we do? I have no magic answers, but I would suggest that the first thing we need to do is to look closely at our children's general information handling skills, and not just in the context of IT. The article by Heather Govier in this volume describes the model proposed in the NCET pack 'Making Sense of Information' which seems to me to be an excellent way into this, and I am certainly building it into my Initial Teacher Education courses. We need to develop children's skills in independent enquiry, and their ability to locate and extract relevant information. We need somehow to enable them to maintain their concentration on the task in hand and not allow themselves be endlessly sidetracked. This is a pretty tall order.

> 'WILL SURFING CURE CHILDREN OF EXCESSIVE ATTENTION SPANS?
> Yale computer scientist and author David Gelerntner says 'it is ludicrous to suppose that Internet access will fix or even address' the main problems of education. 'Everyone knows what you do with the web: you surf, sliding from site to site at the click of a mouse button. Exactly which problem will web-surfing attack? Our children's insufficient shallowness? Excessive attention spans? Unhealthy fixation on in-depth analysis? Stubborn unwillingness to push on to the next topic until they mastered the last? We need less surfing in schools, not more. The web is a great source of pictures – are we trying to cure our children of excessive interest in the written word? or of depraved indifference to glitz and snazzy graphics?'
> (*Weekly Standard* 4 Nov 96 p. 14).'

I found this snippet on the Internet – of course.

GEOGRAPHY & IT

Title: **SHOPPING**

Activity: Sorting produce and pictures/photographs/drawings of a variety of goods according to which goods can be bought at which shops.

Resources: Real produce purchased from local shops (or empty packaging).
Photographs of all the local shops and of a variety of produce.
Children's drawings of all local shops and a variety of produce.
PE hoops.
Computer with *Clipboard* software (or similar).
Scanner or Photo-CD to put photos on computer (would be nice but not essential).

What to do: Make a preliminary visit to the local shops with children and talk about what can be seen in each window. Take a photograph of each shop front, note the names of the shops and write down some of the products that may be purchased there. If possible give each pupil the opportunity to go into a shop and buy something and also to ask if they sell another different item.

Back in the classroom, sort purchases into PE hoops, each labelled with the name, icon and photograph of one shop. After sorting real purchases repeat the activity with drawings and photographs of the produce.

Discuss where to put items which may be bought at more than one shop.
Introduce the idea of intersecting hoops.

Using a data handling package such as *Clipboard*, set up a file with a record for each shop. Within each record list the items that may be bought there. Search the file to find out where a specific item could be bought.

Allied PE work could involve each child opting to 'be' a particular item (e.g. apple). Labelled hoops at the sides of the hall/playground represent the various shops. At bash of tambourine children run to appropriate 'shop'.

Possible extension activities: Sort goods according to other criteria, e.g. fresh/frozen.

Make junk model of shopping street/centre with shops in the correct positions and with pictures of appropriate produce stuck on each box.

Capability: **Information handling skills** – sorting, classifying, identifying.

IT skills – use of simple database for storage of data and for searching.

Geography skills – knowledge of local area.

Thanks to: Patricia Gray of Glebe School, North Tyneside.

Sweet shop

chicken

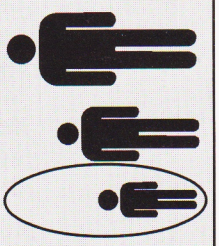
Butcher

sausages

beer

crisps

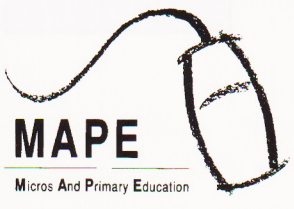
Experience level
Beginner ✓
Intermediate
Experienced



Communicating and handling info. ✓

Controlling, monitoring and modelling

IT Activity Sheet 1



If you want further information about MAPE, please contact Yvonne Peers at Newman College Technology Centre, Genners Lane, Bartley Green, Birmingham B32 3NT.

UNDERSTANDING KEYWORDS

***Title*: FAMILIES GAME**

Activity: A card game for KS1 pupils to introduce the idea of keywords and connections between information. The use and understanding of keywords is becoming increasingly important in developing information handling skills. Information is found from CD-Roms and the Internet by typing in appropriate keywords. In order to use these facilities successfully, children need to have a clear understanding of word connections and associations and what it takes to narrow down or broaden a search. The following game may help to develop these skills in children, introducing the concept of connections between information in preparation for database work.

Resources: The game is played using a pack of cards (made by children?) representing a set of objects that fall under the same category, e.g. vegetables, pets, hats. Each pack contains a picture card of each object and a number of keyword cards associated with that object. For example, for a game based on vegetables there may be a selection of six to ten picture cards and keyword cards linked to each picture which might answer the following questions:

what is the colour? (keywords = green, red, brown, white, yellow);
what shape is the vegetable? (keywords = conical, spherical, cylindrical);
where does it grow? (keywords = underground, above ground);
what part do we eat? (keywords = root, leaves, fruit, seeds).

The keyword cards for carrot therefore would be: red, conical, underground, root. To make the associations easier for the youngest pupils the cards could be colour coded with dots representing the sets or families to which they belong, e.g. the carrot card might have a red spot in the corner, so will all the cards associated with it, but they may also have other coloured spots because they belong as well to other families. The parsnip cards may have yellow spots, so the keyword cards, conical, underground and root will have both red and yellow spots because they belong to both the carrot and parsnip families. Thus children will begin to understand connections.

peas **potatoes** **onions** **tomato** **cauliflower** **carrot**

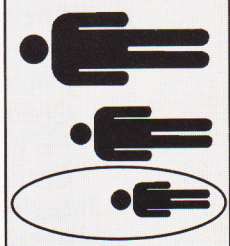
Previous experience required: Card games of the 'Happy Families' type. Basic vocabulary, e.g. colours, shapes.

What to do: The game is essentially 'Happy Families'. The cards are shuffled and five cards (or the number needed to make one family) are dealt to each player. The rest of the cards are put in a central pile. In turn, players pick up and throw away cards until they are able to make one family (in the above example, a picture plus four keywords). They continue to make families or sets until all the cards are used up. The player with the most sets is the winner. Players may also use their turn to 'exchange' cards with other players.

Capability: **Information handling skills** – sorting, classifying, identifying.
Language skills – development of vocabulary.

Thanks to: Margaret Still, Educational Consultant.
m.still@campus.bt.com

Experience level
Beginner ✓
Intermediate
Experienced



Communicating and handling info. ✓

Controlling, monitoring and modelling

IT Activity Sheet 2

INFORMATION HANDLING

***Title*: SCHOOL**

Activity: SCHOOL is a database file containing records for 192 pupils at St Gerbil's Junior School. Once pupils are familiar with the structure of the file, they can develop their own scenarios which will require the file to be sorted or searched, and set puzzles for each other.

Resources: The file is available from MAPE free of charge. Simply contact Yvonne Peers at Newman College and let her know the type of computer and the name of the data handling package you wish to use and we will send you the files by return.

Previous experience required: Ideally, users will have some basic familiarity with the database program being used, though this need not be extensive, as the aim of the program is to develop that familiarity.

What to do: St Gerbil's Junior School contains 192 pupils in years 3–6. There are two classes in each year, with 12 boys and 12 girls in each class, arranged in houses (red, blue, yellow, green), so that there are three boys and three girls in each class. Miraculously, nobody was born in September or October, so ages (as at September 1st) can be expressed in years and single-decimal months. Pupils with the same surname and in the same house are brothers/sisters; if not in the same house they are not brothers/sisters. Pupils with the same surname as a teacher are that teacher's child. Each child has three National Curriculum subjects identified, which they like best (or are best at). Fields are: Forename, Surname, Year, Age, Sex, Teacher, House, Subjects. It is up to the user to design scenarios, but here are some starters:

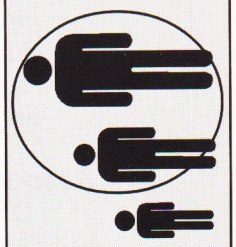
1) Pick the Red House Netball Team.
2) The Year 5 children were squabbling about whether boys or girls were better at maths. Can you help them?
3) I found a yellow football shirt on the field. It had no name on the label, just the initials SW – or perhaps it was MS upside down. Whose is it?
4) Mrs Kemp has to stay late tonight, so her children are to go home on the bus. Can you get a message to them?
5) Find the twins.

Possible extension activities: If your database allows, select and save a single class or year, and add some extra fields, e.g. to keep records of height, weight, shoe size, achievements on sports day, hobbies, pets, etc., and write stories about school life containing puzzles or questions which can be solved through searching and/or sorting.

IT capability: Communicating and Handling Information (virtually all of the KS2 Programme of Study for data handling).

Thanks to: Dr Bob Fox, Senior Lecturer, School of Education, Worcester College of Higher Education
b.fox@worc.ac.uk

Experience level
Beginner
Intermediate ✓
Experienced ✓



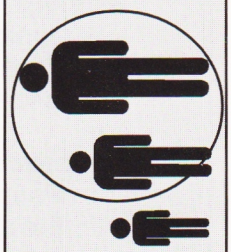
Communicating and handling info. ✓

Controlling, monitoring and modelling

IT Activity Sheet 3

USING CD-ROM EFFECTIVELY

Experience level
Beginner
Intermediate ✓
Experienced ✓



Communicating and handling info. ✓

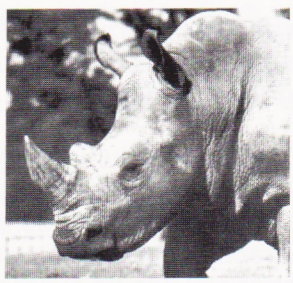
Controlling, monitoring and modelling

IT Activity Sheet 4

Title: **MAMMALS' FACES**

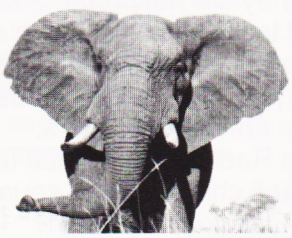
Activity: Children use a CD-Rom animal encyclopaedia to find out about the relationship between form and function in animals, in particular to answer the question, 'What can you tell about a mammal by looking at its face?'

Resources: An appropriate CD-Rom. A wordprocessing or DTP package which allows pictures and text to be cut and pasted into it from the CD-Rom.



Previous experience required: Navigating through CD-Rom encyclopaedia.
Use of cut and paste facilities of CD-Rom and wp or DTP program.
Basic classification of living things (e.g. plant eaters, meat eaters).

What to do: Issue the challenge – 'What can you tell about a mammal by looking at its face?' Specify the required outcome, e.g. for each separate discovery ask for a picture and a short piece of text (maximum two sentences) to be cut from the CD-Rom and printed out or pasted into a dtp package. For example a picture of a bushbaby showing the large eyes and a sentence which states it is nocturnal. You could ask pupils to write what the picture shows in their own words but requiring them to search for and select an appropriate short piece of text from that provided makes greater demands on their ability to analyse what they are reading on screen. For younger pupils some clues could be given as to what to look for, but older pupils should be able to make most of the following connections themselves: horns/tusks – fighting; large/mobile ears – good/directional hearing; long nose – good sense of smell; adapted nose – rooting (pig), holding (elephant); large eyes – possibly nocturnal; very small eyes – poor sight; dentition (if visible) – diet; eye position – hunter/hunted. (See page 5 for a description of this activity in practice.)



Capability: **Information handling skills** – sorting, classifying, identifying.
IT skills – communicating and handling information.
Science – variation and classification, adaptation to the environment.

Thanks to: Heather Govier
hgovier@rmplc.co.uk

MAPE
Micros And Primary Education

If you want further information about MAPE, please contact Yvonne Peers at Newman College Technology Centre, Genners Lane, Bartley Green, Birmingham B32 3NT.

E-mail and the Internet at Courtwood

Trevor Owers
IT Coordinator, Courtwood Primary School, Croydon (yearfive@rmplc.co.uk)

Since September 1996, my school, Courtwood Primary, has been participating in a project, funded by Croydon LEA, which set out to explore the use of the Internet in primary education. My role was to try things out with my Year 5 class to see how useful (if at all) this communications technology would be to us. The equipment we had was a 486 Nimbus multimedia machine, a high speed modem and a colour printer, and as part of the project we were given a scanner to increase the range of materials we could send down line.

Many of the children had heard of e-mail and the Internet, some had even used this technology for themselves with brothers, sisters, dads and uncles having the equipment at home. They needed no persuading to use the resources. But the staff were more sceptical, and part of my task was to convince them that the technology has something to offer us.

The project has had two components. We have used e-mail to communicate with a school on the other side of the world and we have used the Internet to find information to support the curriculum.

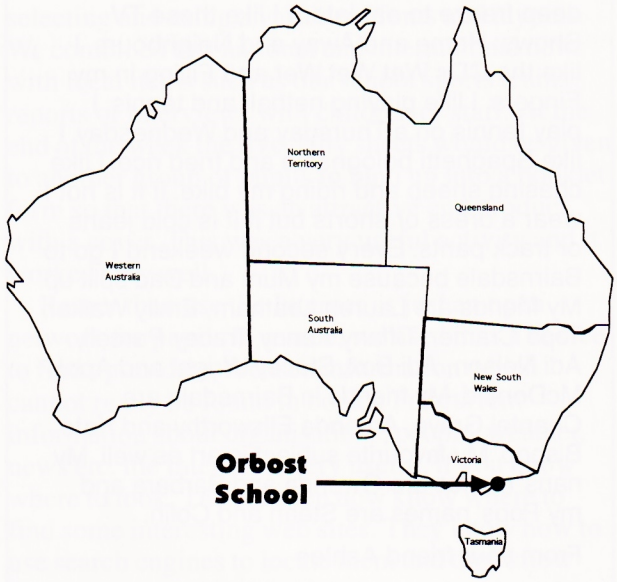


Fig. 1. *Map showing location of Orbost.*

Our e-mail key-pals

The first task to set the project going was to find another English-speaking school somewhere in the world that wanted to take part in class-to-class correspondence. To do that I had to spend some time searching (or surfing) to find an appropriate school. Once I had found the school and established communication with the teacher it was then a matter of pairing up the children so that they all had their own pen-pal (we called them key-pals). The school I happened to find was one in South East Australia called Orbost Primary which was around the same size as Courtwood and with the same year groupings as we have. This was the beginning of a very positive relationship between the two schools.

My class's first attempts at communication with their Australian pals weren't very good and I wasn't very pleased with them. The children were slow at the keyboard and they were unsure how to organise letters or to ask interesting questions about their new friends. But fortunately the teacher in the other school, Terry Hooper, was more experienced with communications technology and e-mail. He supported me and gave advice to the children about how to enrich their letters and make the communications more interesting.

I found the children became very excited about the prospect of having an answer to their letters within, usually, 24 hours. The children would send their own letters out themselves (having prepared them off-line) at say 2 p.m. on a given day and the following morning I would go in before school started and download the responses from Orbost. When the children arrived these messages were distributed and they were read with pleasure and then stuck into the children's books or added to their personal diaries (Fig. 2).

Over the ensuing weeks, the children's keyboard skills, fluency with letter writing and general enthusiasm for this form of communication was overwhelming. I was really enthused myself and excited for them. It was good fun being part of this.

The activity gave the children a real purpose for their writing, for composing at the keyboard, editing and checking spellings and reviewing what they had written in the context of previous letters sent and replies received. And throughout all this, the relationships with their key-pals developed and matured.

Orbost are more advanced than we are and they have their own Home Page which gave us a very

Dear Nikki,

I am 10 years old, my hair colour is brown and so are my eyes and I speak English. I am a girl. I live in Nicholson Street Orbost. I share a room with my sister Kira and it is a big room. I own a tape player and 2 sheep – their names are Deep and Freeze. (This is what Mum called them. I think that we will have them killed and cut up and put in the deep freeze to eat later.) I like these TV Shows: Home and Away and Neighbours. I like the CDs Wet Wet Wet and Filling in my Fingers. I like playing netball and tennis. I play tennis on a Thursday and Wednesday. I like Spaghetti bolognaise and fried rice. I like chasing sheep and riding my bike. If it is hot I wear a dress or shorts but if it is cold jeans or track pants. Every second weekend I go to Bairnsdale because my Mum and Dad split up. My friends are Lauren Leatham, Emily Walker, Tope Cramer, Tiffany Kenny, Tracey Purcell, Adi Nelson, Adi Box, Stacey Wright and April McDonald. My friends in Bairnsdale are Chantel Graye, Amanda Ellsworthy and Kate Bishop. My favourite subject is art as well. My nans' names are Gwenda and Barbara and my Pops' names are Stean and Colin.

From your friend Ashlee

Fig. 2. *Example message from Orbost School.*

clear and attractive view of their school. Even the individual children at Orbost have their own brief personal Home Pages. All the information about our school had to be sent in the children's letters but in addition to the writing we managed to scan photographs of the pupils and to send those over the Internet. (We now have a home page too, see Fig. 3.)

The children learned a great deal about Australian culture and the daily lives of the Australian children. It was surprising how interested they were in the different sports they enjoyed, the seasonal differences between their country and ours and many aspects of school life – all information picked up through simple communications with their friends. Wall displays were used for maps to show where Orbost is and how it relates to the U.K. We had an in-box and an out-box to store every communication and we even had a postman, David, who was appointed to distribute daily messages to the appropriate children.

Christmas was good fun, as well, because our children e-mailed scanned cards and messages over the Net and we received a package from Australia with hand-made cards from the Orbost children.

This project has been excellent for all of us. Fascinating friendships have developed (in some cases followed up with snail-mail letters) and all sorts of artifacts (e.g. tickets to football matches, maps, currency) have been scanned and sent to the other side of the world. It really did make an exciting project which I believe benefited the children enormously.

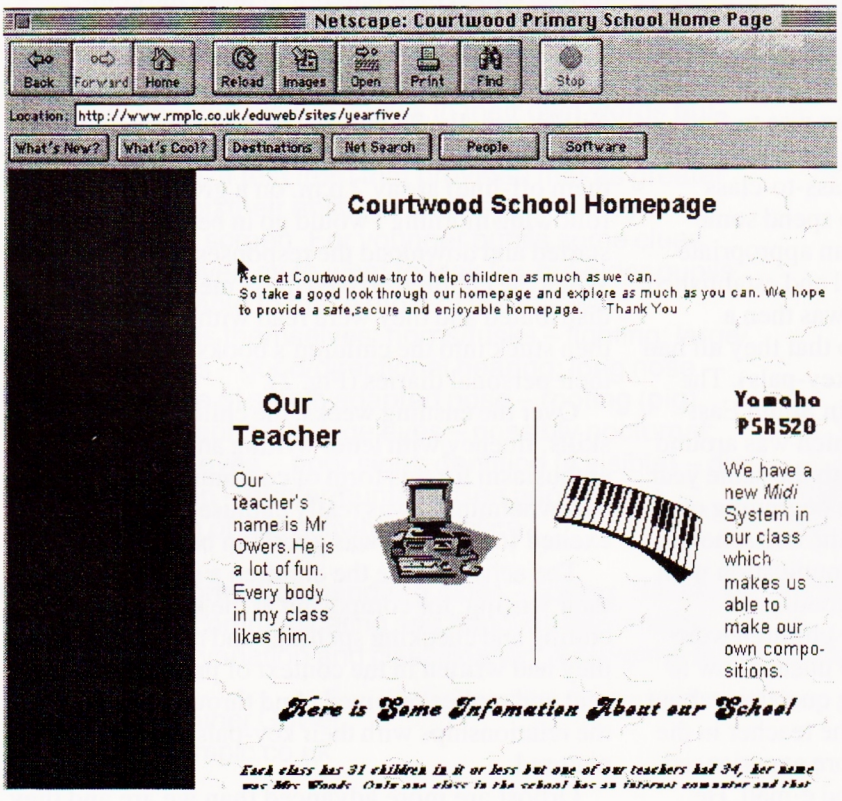


Fig. 3. *Courtwood home page.*

Using the Internet

The second aspect of the project involved the Internet and how the children utilised this to enhance aspects of their work. I introduced the Internet by likening it to an open library where, if you looked carefully, you could find whatever piece of information you wanted, and this, I hope is how the children think of it.

We began by searching weather stations throughout the UK and Europe to find high quality images of the weather and also short summaries. This gave us no problems because we found a site in Nottingham – Nottingham University have a very good web page – which

shows the daily weather of the whole of Northern Europe and is updated every 3–5 hours. The maps show cloud formations and pressure isobars, but we just focused on the clouds. This was our main source, but we looked at other web sites as well, for example there's a pretty good French weather site (Meteo France). Using these resources, the children were able to produce their own, quite sophisticated, up-to-date weather reports. They would download the satellite images and forecasts, export them to *Desk Top Publisher* and design their own reports using a variety of boxes and fonts and importing other images.

The children also used the Internet to compile their own up-to-date news reports on contemporary issues of the day which were fascinating to them (and me) and which we could make even more interesting by our own editing. They looked at various web sites such as the Times, Daily Telegraph, Mail, various Scottish papers, Icelandic papers (printed in English obviously) and other European papers. They would then download the interesting pages of news and compare various stories to see how journalistic opinion differed. This was a very interesting aspect of the project. Once, for example, we got three different stories from around the world on the Delhi plane crash which happened the night before. Each of the reports had a slightly different angle about who died and other aspects of the tragedy. This led to great debate as the children discussed whose opinion was right (if anyone's was) and the value of news and how we should question it.

What I began to notice happen was that the communications centre (as I called it), the e-mail centre in our class, started to operate like a newspaper production chain. One group of children would select the items of news which they found interesting, download them and pass them on to the editors who would edit and rearrange then go to *Desk Top Publisher* to present the materials in a way which would be interesting for other pupils to read. This involved the use of many desk top publishing techniques such as setting work out in columns, using frames to import pictures and selecting and using a variety of fonts and layouts. We combined this national and international news with local items such as our school sports teams reports or interviews with children or staff. At the end of the week the five daily sheets would be given to another group of pupils to bind up into a booklet form so that there was an attractive end product with a cover. This was a very useful activity and it worked very well.

Rather than use the Internet as just an open network for pupils to search, we used it as a device to find up-to-date, focused information which cannot really be found in books. For current information about organisations, people, weather, news etc. the Internet is very useful, if you know where to look. The children now know where to find some interesting web sites. They know how to use search engines to locate them and they know how to bookmark the useful sites so that they can be found quickly in future when they are needed.

Currently we are studying Tudors as part of the National Curriculum for history and we have found very useful items on Hampton Court Palace and other palaces where Henry VIII lived during his reign. We have been able to copy down images and reports about these places and what they have been used for, which again we have not been able to find in books. We have done this for Elizabethan explorers, as well, and found many interesting items presented in a form which is not too hard for younger children to understand. We also found sites which offered selections of electronic music in various styles (MIDI music). As we are doing Tudors we were able to download keyboard versions of traditional Tudor music and I played this to the children. We could hear it much more clearly than, say, from an audio cassette and although it was an interpretation for a modern instrument, there was the flavour of what the music may have sounded like.

There could be downsides to Internet use, especially with some of the unsavoury sites available,

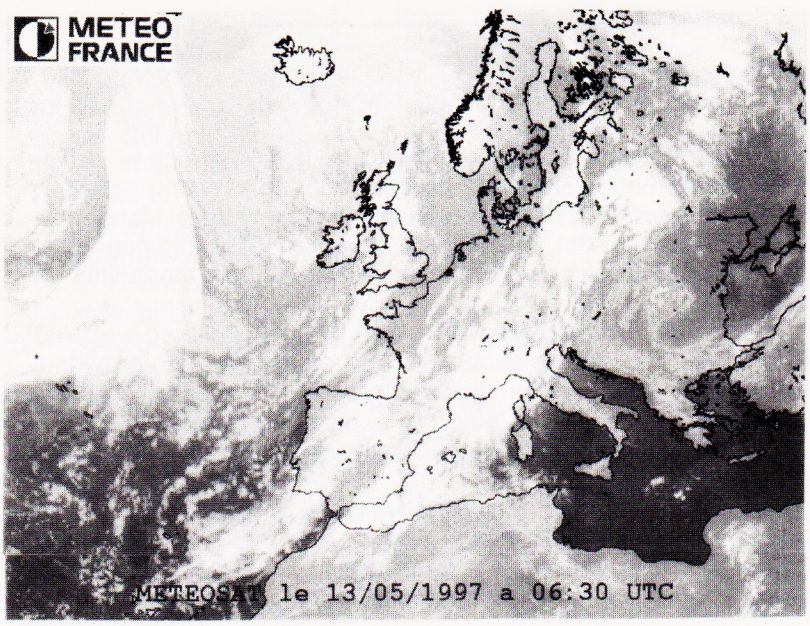
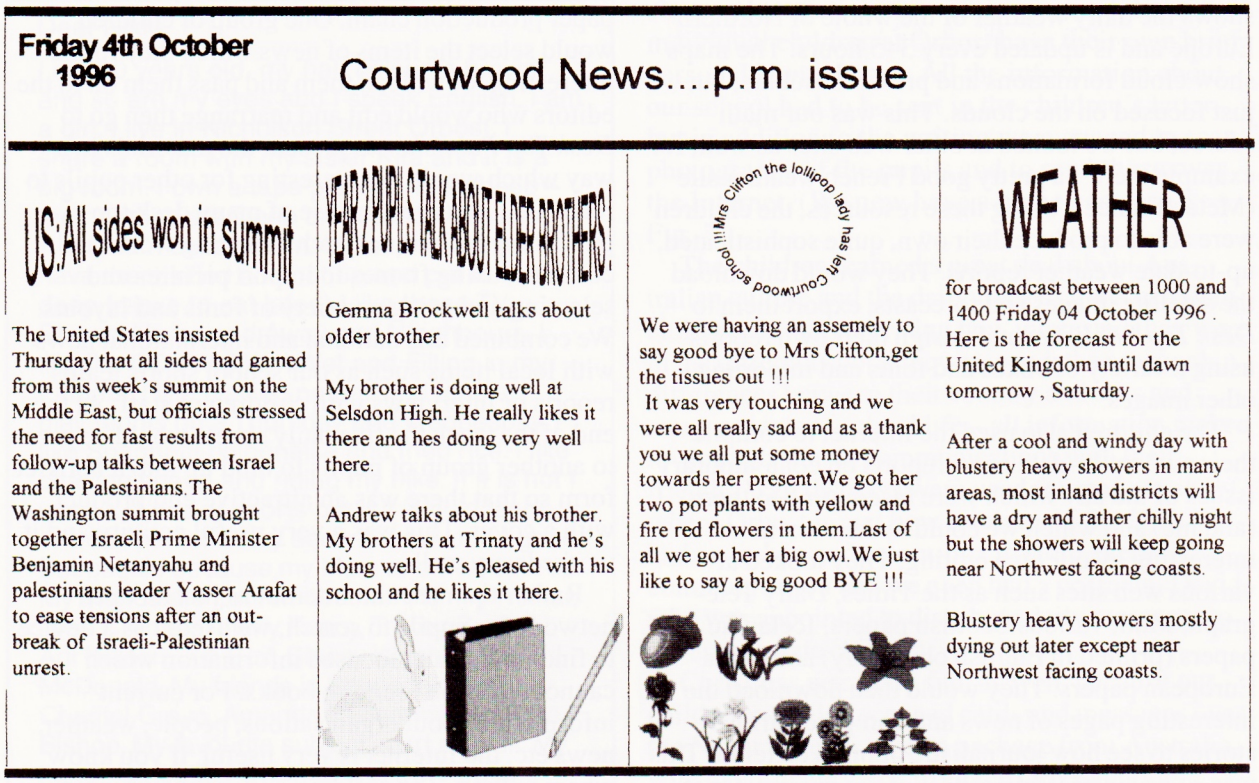


Fig. 4. *Satellite weather map image.*



Friday 4th October 1996

Courtwood News....p.m. issue

US:All sides won in summit

The United States insisted Thursday that all sides had gained from this week's summit on the Middle East, but officials stressed the need for fast results from follow-up talks between Israel and the Palestinians.The Washington summit brought together Israeli Prime Minister Benjamin Netanyahu and palestinians leader Yasser Arafat to ease tensions after an out-break of Israeli-Palestinian unrest.

YEAR 2 PUPILS TALK ABOUT ELDER BROTHERS

Gemma Brockwell talks about older brother.

My brother is doing well at Selsdon High. He really likes it there and hes doing very well there.

Andrew talks about his brother. My brothers at Trinaty and he's doing well. He's pleased with his school and he likes it there.

Mrs Clifton the lollipop lady has left Courtwood school !!!!

We were having an assemely to say good bye to Mrs Clifton,get the tissues out !!!

It was very touching and we were all really sad and as a thank you we all put some money towards her present.We got her two pot plants with yellow and fire red flowers in them.Last of all we got her a big owl.We just like to say a big good BYE !!!

WEATHER

for broadcast between 1000 and 1400 Friday 04 October 1996 . Here is the forecast for the United Kingdom until dawn tomorrow , Saturday.

After a cool and windy day with blustery heavy showers in many areas, most inland districts will have a dry and rather chilly night but the showers will keep going near Northwest facing coasts.

Blustery heavy showers mostly dying out later except near Northwest facing coasts.

Fig. 5. *Extract from our magazine – 'Courtwood News'.*

but this was not a problem in my classroom. Our service provider, Research Machines, offers what they term a 'walled garden' which prevents children from gaining access to unsuitable sites. Furthermore I am always in my classroom when the children are on-line and I can always see the screen and monitor what is being viewed.

The second concern is cost. If the children are on-line using the Net or sending e-mail messages, this does cost money. So you have to be careful how long they are on for and monitor this to ensure that the bills do not become too astronomical.

However, I do not think that these problems should put anyone off using the Internet. We have found it inspiring and exciting, both when used as a means of communication and when used for gathering information. I should be very sorry now if anyone took our Internet link away.

Information skills and the National Curriculum

NCET has published a resource pack: *Information skills in the national curriculum* which will help teachers increase their understanding of information skills and how information handling activities can be integrated into everyday classroom practice. The pack, consisting of an Adults' Handbook, photocopiable worksheets and a skills summary sheet, examines information skills and concepts, identifies the steps in information handling and the areas of the National Curriculum that justify and promote such activity in schools.

Differentiation, progression and assessment are also examined, and the differentiated worksheets can be used with KS2 children of all abilities. For each activity a template is also provided which enables teachers to tailor an activity to a topic currently being studied. This means that the activities are used 'at the point of need', rather than as isolated tasks, divorced from the curriculum. The activities can be used individually or as a series and can also be used as a basis for INSET.

Although none of the activities in the pack requires the use of any specific resource, the use of technology, where appropriate, is indicated in the 'Adults' Notes' accompanying each activity, and the role of IT is discussed in the Adults' Handbook. All the activities in the pack are both relevant and easily adapted, to tasks involving IT sources of information and presentation.

Carolyn Carter
Independent Information Skills and IT Consultant

Our day today

Phil Redman
Advisory Teacher IT, Lambeth Education (phil@rmplc.co.uk)

Introduction

Wednesday March 12th was Our Day. Sixty-six schools from around the globe took part in this Internet project where each participating class sent details of their school day. Many classes also sent samples of work completed during the day ranging from work with silk worms to work completed specifically for the project. Schools taking part were from all over the world with representatives from Germany, Denmark, Russia, Sweden, Canada, Australia, New Zealand, South Africa, and the USA. Classes ranged from an eleven-pupil school in Queensland to specialist schools in Russia, to a school on the slopes of the Rocky Mountains.

The Our Day Today project was the first Global Internet project run by the Brixton Connections Project in the London Borough of Lambeth. This project sponsored by Brixton Challenge, links fifteen primary schools to each other and the rest of the world via dial-up connections to the Internet.

The form

1. Class Name:
2. School Name:
3. Town:
4. City:
5. State/County
6. Country:
7. Grade/Year:
8. The Weather Was:
9. The Temperature Was (Centigrade):
10. Our School Day Began at:
11. We had Assembly/Whole School Gathering at:
12. Morning school finished at:
13. Afternoon School started at:
14. Our School Day Ended at:
15. How far is it from school to the nearest park (or nearest open space where children can play) (minutes):
16. How far is it from school to the nearest shops (minutes):
17. If everyone walked to school, how many children would take:
18. Less than 5 minutes:
19. Between 5 and 10 minutes:
20. Between 10 and 15 minutes:
21. Between 15 and 20 minutes:
22. Between 20 and 30 minutes:
23. Over 30 minutes:

Since Brixton Connections began, our schools have participated in several e-mail projects making links all over the world. This year, we decided to run our own project involving electronic mail and the World Wide Web. Our Day was chosen as the topic because we felt it would lead to opportunities for Information Handling, Maths and Geography.

Schools were invited to participate by posting details to several Internet educational mailing lists. Altogether, I received seventy-five replies, not including the Brixton schools, although only sixty-six data forms were returned. The participants were then e-mailed a form to be completed and returned on or soon after March 12th.

The data

The data collected was compiled into an Excel spreadsheet. Charts were produced showing the weather, temperature, length of school day, time taken to walk to the nearest park or open space, to school and to the nearest shops. A converter for Fahrenheit to Celsius was produced to assist participants in the United States. In producing these charts we have tried to be as accurate as possible but as with any large data collecting activity there may well be discrepancies not least caused by language differences.

The weather

March 12th was mainly a sunny day world-wide (Fig. 1) with only four schools reporting snow.

One school in Louisville Kentucky reported flooding along the Ohio River:

> 'I thought you would like to know that our weather was very unusual for us. The weekend following this survey, we had almost 15 inches of rain and had terrible flooding all along the Ohio River. There is still furniture in some areas that needs to be picked up and taken to the dump – damaged by dirty, foul water. Several people lost their lives and many literally lost everything they owned – homes, clothing, furniture, cars – everything. The water came up so fast and so unexpected that some had almost no warning at all or they just didn't realize that the water was

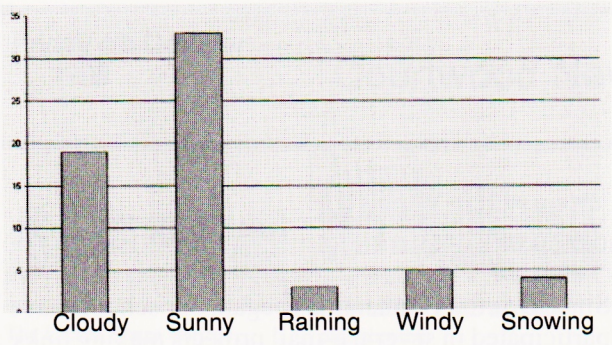


Fig. 1. *Weather on March 12th.*

going to rise as high as it did. All my family was blessed with dry, safe homes. My home did have a little water come in the basement and we were up till 3:30 am mopping it up. At that time, it finally quit coming in . . .'

The temperature

The temperature was up in the 30s and high 20s in many areas, mostly in Australia and America. However, several schools, mainly the Russian ones, reported sub-zero temperatures. One Russian school told us how a number of their children went ice skating on an outdoor rink after school. The rink was built by one of their teachers.

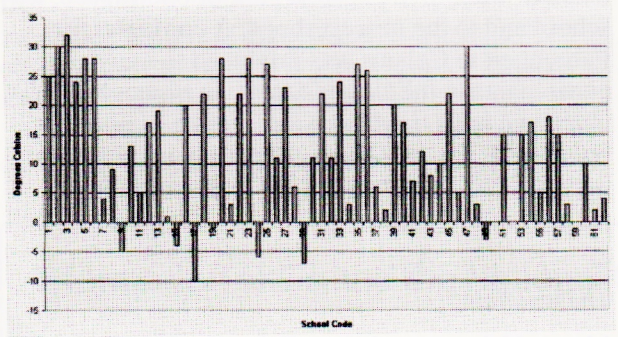


Fig. 2. *Temperatures on March 12th.*

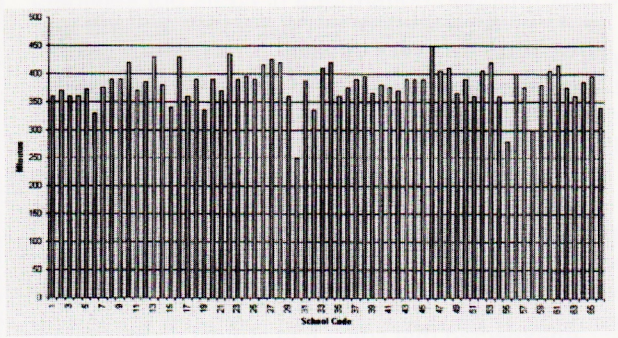


Fig. 3. *Length of school day.*

Length of school day

Most school days seemed around an average of five hours, the longest day being 7½ hours at 148 'Experiment' school in Samara, Russia, and the shortest at Beers Street Middle School in New Jersey, USA at 4 hours 10 minutes.

Time to walk to nearest park

For this exercise, participants were asked to measure or estimate the time taken to walk to their nearest park. For rural schools, this was a difficult concept as they could not imagine walking to a park as it may be in a city about two hours' drive away. So, we asked schools to use the nearest open space to the school where children can play. The school with the longest walk was Upper Barron State School in Queensland, Australia.

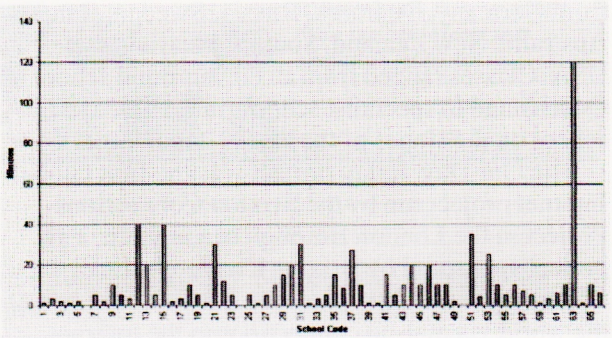


Fig. 4. *Time to nearest park.*

Time to walk to nearest shops

As you can see, this varies between a couple of minutes to 90. Once again, the children in Queensland have the longest walk.

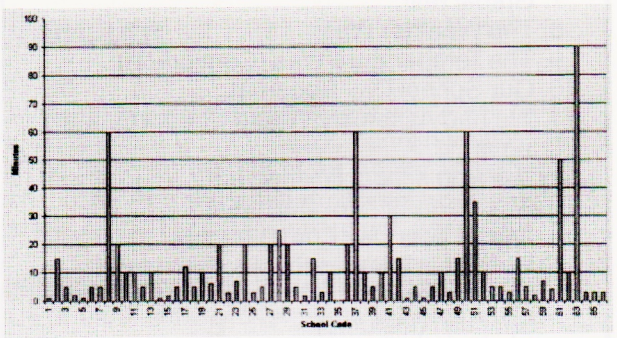


Fig. 5. *Time to nearest shops.*

Time to walk to school

Obviously, this one is dependent on where the children actually live. At this point, it should be noted that two of the Australian schools had seven and eleven pupils respectively.

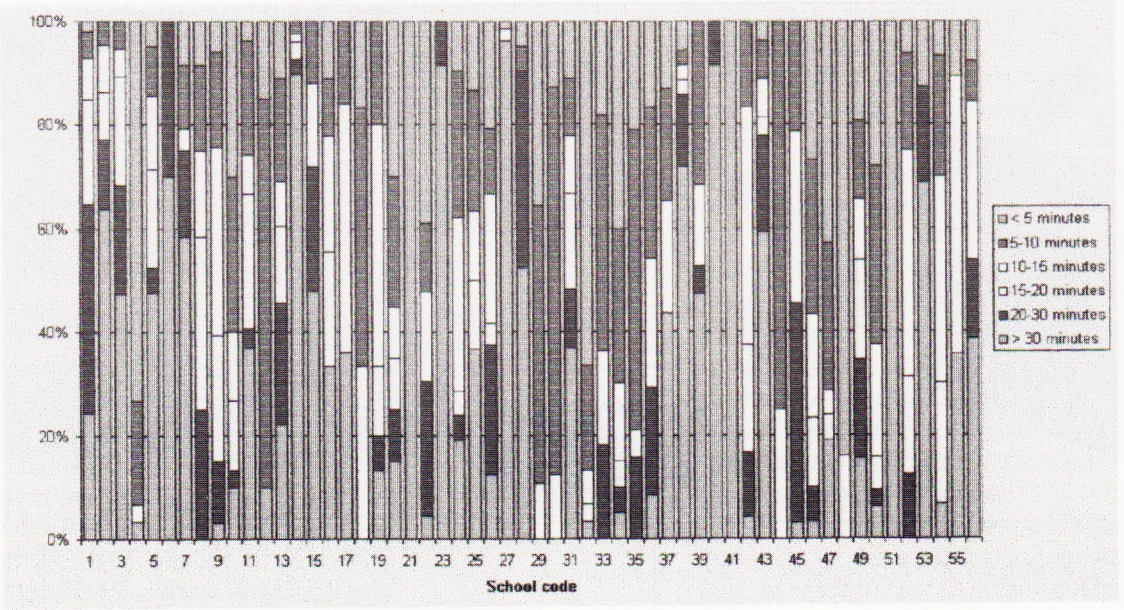


Fig. 6. *Time to walk to school.*

School photos

Several schools sent photos of their school and children. I have included a couple of these below as a sample of the variety of schools taking part. The others can be viewed on the World Wide Web at http://www.brixton-connections.org.uk/photos.html

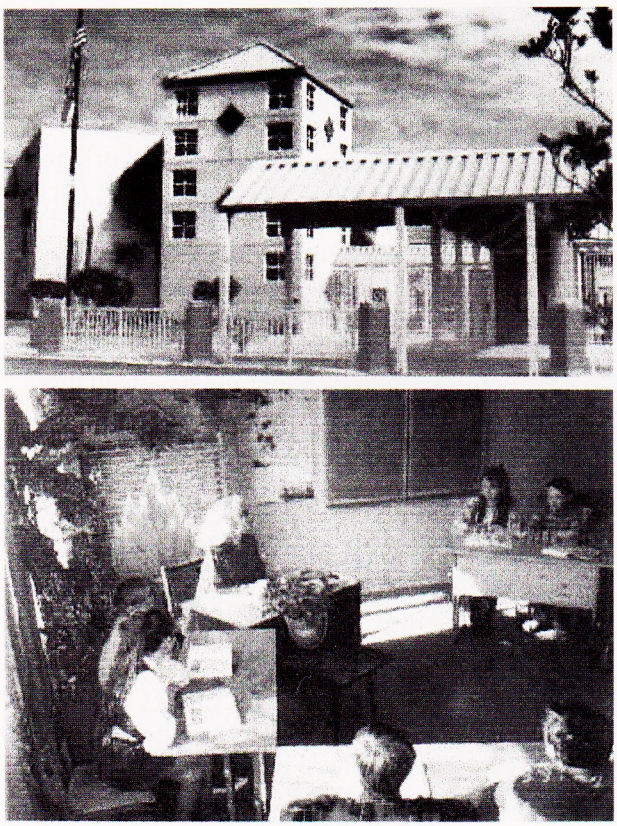


Fig. 7. *(Top) William Lehman Elementary School, Florida, USA; (Bottom) School 147, Samara, Russia.*

Examples of work

Many samples of work were posted, e-mailed and faxed by participants These varied from photos of ongoing work to work undertaken specifically for the project. Once again, a few examples are included here. The rest can be viewed on the World Wide Web at http://www.brixton-connections.org.uk/work.html

The children at the 'International' School in Samara, Russia, had this to say about their school:

> 'We are the pupils of the 7 grade of gymnasium 11, from the city of Samara, Russia. We have a wonderful school where we acquire a good knowledge of different subjects. In our school we have different activities: we stage plays, we have competitions, fantastic discos but this is another conversation. We often have those amusements on Saturdays & Fridays, but today on the 12 of March we do not have any activities because it is Wednesday & it is a common day. In our school we have different clubs, besides some of our classmates go to special schools like an art school, a music school. Now we would like to tell you how we spent the 12 of March.
>
> We came to school as usual at 12:30 p.m., because we study in the afternoon school. Our lessons begin at 12:40 & are over at about 6:00 o'clock. We had Geometry, Algebra, English, French & German (half of our class studies French & others study German), Physics. Every lesson lasts 40 minutes. At Geometry lesson we solved very hard problems. At our Algebra lesson we had a new topic, we liked it very much. Than we had English. All our class is divided into 3 groups & every group has its own teacher. Then

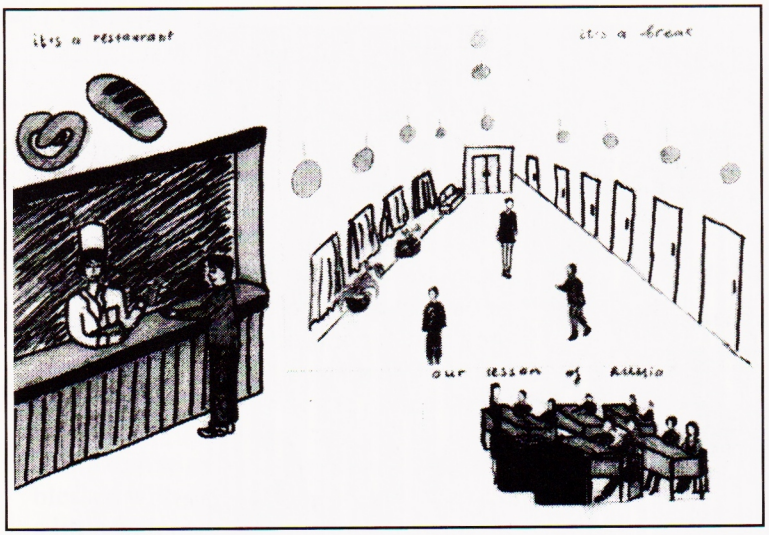


Fig. 8. *Gymnasium 11 'International', Samara, Russia*

we had French & German. We have been studying French & German for 3 years. The last lesson was Physics & we had a test. After our lessons we gathered together & started to write this letter & to decide what song to sing at our annual festival of English songs, held at our school every year. It is a good tradition & we participate in this contest with great pleasure. No more things to tell.'

Interesting comments

One school commented that they were a school for the deaf and the children were thrilled to be participating in an activity where no one knew this.

The teacher from W. Alonzo Locke Elementary School, Memphis, Tenessee, USA commented on their day which is very different from ours:

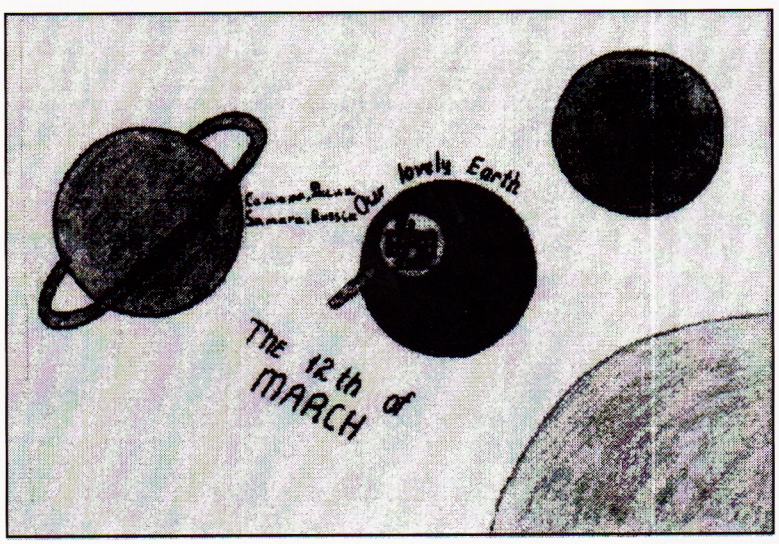


Fig. 9. *School 148, 'Experiment', Samara, Russia.*

'Our School Day Began at: 7:00 a.m. with breakfast. All 385 children at the school are entitled to a free breakfast. We have breakfast at the school from 7:00 until 7:30 a.m. Today we had cereal, milk, choice of fruit and orange juice. We had assembly/whole school gathering at: February 28 was the last time we all got together as a whole school. On that day we celebrated the end of Black History Month with songs, speeches, poems, tap dancing, flipping (gymnastics), and plays. All of the students at the school are African Americans. Morning School and Afternoon School: These are new concepts for us. We don't really understand what you mean. We begin our classroom work at 7:30 in the morning. In our room we do spelling, reading, and grammar until 9:00 a.m. We then go to a different special class from 9 until 10 a.m. (Monday we go to the library and learn reference skills and select books to take home, Tuesday is physical education, Wednesday's special is music, Thursday is time in the science lab and on Friday we have art class). From 10:00 until 11:00 we work on science or social studies. We have lunch from 11:00 until 11:30. We all eat lunch at the school and no one is permitted to leave the building.

We go back to our room from 11:30 until 12:30 and study math. At 12:30 we go to computer lab for 1/2 hour Again these specials are in our building, just in different rooms. At 1:00 we return to our classroom and work on group or independent projects until 2:00. All of the classrooms in our Sumatran family (floor) are studying oceans. We are all working on projects about the oceans. At 2:00 we clean up our room and do our jobs (shut down computers, water plants, clean the boards, feed the pets, etc.) and get ready for dismissal at 2:15 p.m. How far to the nearest park: There is a park one block away from the school but everyone agreed it was not a safe place. We decided to tell you about the nearest safe park where we would like to play in our free time. The safe park is the Martin Luther King Jr. Park It is 3 and 1/2 blocks away from the school. How far to the nearest shops: There is a store on the same block called Poor Mans. It is a pawn shop. It would take about a minute to get there. At the end of the block

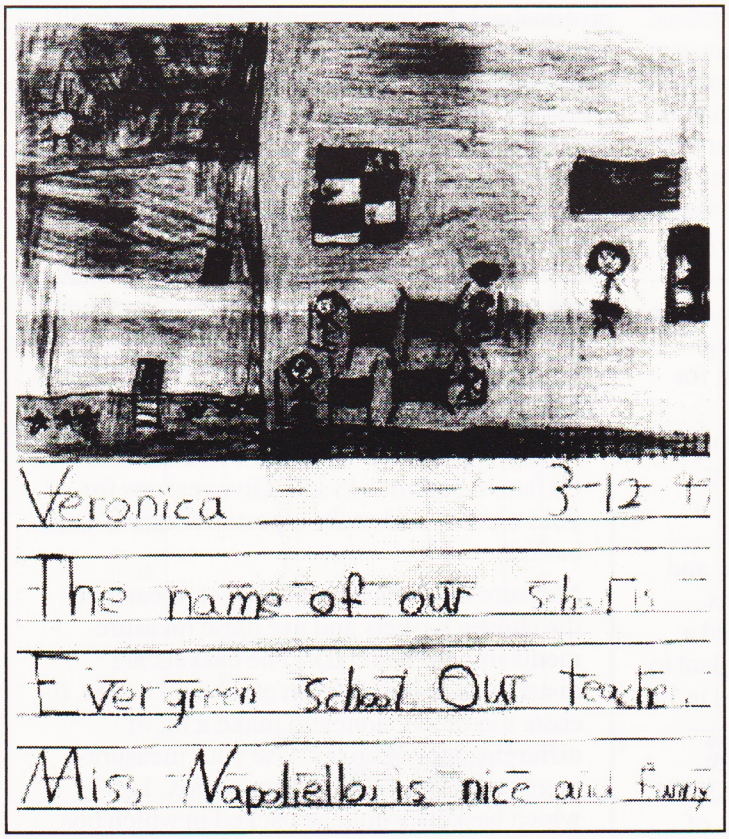


Fig. 10. *Evergreen Elementary, New Jersey.*

there is Willie Moore's store. You can buy just about anything there, sandwiches, candy, sodas, soap, stamps, or newspapers. It might take three minutes to walk there. If we all walked to school it would take less than 5 minutes for 3 of us, between 5 and 10 minutes for 15 of us and over 30 minutes for 2 students and Mrs. Seifert to get to the school . . .'

Conclusion

Many of the schools which took part in the project commented on the interest it created amongst their pupils and the discussions it started.

First, there were the opportunities to discuss how the information was to be collected. How would we classify the weather? How are temperatures measured? Where is the nearest park/school? How long would it take to walk to school? And, what was likely to come from other schools around the world?

Then, once the collection was completed, pupils could look at their own data, produce some charts and discuss the differences, such as the time taken to get to school.

Next is the fact that the information was transmitted across the world and put on public display, and that many of the schools subsequently received e-mails about their work – the pupils had become publishers.

Finally, once the information had been collated and returned, pupils looked at the location of the various schools on a world map, and how the weather and temperature varied around the world. They looked at the different types of locations, and how far children travel to schools; at the different size of schools, and at how the school day varied, particularly in terms of its start and end times – why do some schools start at 7:30am, while others start in the afternoon?

As with many information gathering exercises, the resulting discussions are often more important than the conclusions that are reached; with this project, many of the teachers have commented on how the sharing of information with other schools had given the activity an extra status and increased pupils' interest and excitement.

I'll leave Mary Seifert of W. Alonzo Locke to sum up:

'Thank you so much for allowing us to participate in your project! Phil, this has been a fantastic experience for me and my children. If you ever feel like undertaking another task like this please count me and my classroom in. You have been a delight to work with, always quick with a response and direction. My children have learned some tremendous things thanks to 'Our Day Today'. It has served as an introduction to the 'authentic' use and application of charts and graphs. We have used the project to broaden our geography and social studies curriculum as well. Writing to you (and seeing our response on your web site) served as a catalyst for some great writing on the part of the children. You have helped us turn some rather dry material into an exciting adventure. Most of all, you have enhanced the self-esteem of these children more than you will ever know. Your project has taken 19 children and a teacher out of the projects (poorest inner city housing) and into the world! We send you and your children hugs and kisses and many thanks. . . .'

Reference

Full details of the project can be viewed on the World Wide Web at: http://www.brixton-connections.org.uk/ourday.html

Baskets

Susan Fox and **Helen Armstrong**
Kirkoswald C of E Primary School, Cumbria

Kirkoswald C.E. School is a rural school deep in the Eden Valley. It has 80 children and 3.2 teaching staff. The priority for curriculum development for 1996–97 is IT and the theme for work in the Autumn Term was 'Change'. Staff planned how to use IT in a meaningful way to extend both their own expertise and confidence, and that of the children! We wished to integrate the use of IT across the curriculum and for its use to be real and necessary for the children to achieve their aims.

A large part of the work for the term involved a project on Baskets, studying the change from plant to finished product. A local basket weaver worked in school making swills – Cumbrian potato baskets – from oak strips, and the school borrowed a large basket collection which had originated from OXFAM overseas trade. The collection is part of a series of project packs available for use in Cumbrian schools. During the work, the children used *Encarta* and *World Atlas* for fact finding, scatter and line graphs to help solve problems and a database to help give a better overview of the range of baskets. The baskets in the collection were from Ecuador, India, The Philippines, Thailand, Africa and Bangladesh and they were made of jute, raffia, bamboo, grass, clay, palm leaves, sisal and coconut fibre.

The geographical work for the top juniors involved investigating Bangladesh to find out where bamboo and jute were grown and in what sort of conditions, to find where the clay for the basket bases was mined, and to see how baskets were used in the home, in agriculture and in the markets. *Encarta* was used for the research together with a collection of photographs and library books. We were determined that *all* the children would have some time using the computer and we were concerned that they should not print out chunks of information straight from the screen. So the children worked in pairs and were given specific questions to answer and lists of maps and photographs to print out. When this work was completed, groups working in similar areas came together to produce a fact-file for the Bangladesh notice board, incorporating their own writing and drawings and computer printouts. In this way a highly professional display was created using *Encarta*, *World Atlas*, word processing and the children's own illustrations. Using this display as a source of facts, the children produced their own piece of work on Bangladesh and developed a good understanding of the interrelationship between natural resources, climate, crops and trading issues. They also had a real need to use the CD-Rom, and to make decisions about their use of word processing so that their work was suitably presented on a large board.

There are 10 Year 6 children and they were given a project to work through as a collaborative group. The details of their task were as follows:

> As a group, decide upon the 10 baskets for Oxfam to continue to sell. Give reasons for your choices and make a poster of these baskets.
>
> Measure the diameter and height of each of the chosen baskets and use these measurements in your next task. The baskets are distributed to the shops in cardboard boxes. It costs too much money to make a lot of different sizes of boxes. Use your measurements to decide upon 4 sizes of box. List which baskets would be packed in which box. You must make your work easily understood by other people, such as the packers at the OXFAM headquarters at Bicester.

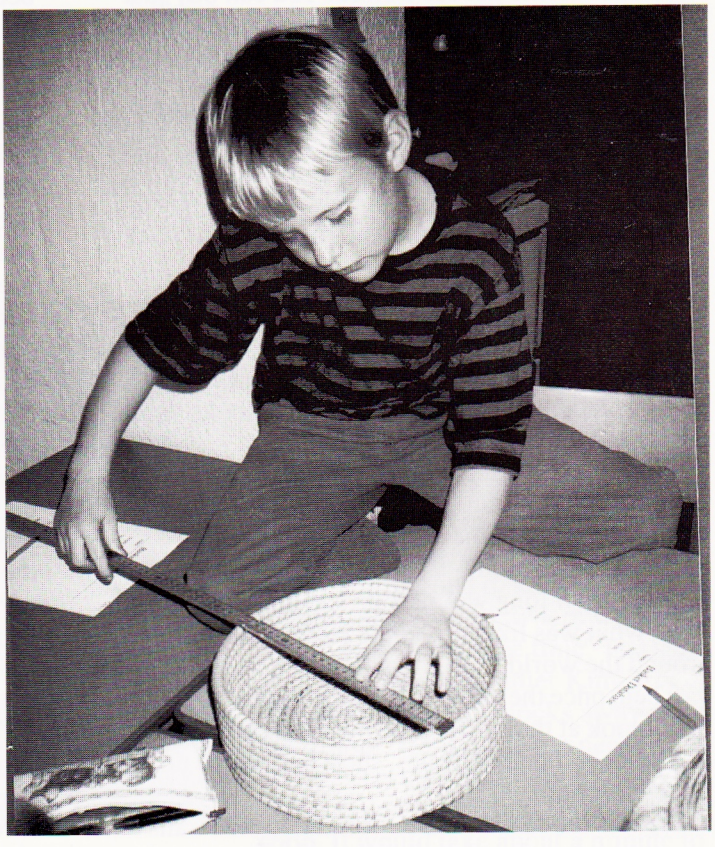


Fig. 1. *Measuring the baskets.*

The children are used to working independently and arranged themselves into small groups with different tasks. There were measuring groups who found diameters and heights of the baskets, scribes who recorded measurements and two of the children collated results for everyone on the classroom computers. All children had a say in the choice of baskets and the final decisions were arrived at reasonably democratically. Reasons for choice were wide ranging, from being aesthetically pleasing or practical to use, to a red and black basket chosen because it was the colours of A.C.Milan!

Posters of the baskets had careful line drawings together with a brief note of the purpose and dimensions of each, and the letter given to each basket so it could be identified on the scatter graphs. These scatter graphs (of height against diameter) were produced by hand or on the A3000 using *GRAPHIT!* and I noticed the children comparing computer produced and hand-drawn graphs 'to see if they looked the same'. They did. The best sizes for the packing boxes were determined using the graphs. This was a cross-curricular piece of work with my main interest being in their ability to interpret a scatter graph. In their presentation, the children happily combined their drawings, writing and computer work.

A second piece of work with the older children involved a set of stacking baskets with lids. These fitted inside one another like Russian dolls. The task was as follows.

If you have a set of three stacking baskets, can you work out the likely measurements of the next two sizes in either direction?

As before, some children chose to draw their graphs by hand whilst others used *GRAPHIT!* They looked at the pattern and distances between the points for the three known baskets to work out the likely measurements of an extended set.

The lower juniors made a basket database book. Whilst familiarising themselves with the range of the baskets, they were encouraged to ask good questions and designed a class database with the following fields.

Name	**Height**	**Width**
Used for?	**Coloured?**	**Weave**
Handle	**Country**	**Material**

The children made up names for the baskets and filled in the information. We then put the data on to the computer using *FINDIT!*. Some of the fields use preset options, eg. for 'Used for' the options were: decorative, food, rubbish and storage. Other fields

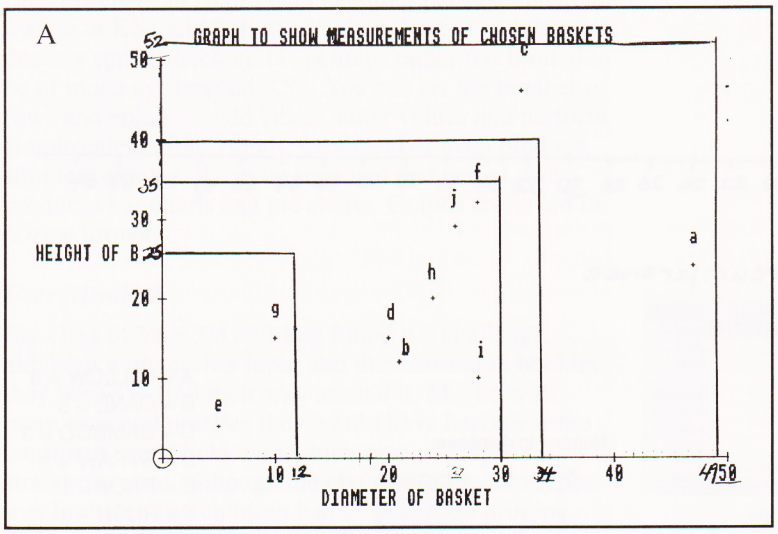
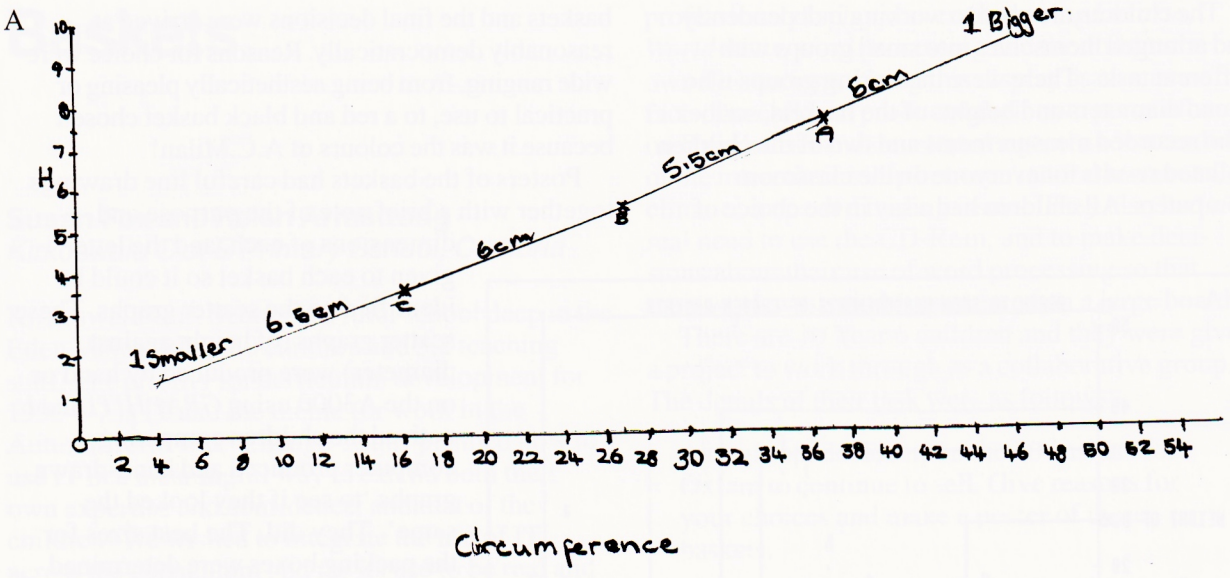


Fig. 2 (a,b, and c). *Designing packing boxes.*



B

	Height	Circumference
A	7.5cm	37 cm
B	5.5cm	27cm
C	3.5cm	16cm

These are the measurements of 3 stacking basket What would the measurements be of 1 bigger and 1 smaller.

I Think 1 Smaller Would be....

1.5 cm 4cm

and 1 Bigger Would be

9.5 cm 46cm

Fig. 3 (a and b). *Designing stacking baskets.*

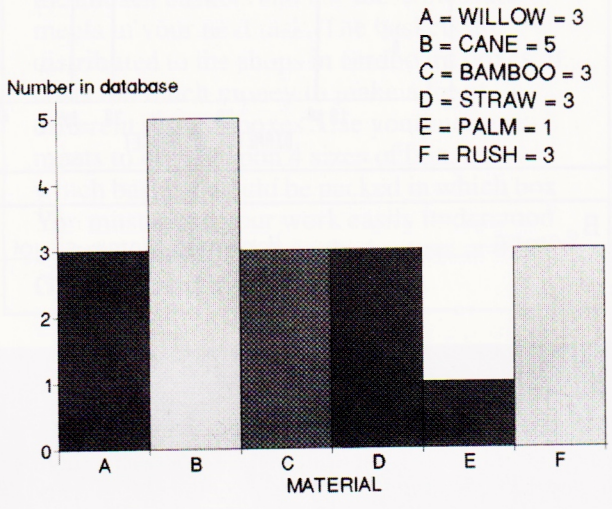


Fig. 4. *Block graph of materials.*

had Yes/No or numerical answers. It was the first time we had used the program and it was challenging but the children did very well! We then produced block graphs and pie charts with the children choosing the criteria. The next step was the most exciting as we began to extend our information handling skills, making connections and asking further questions. For example,

> 'Do baskets with no handles come from non-UK countries?'
> 'Are plain, non-coloured baskets made in the UK?'

The Year 4 children became quite adept at looking for connections and sorting by more than one criterion.

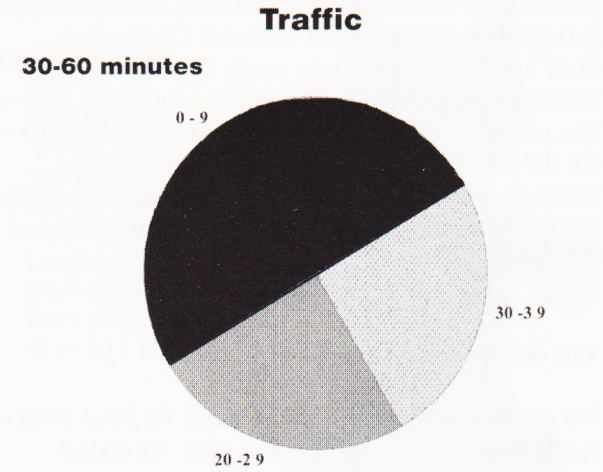
We felt that the work involved in the basket project had made real, purposeful use of IT with the children working individually and collaboratively. It has given us as a staff, confidence in our abilities and increased our skills in using IT across the whole curriculum.

References

Programs used on A3000
GRAPH IT! (Sherston)
FINDIT! (Appian Way Software Ltd., Tel/Fax 0191-373-13890)

CDs used on PC with Windows 95
World Atlas (The Software Toolworks)
Encarta '95 (Microsoft).

Software review



DataFrame *from Resource*

DataFrame is an Acorn data handling package intended for use at KS2 and 3. It can be though of as an introductory spreadsheet, and is perhaps rather too limited to be of much use beyond KS2. You can set the number of rows and columns, add labels, enter values and perform simple calculations (totals, averages) or even produce simple formulae. It can be searched and sorted, and produces bar charts and pie charts. Graphs are saved in *!Draw* format.

User friendly?

My class of Year 3/4 children found it a challenge, although with teacher input and the instruction booklet, they began to find their way around it. Maybe with more time and practice they would have become more confident users. Selecting which type of graph was straightforward, although the choice of only two types was limiting. The children had no problems printing their graph. However, the fact that the bar graph was only in red meant that each area of data did not stand out instantly.

The numbers on the printout were also too small and without a more detailed title it was difficult to know what the point of the graph was.

National Curriculum compatibility?

It covered the data handling area of the National Curriculum and it could easily be used across a range of topics throughout the school year. Although the range of graphs was limiting, the program forms a nice progression from *GraphPlot* or *DataPlot*, as it introduces children to more sophisticated mathematical concepts and skills.

Traffic

Traffic	0-15 minutes	15-30 minutes	30-45 minutes	45-60 minutes	Total	Average
Buses	7	4	7	3	21	5
Cars	42	37	22	15	116	29
Vans	19	6	9	5	39	10
Lorries	11	20	11	9	51	13
M/Bikes	3	5	4	1	13	3
Bicycles	3	2	4	0	9	2
Tractors	1	0	2	0	3	1
Others	0	1	2	0	3	1
Total	86	75	61	33		
Average	11	9	8	4		

Educational value?

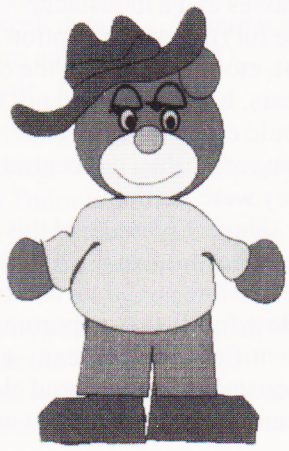
So far the children have only worked with the example in the handbook, and only the more able Year 4 children worked with it; however, the package was great potential to be a valuable learning resource.

Limitations?

At present it is not completely compatible with other programs. You cannot save your graph directly into a word processor or *!Draw*. If you save it to a disc first, you can then copy it from there satisfactorily.

Miss N. Hankin
Year 3/4 Teacher, Lea Street First School, Kidderminster

Teddies – information handling from scratch



Moira Rose
Vicarage Park Primary School, Kendal

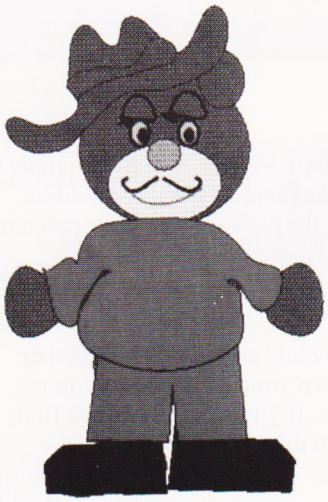
The context for the work

Having taken part in a two-day NCET Information Handling course, the Head Teacher and IT co-ordinator returned to school full of enthusiasm for the new initiative. Six months previously the IT co-ordinator had completed a diploma course in Managing the Development of IT which had been a catalyst for the whole

school to develop confidence in the Communicating Information strand of the National Curriculum. Staff and pupils were now ready for the next stage – Handling Information. The NCET course had shown that our existing software was not really satisfactory for the job, so our first priority was to purchase software which would allow for progression throughout the school and also run on both Archimedes and RM hardware.

The software

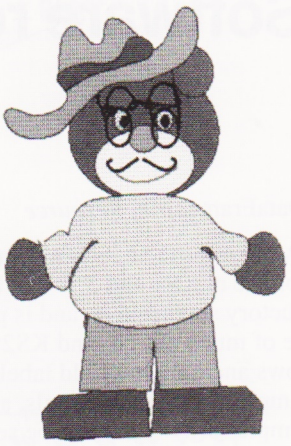
We decided on *Find It!* (for PC) and *1st Find It!* (for Archimedes) both from Appian Way. An added bonus was that *1st Find It!* is designed for Key Stage 1 which is where we have the Archimedes machines. *Find It!* forms a natural progression with more sophisticated search facilities suitable for Key Stage 2. Staff and pupils found the software easy to use and all five of the classes into which it had been put were using it immediately. The rest of this article describes the project undertaken by Year 2 children using *1st Find It!*



The software comes with some ready-prepared data files. The icons are large and easy to use and written instructions are usually accompanied by pictorial help. Year 2 chose to work on Teddy Bears. This file allows pupils to design (and print) their own teddy bears, choosing from different coloured furs, eyes, trousers, jumpers, hats and shoes and choosing whether or not they have glasses and a moustache. On each choice (except the fur) there is the option of having no trousers, no hat, etc. There is also the option of naming the bears, but we decided not to allow this so that we could encourage the children to look at the collection rather than concentrating on whose bear it was they were finding.

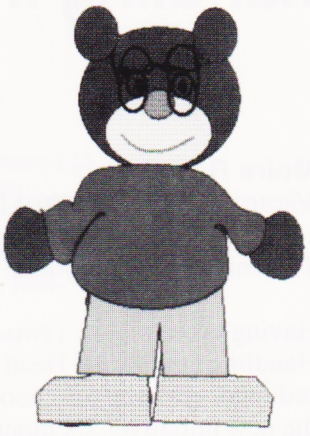
(Having completed this initial project, we were glad that we had done this but we felt that it would be feasible next time to have naming as this would allow for further opportunities of search and identification of a bear – e.g. A brown bear with a moustache, wearing red clothes was seen at the scene of the crime. Who was it?)

The activity



Helped by the IT co-ordinator or the class teacher, the children entered their data in pairs which gave rise to a lot of discussion about fashion, colour matching and co-ordinating and what the bear might be doing (was it half-dressed, getting ready for bed or was it going out, etc.). The moustache and glasses also gave rise to much speculation. All the children managed to design their bear successfully, most with very little help after the initial introduction to the software. Indeed, some children showed their classmates what to do in the absence of the teacher. There were no problems about ensuring a varied data file and it was not long before the file was complete. (One possible drawback in large classes is that the file can hold only 30 records.)

Unfortunately, the timing of the initiative and the necessity of acquiring new software meant that we were now almost at the end of the Summer Term, and opportunities for interrogating the information were becoming very limited. However, those who did get the chance were fascinated by the information that they could find out. On the first occasion the IT co-ordinator had come to find out if the file was complete and to check that questions to the computer would produce sensible information for the children. As she sat at the computer, just before break, a small knot of children gathered and questions came like rapid gunfire: how many had hats? how many had glasses? etc. Then they started to narrow the search: how many had hats and glasses? how many had all their clothes red? They looked at graphs which showed the information they had asked for and were quickly able to interpret them. The possibilities were endless and the children were well and truly on task. The little knot grew to a bigger one and eventually the children had to go out to play, but not before they had become excited about the possibilities which

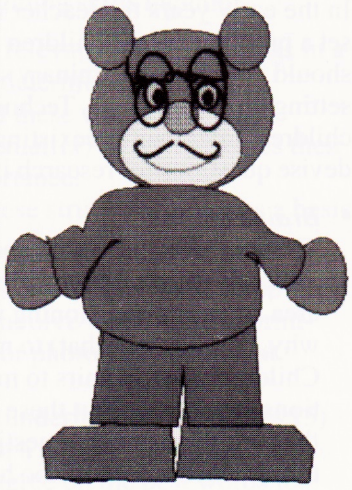


the computer had opened up to them. They realised that it would have taken very much longer to have done the exercise by hand and then it would have become boring. Several children had the opportunity to interrogate the information in pairs and this produced many interesting lines of enquiry. It also produced what if . . .? type of questions which showed that some of the children might be ready to start designing their own simple databases.

Unfortunately time ran out before the project could be developed further but it had been a success. Teacher and pupils had a new confidence, a new understanding, a new enthusiasm and an appetite for more!

Reference

1st Find It! and *Find It!* are published by Appian Way Software Ltd., Old Co-operative Buildings, Langley Park, Durham, DH7 9XE. Tel: 0191 373 1389.



Information handling skills

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As CD-Rom systems enter primary schools, teachers are searching to find the most effective ways for their pupils to use the machines. The information disks available, especially the encyclopaedias, are potentially extremely powerful resources. As with any new technology, however, there are problems and many primary schools are finding it difficult to realise the full potential of these powerful information systems. CD-Roms allow children to 'paddle about' in an immense pool of information. If children are to do more than paddle, what skills will they need to master?

Many of the skills needed to use CD-Roms effectively are the universal research skills which children need in order to become effective handlers of information presented in any format. Whatever the medium used – books, tapes, videos, computers – research of any nature involves four steps:

1. define what information is desired (set goals, devise questions)
2. find the information
3. record the information (take notes)
4. present the information in a new format (written report, picture, etc.).

Children using CD-Roms most effectively will be going through these four steps. I shall consider each step in turn and propose some suggestions for developing the necessary skills.

1. Setting goals and devising questions

Teaching children to research 'project' work well is a very challenging task. In many primary classrooms project work is either largely unmonitored and pursued in isolation from skills instruction or so highly directed that it is not really research at all. To find out all you can about the Vikings, for example, is not a specific enough goal and is likely to result in the waste of much time and effort.

Children must learn how to devise questions before they can find answers. This is extremely important. Effective learning is more likely to occur when reading is focused, when the reader has a clear goal in mind, a clear question to answer. The question may be testing an idea (e.g. Is it true that all the largest dinosaurs lived towards the end of the dinosaur age?) or it may seek data (e.g. Where was Alfred Lord Tennyson born and brought up?).

Questioning skills include:

- the ability to review existing knowledge as prelude to questioning (e.g. What do we already know about fighting in Tudor times?)
- the ability to formulate questions which can be answered (e.g. What kind of weapons did the Tudors use?)
- the ability to formulate hypothesis which can be tested (e.g. Is it true that the Tudors had no knowledge of explosives and therefore could not use weapons such as guns or grenades?).

In the early years the teacher may ask a question or set a problem for the children to solve but this should only be a preliminary step towards children setting their own goals. Techniques for helping children order their preexisting knowledge and devise questions for research include:

- *Brainstorming*
  Think of relevant words about the topic and then group these into areas. Select a word from each area and use a questioning word (who, where, why, how, when, what) to make a question. Children work in pairs to make as many questions as possible. Put these aside for a few days then children sort the questions crossing out those which would be too hard to answer. Finally they select two questions to find the answers to, working as a pair with a book or CD-Rom.
- *Mapping*
  Make a map or diagram of all we already know about a topic. Indicate where new information will fit on and formulate questions to find this new information. Add the new information to the diagram after research.

2. Finding the information

Finding information generally involves using organisational devices such as contents pages or an index to locate material, skimming to gain an overall impression, scanning to pick out relevant information and detailed reading to answer a specific question. Having learned the alphabet children learn to use it to order words and to find words by letter order. This is the key to using dictionaries and indexes. The *1991/92 HMI English Report* suggests basic skills in this area need some attention in many schools. Dictionary skills are not always taught effectively and there is marked variation in the degree to which pupils are taught to use the contents pages or index of reference books. Children need to be aware of these entrance paths to books and encyclopaedias.

In practice, teachers encounter a number of difficulties if they ask children to devise their own questions and then look up answers to them using children's books.

- Many school and class libraries do not have enough books on a given topic to make it probable that most of the children will find the answers to their questions.
- Many children's books lack tables of contents – one study found that only 61% had contents pages.
- Many children's books lack indexes. In the same study, only 58% of the books had indexes. Furthermore many of the references cited in the indexes gave only passing mentions to the topics. They were hard to find on the page and uninformative when found.
- Too few books make effective use of subheadings in the text as tools to focus attention, clarify organisation and help retention of information.
- Children may have difficulty in thinking of a likely key word to look up. It is often necessary to think of alternative words and the ability to do this is limited by the child's vocabulary.
- Children need to have a reasonable idea of how to spell the words they are looking for.
- Children need to be able to read effectively for information. Children see 'good' readers as those who can concentrate, reading many pages in a session without skipping and reading a book to its end. This technique is suitable for narrative reading, the kind children are introduced to most frequently, but the reading of non-narrative, factual material benefits from other skills.

CD-Roms use a variety of organisational devices, some familiar such as alphabetical indexes, and some new, such as keyword searches, menus and buttons. Children need to be taught to use these search techniques, in particular keyword searches which may not be clearly signalled on the menu pages. But, for the most part, the skills they are required to use when finding information on a CD-Rom are similar to those required for text-based materials.

Skills for finding information include:

- the ability to identify appropriate sources of information
- the ability to use contents, indexes, chapter headings, subheadings, glossaries etc.
- the ability to skim and scan for required information.

Given all the difficulties mentioned above, teachers may need to take most of the first step upon themselves, offering children only a limited set of materials which have been vetted for their accessibility. In my own experience I have felt it helpful to devise worksheets to match questions to a book or CD-Rom before asking the children to find the answers using the index, contents page or menus. It is easiest to start with the source material, find an interesting word, look up the reference and see if it is informative, then write a question that the reference will answer. This technique gives the children a fair level of success, but it is hardly realistic to suggest these children are doing their own research. They are, however, learning how to use indexes and other search tools.

Similarly, skimming and scanning skills can be developed using carefully selected texts or CD-Roms which make good use of subheadings and

other organisational strategies such as text linked to pictures or words printed in bold fonts. Use of a good dictionary or thesaurus can help children to check spellings and find synonyms and, incidentally, to develop their vocabulary.

3. Recording information – note taking and planning from notes

Research should not mean copying. It should involve taking notes from the resources studied and then rearranging these notes, using them as the framework for a new exposition of knowledge.

Beyond doubt this is one of the most difficult tasks faced by young researchers. Reading strategies among primary children are very often of an all-inclusive, unselective nature. Similarly, in general, primary children do not establish writing goals in their non-narrative writing, but use trial and error memory searches, setting down everything they know about a topic in a non-systematic way. They usually start writing tasks with very little thought or planning and if asked to extend their writing, they use association to attach more data to that already included. This is a linear, low-level approach to writing with little or no planning or goal setting. It fails to distinguish essential detail from supporting, peripheral information.

Children have difficulty in planning and organising their own thoughts, but this is a relatively easy task compared to reading someone else's writing, making notes from it, and reconstituting it in one's own planning. It is hardly surprising that children tend to copy when they 'make notes'. Even if they manage to reword sentences, the organisation of the material is almost always copied. Notes made by a ten year-old tend to be complete ideas or sentences. Typically they write them down in their finished essay in the same order in which they thought of them or noted them, although as many as half of the notes may be elaborated or combined. When asked to plan, older students can produce a plan; younger ones produce text. For this reason brainstorming is difficult for younger children because they produce whole sentences, not words.

Organising collections of items or describing them to others is a new skill for children that needs to be taught. Children up to and including 10 years of age find independent planning and note taking almost insurmountably difficult but in the National Curriculum these skills appear in the KS2 Reading Programme of Study. At level 5 children are required to 'retrieve and collate information from a range of sources' and at level 6 they should be able to 'summarise a range of information from different sources'.

Note taking and planning skills include:

- the ability to select relevant words and ideas in a text to answer a predetermined question
- the ability to record these words in a way (possibly a table or matrix) which indicates their relevance and importance.
- the ability to use these structured notes as a basis for planning.

A number of strategies can be used to develop these skills. The first three involve working with print-outs from a CD-Rom or photocopies of a text.

- *Underlining*
  Ask a question and underline a limited (say 15) number of words on a page which answer it. Work in pairs and agree on the best words to underline. Compare, as a class, what words were chosen. List the words on scrap paper for use as notes. Leave for a few days before writing up.
- *Multiple underlining*
  Use different colours to underline or highlight words to answer different questions. For example, in a text about Stone Age times, use blue for words about food, green for words about weapons, orange for words about homes, purple for words about how life was different. Then rebuild the words into an information tree before beginning to write.
- *Crossing out*
  Cross out non-essential words in the text. Use what remains as notes. Leave for a few days before writing up.
- *Tabulation*
  Read for information to fill in a table prepared by the teacher. Underlining can be used to highlight the information. Only three or four words should go in each cell. Children can use separate sheets for each column to make the task easier. A number of different source materials may be used to complete the table. Children should put away tabulations for several days before writing.

4. Presenting information in a new format

Children start their literate lives reading narrative stories and writing narrative text themselves. Writing text which informs rather than tells a story is a more difficult task. It is rarely attempted before KS2.

Writing which presents information gleaned from a number of sources can only emerge if note taking skills are developed as outlined above. A child who can do this well is working at NC Level 5. Children are unlikely to reach this level before the final years of KS2 and many, indeed probably the majority, will not achieve this before secondary school.

There a number of features of informative

writing which make it so much more difficult. Information texts have very different linguistic structures from story/narrative texts. They are more likely to have complex sentences, to use the passive voice and to have long series of prepositional phrases which tax short term memory. In addition words may be used in unusual contexts and with unusual meanings (e.g. 'a polar bear's coat commands a price'). Frequently verbal meanings are transferred to nouns (e.g. 'distribution of brown bears').

Children find it difficult to unpick these structures when reading informational texts and nigh on impossible to emulate them when writing their own. This leaves them without a useful model for their own work. Furthermore, informative, non-narrative writing is more difficult because there is no story line to suggest an order.

Development of mature writers is a slow and tenuous process extending throughout the school years. A writer requires four types of knowledge:

- a data base for writing (the substance)
- a procedural knowledge for recalling, ordering and transforming the data
- a knowledge of writing forms
- the ability to search for and find the appropriate form for the writing at hand.

The skills involved are numerous and complex. Many writers need explicit instruction in the writing process; they do not learn it automatically. This is particularly true with non-narrative writing. Children read fiction predominantly. A reading survey of all 180 children in Cofton Junior School revealed that 2/3 of the boys and 3/4 of the girls prefer fiction to non-fiction in their own reading. Children also are more likely to write from a personal point of view, describing what has happened as a story rather than describing it in the impersonal register of non-fiction text.

Skills required for presenting information in a new format include:

- the ability to distinguish between essential information and supporting detail
- the ability to collect and order relevant data from a number of places
- the ability to use collected information to test hypothesis and draw conclusions: i.e. turn data into information.
- the ability to structure information
- the ability to evaluate information collected
- the ability to make global connections.

Many of the note taking techniques outlined above can be used to help children develop an order for their final writing. Most will lead straight into writing if only one reference source is used. Tabulation is particularly useful if children are combining material from several reference sources.

Other techniques include:

- *Summarising or Outlining*
  This can be useful in a supported fashion with children of ten or eleven. For example, the teacher could give some main headings and ask children to fill in one or two ideas under each heading. Then children could be asked to think of some more headings for a later part of the text. Young children find it very difficult to outline or summarise effectively on their own and even by ten or eleven the summaries are often inadequate. Without support children usually give up and just copy the text.
- *Working towards a meaningful end-product*
  It is always helpful if children can see a reason for their writing. For example, children could produce information books for a younger age group.
- *Writing the first sentence/paragraph*
  The first sentence or paragraph of an informational text is often a pointer to what is to come. A strategy for writing this is to begin by writing as many words as come to mind on the chosen topic, then grouping the words into similar categories and naming each group (homes, food, weapons etc.). The starting sentence or paragraph should then include all the category names.
- *Producing a desk-top-published or multimedia presentation*
  While traditional information books present a model of non-narrative writing which children find difficult to copy, more modern forms of presentation offer alternative structures which might be easier to emulate given the appropriate resource tools. A magazine or comic book approach with short blocks of text mixed with pictures, diagrams etc. can be created by manual cut-and-paste or using a desk-top publishing package on a computer. On-screen multimedia presentations can be produced using many of the same techniques and also many new ones, such as use of buttons to move from page to page and the inclusion of sound clips.

There are no quick and easy solutions to the problem of developing children's informational writing. Desk-top publishing work and the development of multimedia presentations are extremely time consuming activities and it is not easy to find space for them in a crowded curriculum. However, the benefits can be considerable in terms of both skills development and motivation. Children find researching material and including it in their own non-narrative writing very challenging. If the product of their work is a multimedia presentation which can be viewed by other children, or by parents at open evening, they will be more likely to be stimulated to meet the challenge.

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