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ABSTRACT

This book, which is designed for nonspecialist literacy teachers and lecturers, provides an overview of the role of computers in literacy, language, and communication. The preface includes selected views regarding the relationship between literacy, culture, and change and the essay "Domains of Literacy" by Gunther Kress. Discussed next are the role of telematics in literacy, software/hardware for inservice education, and online professional development and recreational activities for teachers. The following topics are examined in a section titled "A to Z of literacy": academic writing, adventures and fiction, authors and new literacies, books, choosing literacy software, collaborative writing, copyright and censorship, differentiation, drama, editing, electronic communication, electronic publishing, equal opportunities, English for speakers of other languages and English as a foreign language, illustration and graphics, knowledge about language, monitoring and assessment, multimedia, presentation and typing, progression, publishing the news, reading, research, special educational needs, spelling, storytelling, writers' tutorials, and writing. An evaluation checklist, alphabetical directory of 126 literacy software products, and description of selected word processing tools are also included. Concluding the book are lists of the following: 4 online services, 68 publications and 26 British organizations concerned with literacy and/or educational technology, and 38 British educational software suppliers. (MN)

21st Century A to Z Literacy Handbook

linking literacy with software

a handbook for education and training

by

Christina Preston
Project Miranda

with recommended software for
Apple *PC* *Acorn*

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21st Century A to Z Literacy Handbook

linking literacy with software

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Christina Preston
Project Miranda

in the dear memory of Corinna

Project Miranda

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In partnership with industry and commerce, Project Miranda is providing new strategies for teaching and learning about telematics in schools, further education, higher education and teacher training.

Project Miranda activities include

- research into
  - education and industry partnership;
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  - international newspaper events, multi-media news stacks, teacher workshops, on-line magazines and video-conferencing at conferences and exhibitions;
  - international teacher education partnerships in developing countries including professional studies on-line;
- designing and implementing M.Sc. B.Sc., and Diploma courses in telematics;
- OFSTED inspections and courses for inspectors;
- resource development for teachers and students including educational software and INSET packs;
- telematics scholarship models in partnership with industry;
- lecturing in industry education partnership, IT management, IT inspection, core skills, academic writing, communications, English, teacher education, equal opportunities and educational computing in developing countries.

The Directors of Project Miranda

Christina Preston has developed a unique approach to partnership in Project Miranda. Consultancy work includes projects for the European Union, Chile, Holland, NCET and NFER as well as a range of leading companies.

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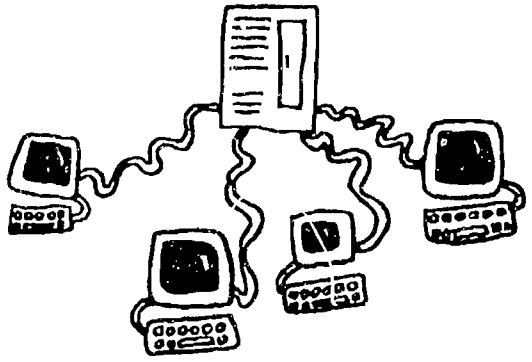

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Contents

This book offers an overview of the role of computers in literacy, language and communications. The content is arranged for speedy access by busy non-specialist teachers and lecturers who also see themselves as facilitators and learners.

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London University

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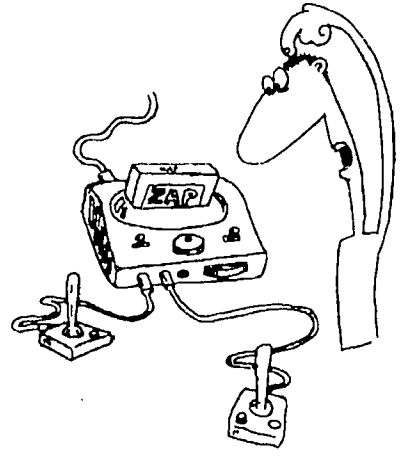


Now, how do I get it to print?

Literacy, culture and change

Multimedia is, for example, restoring the dignity of Mapuche Indian oral culture in Chile. The 20th Century attitude that oral cultures are only a stunted version of their printed, text-based peers has begun to fade, as the indigenous peoples who have successfully preserved them thus far, move from a defensive to a more aggressive stance and begin to receive more support.

Lake Sagaris, Miami Tribune 1993

When a right relationship is established between people, culture and technology a new world of options emerges... Powerful new technologies are not intrinsically threatening. If they were linked to, and directed by a higher-order ethical commitment they could be deployed in life affirming ways.

Beare and Slaughter

It is the performance aspect of experience that the written culture has banished so successfully. No wonder Plato distrusted writing so much. Performance was the essence of rhetoric. And it is performance that computers will put back into the new world of Papert's letteracy. Words will dance on the page, illustrations will move, speak and sing, and text will metamorphose into picture, picture will reform into words. On the screen of the future, there will be as much flux as you can bear. It will be a dynamic, playful page, not the authoritarian blockhouse of undifferentiated type we suffer today. Naturally we shall have to find a new word for all this.

Chris Barlas

'Literacy' is being able to communicate in the medium of your culture.

Roger Wagner (developer of HyperStudio)

Definitions of literacy have always been throughout history in the hands of the literates. We as privileged literates are those who define what counts as schooled literacy. We are the gatekeepers, the conservatives. We perpetuate the myths of literacy... The myths remain in our education system because we act as if we believe that in children, as in history, orally gives way to writing, despite all we say about the importance of talk in learning.

Margaret Meek

As is so often the case the key to our understanding will lie in giving close attention to the children we teach.

Sally Tweddle

Computers offer wonderful ways of overcoming or diminishing particular handicaps, mental and physical. For many children with particular challenges to overcome computers can offer new ways to learn and discover.

Professor Stephen Heppell

Once words have been written down, they are tumbled about anywhere amongst those who may or may not understand them, and know not to whom they should reply, to whom not; and if they are maltreated or abused, they have no parent to protect them; and they cannot defend or protect themselves.

Plato, Phaedrus 360BC

Educational change takes time, new ideas are not always easy to assimilate. the classroom is the main venue for implementing a school's policies: how well policies are implemented and what pupils gain from them is largely determined by how the classroom is organised and managed. People, therefore, are at the heart of change.

Sally Wicks

Domains of literacy

Preface

by Professor Gunther Kress

It is impossible to overstate the enormity of changes in literacy and literacy practices wrought by developments in electronic technologies. Because we can't comprehend what is happening we search for apt metaphors, or for historical examples which might serve to explain what is happening. So let me ask: 'Are we in the middle of a second Gutenberg revolution?' The answer in brief is: 'No, we're not'; what is taking place in the field of literacy is more far-reaching, and more fundamental.

If this seems to overdramatise the situation, let me explain. Gutenberg's invention (in the West) of movable type mechanised writing in the form of print, though 'print' had existed before of course, even in the West. The revolution therefore consisted in the massification of an existing mode of representation – writing – and the mechanisation of an existing mode of reproduction – print. It left intact some of the most fundamental social/structural relations around writing, and with them the social structures which have underpinned what we take to be the most characteristic aspects of written language: Its formality; its impersonality; its objectiveness and 'timelessness'; its grammatical complexities; its hierarchical mode of organisation.

The revolution which is now under-way is unmaking all those characteristics which we had come to see as natural about writing, both in special, cultural terms and in terms of linguistic form. The new technologies are making what seemed like unshakeable paradoxes unparadoxical and commonplace – for instance, the geographic separation and temporal co-presence of two people interacting via electronic mail. This is having deeply unsettling effects on writing, in that it introduces the informality of speech (as an effect of the co-present participants) into the formality of written representation (as an effect of the geographic separation of participants). It is quite unclear how this will play out in terms of new forms of representation.

The icon revolution

But the new medium goes further than this, in that it has a deeply subversive potential in relation to language. While Gutenberg's revolution made language in its written form more central, the current revolution is taking us both backwards and forwards into a new era of iconic forms of communication, backwards and forwards into hieroglyphics. Whether this is in the introduction of 'emoticons' through the exploitation of the visual potential of typographic elements, or the proliferation of the use of icons in so-called written texts, or indeed the treatment of (verbal) text itself as merely an item in a visual composition, in a new multi-modal, multi-media form of text, what is happening is a fundamental challenge to the hitherto unchallenged cultural centrality of written language. This is indeed a revolution.

None of these changes are technologically driven, or at the least, in my view it would be a grave misunderstanding to see them in that way. The move to icons is as much connected with an increasing awareness about problems of communication through language alone in a heterogeneous and multicultural society, as it is to do with the challenge to language as an unproblematic medium of authority. And if the new technologies are making ideas such as joint writing a reality rather than remaining as a difficult ideal, they are also realising the hitherto seemingly theoretical strengthening of the reader's position in relation to a text. A reader who can rewrite a text as it appears on the screen in front of her or him, literally rewriting it as she or he is reading, is definitely not the passive sponge-like recipient of the Sender - Message - Receiver model of Shannon and Weaver's theory of electric communication of the 1940s. Here lies the utopian appeal of the new forms of literacy; readers and writers no longer kept apart by relations of power-difference, amplified by the mass-media, but as equal participants in vast networks of communication, through a multiplicity of media; the visual, language, sound. It is a wonderful idea; it will need enormous effort and constant attention by all those interested in that ideal to make anything even vaguely like its potential happen. ■

Telematics: an introduction to change

One of the greatest education debates at the end of the twentieth century is about definitions of literacy, about preserving the best of the old and welcoming the new skills demanded by the advance of communications technology. Computers are more reliable and more powerful than ever, and international connectivity through the telephone lines and multimedia computers is having an impact on ordinary lives. There are indications that standards of oral literacy linked with graphical understanding are becoming as important as the written word – and the written word commands more attention if it is wordprocessed and laser printed.

Reflective teachers are dealing with these issues in a practical and realistic way, and some impressive work is being done in classrooms. Of course, all educational institutions should be considering the impact on their students of these changes in literacy and information technology. The whole staff should be involved in the debate about how to tackle literacy and the link with information technology. The opinion of those who are not computer confident is as valuable as the advice of those who are. A shared vision is vital to success in teaching and learning efficiency.

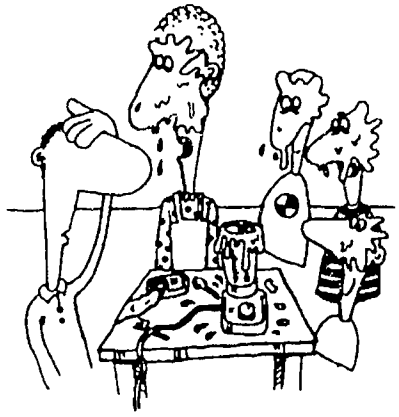
There is a range of strategies that concerned staff teams can employ to meet these challenges. Some of the issues to consider after an audit of existing resources and talent are:

- definitions of competence and confidence amongst staff and pupils in literacy and IT;
- a five year development plan that allows for progression;
- the professional development and accreditation of staff in IT;
- cross curricular approaches to IT and literacy;
- budgeting that takes into account expansion, maintenance and ultimate replacement of equipment;
- the deployment of resources including mobile options;
- classroom management and independent learning strategies;
- monitoring and assessment;
- partners in IT development:
  - parents
  - governors
  - industry
  - government agencies.

Without institutional vision and a long-term strategy, teaching and learning in literacy will not be fully effective. Teaching in the classroom and buying hardware and software packages comes a long way down any planning list. Therefore this introduction offers guidelines to a school staff or individuals who are interested in the computer's potential as a catalyst for change.

Literacy today

As we approach the twenty first century, more information technology skills are required for communication; more information services are electronically based; more people are working from home using electronic devices to keep them in touch; more learning and teaching is dependent on flexible resources and remote access. In such an environment it is a profound disadvantage when those with learning difficulties are prevented by those difficulties from having access to information technology



They want to know why the foodprocessor has no 'undo'. The wordprocessor has it..'

tools. Yet paradoxically there is growing evidence that the computer itself is a powerful tool in teaching and learning about literacy.

What is literacy?

For most of this century , to the general populace 'literacy' has meant the ability to read and write. Primary schools have been expected to supply the main teaching, supplemented by remedial English in the secondary school and special school provision. Further education has developed courses in basic literacy skills and seventeen universities have admitted in an Adult Literacy and Basic Skills survey that the reading and writing skills of some undergraduates need attention. The government is getting tougher about funding students without these basic skills. They are also legislating to recognise the fact that reading and writing are no longer the only skills a nation's work force needs to survive.

The power of written and spoken language should not be underrated. Within the domains of literacy fall matters of rhetoric and dialect; publication and power; truth and virtual reality. But language is a social skill which is dependent on context and genre for meaning. In the sixties the Cox report on English in the curriculum saw the power of universal communication when information technology was just on the horizon.

> *The aim of media education, then is not merely to enable children to 'read' – or make sense of – media texts, or enable them to 'write' their own. It must also enable them to reflect systematically on the processes of reading and writing themselves, to understand and to analyse their own experience as readers and writers.*

Forty years ago Cox was underlining the fundamental importance of core literacy skills, whatever the source of the 'text'. In his preface to this book, Gunther Kress, a leading thinker in the study of genre theory, indicates that a literacy revolution is well underway.

Literacy in all senses

The integrated use of sound, graphics and animation with text on screen makes media literacy an indisputable aspect of learning about communication in the classroom. Literacy now includes the need to recognise and interpret computer generated materials as well as interactive skills and competence in computer applications. The supremacy of written language as the main medium for communication in the computer world is being challenged by animation, illustration and sound.

Literacy in education

How is the education system defining literacy and interpreting the far-reaching and fundamental changes in our communication systems? In the new National Curriculum Orders for primary and secondary schools, information technology is now the third core skill alongside literacy and numeracy. The Dearing revisions to the national curriculum in primary schools which will be in place for the next five five years have captured the vision:

> *Information technology skills must be located securely at the heart of the national curriculum...Looking to the 21st century, it will be necessary to cover the teaching of literacy and numeracy and the basic skills of information technology clearly and closely as these skills are so fundamentally important.*

Further and Higher Education will follow – even the most recondite ivory towers can now be accessed from the superhighway.

Great expectations

In the twenty-first century, therefore, teachers and lecturers will be expected, as ever, to be literate in reading and writing as well as speaking and listening. They will need to be numerate as well. Indeed, society will continue to expect standards of literacy and numeracy amongst educators to be more than equal to improving and correcting their students.

Will educators be expected to take the same lead in information technology? What is new at the turn of the century is the recognition enforced on us by the new technologies that the old divisions between learners and teachers are becoming blurred; that lecturers may also need to be facilitators; that learning to research information is becoming more important than learning the facts. At last it is becoming clear that a detailed technical mastery of the new technologies is less important than the vision of the society we wish to construct and the strategies we put in place in education to achieve this.

Curriculum balance

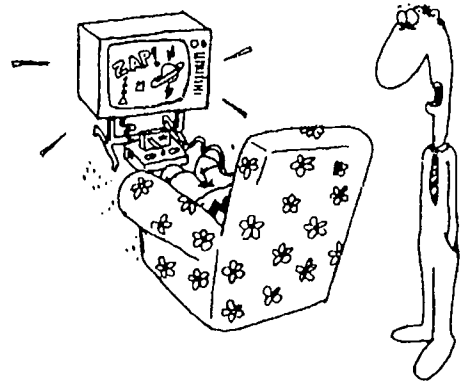
Information technology will be used to deliver literacy training as well as providing communication tools. Yet even this phrase – information technology – is already out of date. 'Telematics' is now widely used to include the networking of computers through the telephone lines and on microwaves nationally and internationally. New questions about curriculum balance are posed by these exponential improvements in technology:

- What is the relationship between literacy, media and computer skills?
- How should the school be changing to take proper advantage of multimedia tools?
- What access and entitlement should students have to writers' tools ?
- What will be the effects on society of computer-mediated communications ?
- How does international computer communication affect books and copyright?
- How much reading and writing will a student in the twenty-first century need to do?
- Will skills training be enough to equip students for the challenges of telematics?

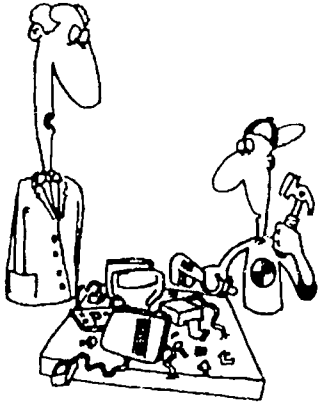
'Functional illiteracy' is a term which has been coined to describe people who are inadequate for a chosen task, like the inability of a computing undergraduate to write a technically-competent essay or give a presentation. The age and academic ability of the learner have little relationship to functional illiteracy. The term 'functionally illiterate', could be applied to an English teacher who cannot wordprocess reports or cope with computerised registration as well as a computing lecturer who distributes incorrectly-spelt handouts to students. Few people in our society have all the functional literacy skills they would like.

Teachers and learners

Many teachers and lecturers see themselves careering towards the millennium in danger of 'functional illiteracy', yet they have a key role to play even when they know little about computers themselves.



'Talk to your children; encourage a critical view of what's good, and why.'



And the 'much better manual' you wrote on how to put it together is on the hard disc ?

Knowledge and vision still count in developing an understanding of the applications and effects of telematics: the reviewing and evaluating of skills required to ensure that technology is used, internationally, wisely and well. Issues of privacy, environmental dangers and social isolation should all be aired. A critical stance must continue to be the overriding aim of educators whatever the details that constitute capability, competence and confidence. In judging the value of these new technologies teachers should be confident in relating them to what they know about the philosophy and psychology of education in the classroom.

The quill and the computer

Professional judgments about computers in education can be developed by keeping abreast of the issues. Teachers and lecturers should take the high philosophical ground where they have the choice: skills and knowledge in particular can be learnt by classroom osmosis; technicians and dealers should be dealing with routine maintenance and repairs. Telematics is as integral to the fabric of communication today as the pen, the quill and the chisel have been in the past. But there are important values and standards that need to be reconsidered and renegotiated in order to give electronic communications the space they deserve in the curriculum. *Letters to the Head* (ed. Peter Banbury) raises a number of these issues in a practical way.

Cross-curricular challenge

But, however philosophical the attitude, computer literacy as a cross-curricular subject is a particular challenge for educators. Students turn their backs on us and function without reference to white-board notes; they have skills at screen interface that teachers can only dream of acquiring; they have the time and the opportunity to develop their skills and knowledge. To function confidently in the face of these unpalatable facts, teachers and lecturers need in-service training to compensate for the lack of a first qualification; they need a fistful of new strategies for the computer room; they need the most flexible, the most powerful and the most user-friendly machines. In these circumstances computers can be an important catalyst in the management of change in teaching and learning methodology. To have the same effect on administrative matters teachers must be given motivating tasks to do and opportunities for daily contact with IT processes.

The National Council for Education Technology (NCET) is the government body which is charged with the responsibility for researching and resourcing education's IT needs. They have analysed the IT needs of teachers and lecturers and concluded that in the past IT in learning was not always related to solutions of real problems. The improvements in technology over the last few years mean that computers can now provide these solutions for education.

Enthusiastic users are shedding their anorak chrysalids and the swarm is creating a statistically significant critical mass which government and academics are forced to recognise. Every teacher in Chile can e-mail their Education Minister directly. How long before it happens here?

Software for in-service education

Although educators do not need to be competent in the use of particular packages

to make educationally valid judgments, a nodding acquaintance does help. The National Curriculum, after all, expects students at the highest levels of achievement to be able to choose the appropriate software for the task in hand.

Teachers and lecturers should aspire to this level of competence. This capacity for choice is light years away from just using the software that happens to be on the computer.

Using the tools

Evidence from America (NCET) suggests that staff computer skills improve if administration and curriculum systems are on the same hardware platform.

Mastering an integrated package like *ClarisWorks* or *Microsoft Works*, or a suite such as *Microsoft Office*, can be important in developing computer literacy. Interactive tutorials will take the teacher through the main functions of the various components. The databases could cope with many administrative jobs in schools including tracking students' progress, and the school register could translate to a spreadsheet – though it is likely nowadays that schools will have dedicated software for administrative tasks.

On the 'nodding acquaintance principle', all teachers should be, if not proficient in, at least aware of the existence of the aspects of IT which could benefit their students. Some wordprocessors include auto-correction, and some will read aloud, which has enormous potential for literacy learning and teaching. Outliners are useful for the organisation and production of reports, books and theses. Desktop publishing produces professional-looking publications such as posters, magazines and newspapers, and an increasing variety and range of templates (readymade frameworks) bring professional design control nearer.

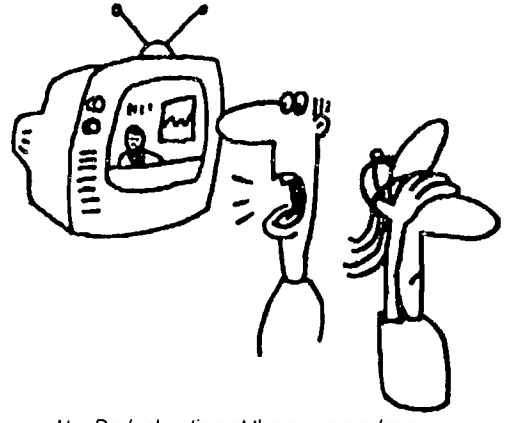
There is a range of research and editing tools for both pupils and teachers: for example, the range of dictionaries on CD runs from *My First Incredible, Amazing Dictionary* to *The Oxford English Dictionary*. The *TES Bookfind* CD will be useful in the staff room.

Business presentation tools such as *Impact, Persuasion* and *PowerPoint* give handouts and overheads an extra edge, especially with their graphics capabilities. The same software can be used to give effective animated classroom presentations using an overhead projector with a liquid crystal display panel.

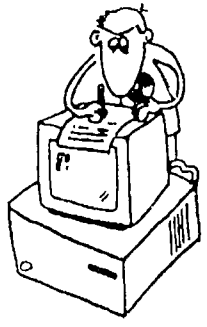
Laser printer quality is important to the acceptability of a communication nowadays. But beware: laser printing and desktop publishing make the most mediocre document look intelligent. It is also possible to bury a masterpiece in the grave of a standard template.

Communications in the classroom

Electronic communications are best exploited if they are included as part of the school development plan and used both for cross-curricular and administrative applications. Communications services used by education include Campus 2000. A subscription to such a service gives teachers and pupils access to a variety of international contacts and a busy portfolio of curriculum activities. Pupils can contribute to projects that are already set up and for the beginner in Cyberspace this is very helpful. More sophisticated Internauts will be happy to plunge into the highways and byways of JANet, the network service for academics,



No, Dad, shouting at the news reader is not telecommunications.'



'Oh, yes, Sir does all his class preparation on the computer.

which is part of the Internet. It is difficult to comprehend the volume of material that is available. Only by using these services themselves can educators understand and evaluate the power of communications and its potential for changing the way in which society conducts its affairs.

The capacity to connect to the superhighway is price-sensitive rather than restricted by technology – modems, subscriptions and software are required, not to mention paying the telephone bill at the end of each quarter. But a consideration of 'cost' to educators should include the fact that in the future the capacity to find information will be far more important than the capacity to learn it. The in-service value of these connections should be part of the equation: if you want to find a book, or solve a problem, or link up with someone who shares your interests, you can probably do it within twenty-four hours.

Hardware for in-service education

The best schools and colleges are moving towards cross-curricular learning resource areas and independent learning facilities. Additionally, different subject areas have different hardware needs. Art departments often have professional publishing equipment. CDT need scanners and plotters. Modern Languages and English might opt for a CD drive and a modem for electronic communications. Video and still-video cameras, together with the increasing use of sound, make multimedia development a possibility in schools. Teachers will need to work hard to keep abreast of the hardware their schools have, let alone that which they ought to be purchasing.

False economies

Progression without power is impossible. The computers of ten years ago simply cannot deliver the National Curriculum. Old computers should not be passed on to younger children, who can do anything older students can do as long as they have the right machines.

A great deal of educational software– especially for young children – is now in multimedia format, and some of it is only available on CD. To run multimedia materials, you need at least eight megabytes of memory (RAM) and as much hard disc space as you can afford, at least 100 megabytes: it will always be cheaper to buy initially than to add later.

Buying large numbers of machines does not compensate for quality and power, and low prices often mean no maintenance support or training. An active dealer or hardware company selling at realistic prices is more useful than a cheap dealer bankrupted by education's refusal to pay a fair price. The cost of training, convenience and maintenance should always be weighed against the base price. A cheap machine could last two years, while a more expensive, well-supported machine should last five.

Keeping on the move

Many teachers make do with sharing classroom computers when they – the computers and the teachers – happen to be free at the same time. Should educational institutions revise the policy that puts students first in the pecking order for computers? There is evidence that staff room computers can have an instant in-service education effect, ensuring that computers are subsequently integrated in the curriculum with confidence and care.

What to buy? All the main machines used in education now have Windows-style environments which make the transfer of skills and the understanding of concepts much easier for teachers and lecturers. Most computers can now share text documents, and different hardware platforms can in some cases use identical-looking software. Some computer boxes even contain two different computer platforms – an exciting development in compatibility. If teachers genuinely have a choice – but most don't – they should aim to find appropriate software first, then buy the machine to run it on.

Increased investment in the mobility of battery-operated laptops makes computers seem less intrusive in the classroom situation. Problems of short battery power are being overcome, though concern about theft needs consideration. Field work, newspaper reporting and special needs are current areas of activity benefiting from laptops. NCET have published useful information derived from a range of laptop schemes for classrooms.

Laptops for the teacher?

One way to ensure play time is to issue the teaching profession with laptops. This is not a fanciful idea. At the very least, tax relief should be allowed on teacher purchases. The Open University operates a loan scheme and this is being considered by some teacher training establishments like the Institute of Education. Through Project Miranda, Toshiba offers scholarships for the curriculum use of IT including the use of mobile computers with internal modems. Of course the reason that students stay ahead is because they have a computer at home. Is it still a heresy to suggest that teachers and lecturers may similarly resource themselves?

Keeping up with progress

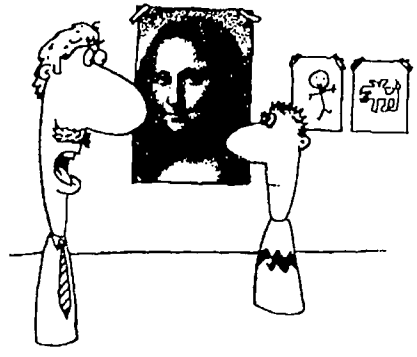
Information Technology will be the only national curriculum subject to have its own non-statutory guidance and supplementary materials published by the DFE.

Another useful source of information is the National Council for Educational Technology. Some current NCET publications for all phases of education are listed on page 77. It is worth keeping up with NCET lists as they are particularly adept at bringing new developments to the fore and focusing on educational issues. The NCET Link-IT network is an important source of good INSET, higher education for teacher accreditation, and long courses. The British Computer Society also publish topical annual IT reports for teachers.

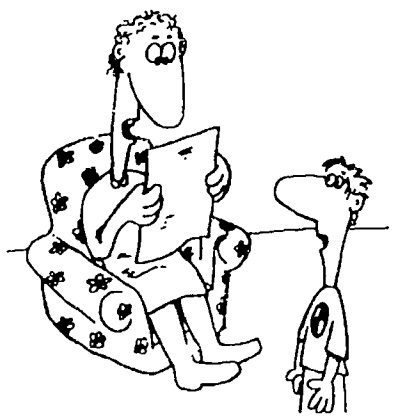
Good practice in IT and literacy is now widely recorded. The bibliography includes a selection of publications from outstanding authors and practitioners in education and some useful texts from industry. Influential classroom case studies have been published by the New Technologies Committee of the National Association for the Teaching of English (NATE) which also publishes other useful titles on language across the curriculum. The English and Media Centre in London is another useful source, and the National Foundation for Educational Research has published some important studies.

Magazine articles and reviews in the computing press provide information on general computing matters. Educational computing exhibitions offer an INSET service specifically directed towards education, for example

- BETT held annually at Olympia;
- Resource in Doncaster;



'Excellent homework with your computer, and somehow strangely familiar..'



'I can't read this report
'It says I should try to improve my handwriting'

- the Education Show at the NEC in Birmingham;
- the Acorn road shows.

Educational Computing and Technology magazine is a specialist source of information, along with the TES and THES, and The Guardian. Professional research journals and conference proceedings can be useful. Some LEA advisory services still survive, though these are increasingly rare.

The catalogues and advice from educational software publishing and distribution houses and dealers continue to improve, though developers' descriptions of the capabilities of their own software should be mediated by thorough evaluation on the part of a potential purchaser.

Independent distributors can be a valuable source of advice, since many of the owners and employees in these companies are ex-teachers. Links with industry can also be an important source of expertise and support.

There is also a range of professional IT, literacy and other organisations listed on page 78 which publish useful and relevant resources. Becoming a member of such a professional group is another valuable link to the national pulse of IT which beats a strong international tattoo.

Professional development

Changes in the literacy curriculum will be led by teachers and lecturers. In a chewing-gum-coloured leaflet, Training Tomorrow's Teachers in Information Technology Heather Govier offers an outline of what might be reasonably expected of this teaching force. The association for Information Technology in Teacher Education (ITTE) and the National Association of Advisers for Computers in Education (NAACE) have collaborated with NCET on seven statements of competence.

Understanding, assessment, evaluation

In initial training competent trainee teachers should have a holistic view of the way in which IT contributes to teaching and learning plus an understanding of the ways in which IT is integral to the National Curriculum. A practising teacher should be able to organise the appropriate use of computers, assess learning and ensure the progression of skills and knowledge. Critical evaluation of computer use leads into the professional need for senior managers to adapt IT uses to curricular changes, to learners' needs and to emerging technologies.

Educational institutions should be using external training services for their staff more than they are. Expert IT advisors on the staff have a two-year shelf-life before their batteries need recharging. NCET through their Link-IT network provides information on good independent IT teacher educators, often from the emasculated or disbanded LEA services. NCET also provides a full range of publications, including preparing for OFSTED inspections.

The on-line alternative

Teachers cannot learn anything useful for long-term IT understanding on a one-day course. They need the kind of coherent quality education that was given to any other subject areas in their first degree. A few universities now have modular accreditation and on-line courses that focus on projects conducted in schools and colleges and build on matters identified by school development plans. OFSTED materials are also a source of planning and implementation advice.

Given the problems and costs of sending staff on external courses the on-line alternative is important, especially now that graphics, sound and animation can enrich textual communication. Open University PGCE students have on-line access to parts of the course. Toshiba, BT, NCET and Project Miranda are supporting research and development into the value of mobile computing and on-line courses for teachers and lecturers. The response to scholarships offered in this field has been both thoughtful and enthusiastic.

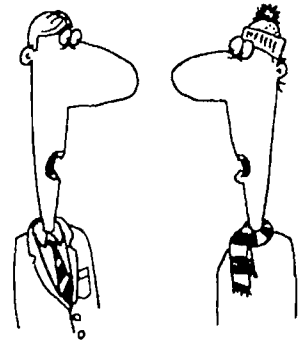
On-line delivery is also a solution for getting expertise where it is needed without travelling. The Institute of Education, London University are developing on-line courses for teachers and lecturers on a range of subjects. Courses are planned on teaching methodology and academic writing in which expert tutors collaborate with teachers and lecturers as far afield as Hong Kong, Rio de Janeiro and Santiago. These are often courses where the learners know more than the teachers and the aim is to share and develop a new body of knowledge built on collaborative expertise.

The international on-line course that is most over-subscribed is about designing and moderating on-line courses successfully.

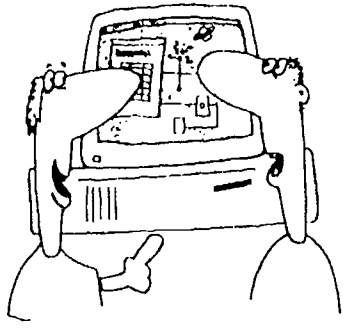
Teachers' playtime

There are suggestions in this book for curriculum software and for materials to assist individual teachers with productivity and management activities. But what about playtime?

Studies of linguistics indicate the variety of ways in which language is acquired: social and cultural and economic factors have their influence. But play is vital. Today's students have had the advantage of learning about about computers as they played. Today's teachers and lecturers did not have access to the technology until their learning arteries had hardened, but nevertheless they can still benefit from playtime. If teachers have access to a modem, they can experience on-line services ranging from travel bookings to group bereavement counselling. Some groups form to discuss esoteric subjects like Cyberpunk, others create an alternative script for the Archers each week. The services are heavily used by academics. Scientists and technologists have been using on-line searches of papers for many years to increase and share their knowledge of developments throughout the world. Teachers can join international on-line conferences or indulge in some real-time chat with colleagues all over the world. On-line connections worldwide cost only the price of a local call because they are routed through a local computer. These systems are used to deliver courses as well which reduces the time that has to be spent in a lecture room. In the future keyboards will be attached to the home television, and interactive services will include shopping, virtual travel, education and training, electronic publishing, information services and video games. Users will be able to 'walk' round a shop and 'try on' clothes on their made-to-measure screen image; a customer will go into a virtual bank, consult her financial adviser and call up her portfolio; a student of French can visit a virtual café for conversation practice when communications on computer will be promoting effective oral and body language skills.



- *'Can I interest you in a computer like the one you have at work?'*
- *'You mean covered in Post-It™ notes and coffee-stains?'*



'It s amazing how our conversation has increased since we lost the manuals!'

Serious playing

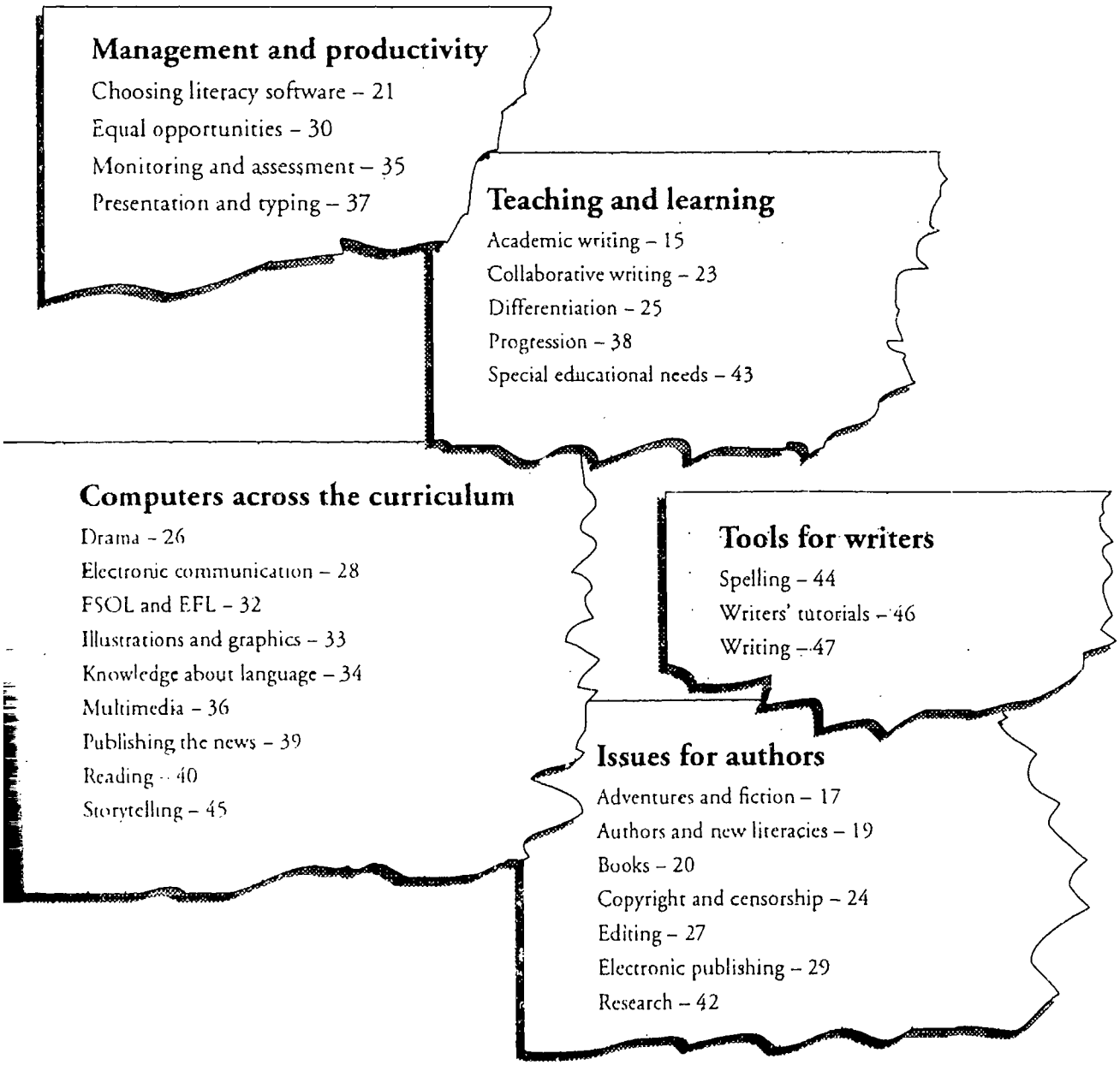
What else will playing with computers entail for the serious educator? The *Oxford English Dictionary* on CD will keep some studious people happy. In combination with *Crossword Creator*, who knows? Before writing a keyboard epic, scholars might want to limber up with a typing tutor such as *Multimedia Fingers for Windows*. Microsoft's CD *Asimov Ultimate Robot Series* is an interactive guide to book series by the science fiction writer including creating an on-screen robot. Could be customised to create the ideal student. If you prefer to interfere in someone else's epic, *Myst* is a surrealistic adventure in an island world where every rock, scrap of paper and sound holds a vital clue. *Last chance to see* is Douglas Adams' adult attempt to create the real hitch-hikers' guide to the universe on CD, though this is, disappointingly, less innovative in format than the paper version.

Too tired to defend yourself? *Correct Quotes* can offer 5000 literary, historical and contemporary quotations that make an interesting resource. Or a few God games might improve morale: *How God Makes God* might be handy. This intelligent and challenging product resembles a university level course on subjects such as Game Theory. A different communications strategy that uses CD resources to extend the meaning of literacy. *Lemmings* may have some strategic applications for the classroom. An alternative sense of humour? *The Farside Calendar* could cheer you up on a bad day.

What now?

Learning about software is done over time and sometimes through expensive mistakes. The A to Z of Literacy Software which follows attempts to minimise the investment of both time and money by providing a guide to some of the major issues involved in choosing, evaluating and using software, followed by a listing of some relevant titles on the market to meet literacy needs. ■

Routes through the A to Z index



The A to Z Index on pages 15-47 covers issues that relate to reading and writing and new computer literacies. Learners of all ages can dip into this index, or follow one of the specialist routes suggested on this page.

Academic writing

New literacies and new technologies are having a fundamental effect on the balance of the curriculum required by students in further and higher education to cope with the twenty-first century. Along with all the traditional skills, today's students need to develop the ability to handle hypermedia communication, to interpret data, and above all to make use of a variety of computer applications, at least at a basic level.

Set against this need for yet more new skills is the sad fact that many students reach higher education without the basic knowledge of literacy required for their course – in many cases simply because English is not their first language.

The questions being asked by forward-looking academics include:

- Can technology be a stepping-stone rather than a stumbling-block to students with literacy needs?
- Is the written academic essay the best way to prepare students for the tasks they will have to perform?

Practising basic skills

The computer represents one area where a study of the new literacies and the old can be combined. It can be a useful catalyst for developing learning strategies. A Project Miranda initiative has begun to look at the role of software in improving literacy skills in three groups of students in further and higher education:

- students from overseas whose first language is not English;
- students from overseas whose culture affects communication in English;
- first-language English speakers who need support in academic written work.

The study has been based on evidence from projects focusing on approaches to literacy through technology in secondary, primary and special needs environments. The generic software that has been used with adults is much the same as for children, and teaching methodology has adapted well: the age and experience of the learner does not seem to be as relevant in learning with computers, as it is with other text-based resources.

A range of programs has been tested by post-sixteen Higher National Certificate and Diploma students. Many chose to work for long periods on drill and practice packages which recorded their progress, targeting their specific problems in spelling, punctuation, grammar and verb tenses. *Cap-it-All* was also popular with speakers of other languages. Students thought this type of software invaluable for intensive revision of grammar rules, although it is strictly Skinnerian in its teaching approach and does not promote independent thinking about the grammar models. English language courses on CD-ROMs increased the pool of suitable material. With these facilities students could also extend their speaking and listening skills.

Children's talking software like *KidPix*, *Intellitalk* and *Creative Writer* were not considered too young or too American. Students enjoyed relating the spoken voice to the spelling of words and were amused by the inconsistencies. They also liked individual writing tutors such as *Success with Writing*, which is still being tested. These seem to alert the students to vocabulary and concepts about writing, frameworks for planning and style issues. The students felt under-equipped for academic writing in these areas.

Computers are not reproachful

Students responded well to learning literacy skills. They thought the computer had some advantages over conventional teaching because, being neutral, it does not compound failure with reproach, errors can easily be seen on the screen, feedback is immediate and a professional standard of presentation can be achieved.

The suite of programs tested did not replace the teacher, useful though they were for practising straightforward skills that students had fallen behind on: spelling, punctuation and grammar. Furthermore once the students' skills have improved it is possible for the tutor to discuss with them the importance of grammar in the conveying of precise meaning.

Misunderstandings of structure and style as well as problems with clarifying meaning and interpreting context are not easily tackled by computer. These can often be exacerbated by specific cultural differences which intensify at post-graduate level.

One of the most promising, yet potentially frustrating, areas for older and more able students may be the use of writers' tools. These include tools for checking text, and tools for improving presentation.

Students will need to get to grips with the underlying principles of the tools in order to make the best use of them. Dictionaries – for example, the *Oxford English Dictionary* on CD – should present no problem, but students need to be aware of the pitfalls of spelling and grammar checkers.

Academic writing (cont'd)

A spelling checker's list of suggested alternatives to mis-spelled words (for example, *werewolf* offered as a replacement for *werk*) could easily be counter-productive to an already bewildered student. It can be helpful to switch off the Suggestions option so that the user is simply alerted to a possible mis-spelling without the confusion of suggested alternatives. Moreover, a spelling checker can not help if the right word is used in the wrong place – say, *there* instead of *their* – while the ability to add a word to the spell-checker's dictionary might mean that students teach the spellchecker their own mis-spellings. Nevertheless, a spelling checker can be an invaluable aid, provided that students are aware that it merely helps with proofreading, and does not replace it. A talking spellchecker, such as the one found in *Write:OutLoud*, may help with the identification of mis-spelled or mis-typed words.

Grammar checkers also present problems: they are aimed at native speakers, and are designed to spot errors such as split infinitives and over-use of the passive voice. Within these constraints they work well enough, but their explanations of errors are couched in formal grammatical terms. This places users in a Catch-22 situation, since they would probably not need to use a grammar checker if they could understand the explanations. Worse, grammar checkers can be completely thrown by the errors of non-native English speakers.

A grammar checker can be customised so that it learns new rules (or rather, learns to respond to different errors) and offers explanations in simple English, but customisation calls for patience and a great deal of time. Supported by specially-prepared practice files and paper-based explanations of the underlying model, students could put grammar checkers to good use. Project Miranda is pursuing the possibilities for adapting commercially-available software.

Integrated learning systems such as *Plato* may have some applications. The monitoring and assessment engines underlying these packages could be of value in training for academic writing, though evidence at 16+ is based on US trials so far.

Predictive wordprocessors like *Co:Writer* and *Penfriend* may have their uses in the field of academic writing, especially those titles which 'learn' the common vocabulary of the user. Predictive wordprocessors are described in more detail on page 44.

Improving presentation

Everybody appreciates a well-presented piece of writing, and modern wordprocessors provide a multiplicity of tools to give documents a professional finish.

Professional wordprocessing programs nowadays can print in columns, produce tables, and have footnotes and/or endnotes (rarely both in the same document), and indexing. Some allow cross-referencing, and most will number paragraphs, either automatically or on a model supplied by the user. If students are likely to be preparing long documents which call for these features, it is worth exploring different word-processing programs to compare how easy it is to use the facilities they offer. Computer magazines generally include a comparison of the major wordprocessors from time to time, and one of these reviews could be a good starting poin Titles of some major business applications are listed on page 72.

Bibliographies can be a nightmare even to an experienced academic writer, and the word-processor alone does not solve this problem. *EndNote Plus* is a boon, working in conjunction with a wordprocessor to keep a permanent database of sources, and produce a well-formatted bibliography from the citations in a document.

With so many built-in and add-on features, it might seem that there is no excuse for producing shoddy work. But every new feature has to be learned, and students – not to mention staff – will need help. In-house style-books with supporting custom-written documentation could make an important contribution to the status of written literacy within an institution.

While the academic essay continues to be a standard method of assessing a student's achievement, it behoves teachers to make the means of producing high-standard written work as accessible as possible to students.

Route ■ *Teaching and learning*

Adventures and fiction

Even when 'game' is dropped, the term 'adventure' is enough to convince educationalists that the application is a trivial one: it is not. Abolishing the notion of chronological flow and logical sequence has a long history first occurring in literature in *Tristram Shandy*, back in the eighteenth century.

Computers offer sophisticated methods of narrative handling and reader involvement which can be referred to as 'interactive fiction'. This could be a genre with some influence but it has not yet been explored and exploited by enough good authors, playwrights or film directors. There is a need to capture the imagination of more play writers and authors, especially women, to develop the full potential of this three-dimensional story-telling medium. It is a flexible medium which could accommodate new Shakespeares and new Austens.

For example, one 'hyperspace' story much discussed by researchers into writing and computers is *Afternoon* by Michael Joyce. Jane Dorner summarises the opportunities.

> *There are several possible story-lines. One may develop into the narrator's search for his son and estranged wife. Reading it in another order, we get the impression he has seen his son die and his employer in flagrante with his ex-wife. Other readings bring in a 'she' who might be the wife or the wife's best friend. Interesting though this is, I have yet to see (some are all in graphics) an interactive fiction that holds my attention. Bereft of authorial point of view, it appears to me to flounder, irresolutely, on the edge of meaning. At the same time, if interactive fiction provides a novel way of investigating a complex topic to give a variety of interpretations, then someday a high-profile novelist will turn to it and give it the popularity it maybe merits.*

Programming pyrotechnics

At least *Afternoon* is worth discussing. In contrast too many commercial adventure games have been written by teams of software programmers who have no interest in authorship techniques or content. These games usually involve journeys through a visual and aural world following a thin narrative thread. There is often little written text, if any, but a host of conventions are understood by players in the same way that fairy stories are predictable. Programmers devise a simple plot which will show off their programming pyrotechnics to advantage and which appeals to the baser instincts of the male population who are overwhelmingly the buyers. This has given a bad press to a medium which can be both exciting and creative.

The best educational adventures harness the power of interactivity and allow the user to control the flow. The opportunity to interact with characters and change storylines can be a successful route into the pleasure of books for some reluctant readers. The adventure genre can provide challenging and sophisticated opportunities for interacting with a story, promoting an intuitive understanding of the relationship between text, sound, still pictures and animation.

Some adventures have no text at all but can support oral development admirably. Others can promote a wide range of reading strategies and narrative handling, and the host of visual clues on the screen supports poor readers. Motivation and increased span of concentration are important factors in this success – although not all students like the genre, responding better to an environment where they can control their own learning.

The division between education and entertainment is narrowing. The cost of creating effective new-generation adventures is now so great that they have to appeal to the home market to generate enough sales to reinvest in research and development. Moreover, adventures which meet the expectations of young people in terms of complexity, as well as quality, sound and graphics, tend to be distributed on CD. This has cost implications for the purchaser, who must not only buy the software but possess hardware of a sufficient calibre to run it.

Where education meets entertainment

Educational programs which are successful in the commercial market include the *Living Books* series (which includes *Just Grandma and Me* and *Arthur's Teacher Trouble*). These are aimed at younger children but have a universal appeal, being explorations rather than traditional adventures. Other outstanding titles include *Myst*, *Cosmic Osmo* and *The Manhole*.

62 Honeypot Lane, Busy Town, Albert's House and *Guardians of the Greenwood* are examples of 'adventures' that appeal, varying from extreme simplicity to quite sophisticated requirements in reading and/or research skills. *Albert's House* is a British product for young children and pupils with special needs. There are several activities involving mouse control as well as language skills, particularly nouns and prepositions. Special

Adventures and fiction (cont'd)

needs children return again and again to play hide and seek or rescue Albert from the Cat.

Reader's Explorer, designed by the Scottish Council for Educational Technology (SCET), takes students into an adventure where text and screen book hold vital clues to solving the problems posed. Extensive classroom testing in Scotland has proved this to be a useful tool.

The *Carmen Sandiego* series – originally *Where in the world is Carmen Sandiego?* but now including *Where in Time...?*, *Where in Europe...?* etc – combines adventure skills with cross-curricular research. *Landmarks Microworlds* are adventures in a historical context.

The availability of CD-ROM has given adventure writers even more resources to draw on, and space for even more realistic illustrations. The term 'adventure' has been very broadly interpreted in the above introduction to educational adventures.

The use of this learning and teaching medium at at all stages, including higher education, could be effective. It is not only the problem-solving activities that are important but the opportunity for students to create adventures for themselves.

Designer adventures

The economical production of original adventures is facilitated by the range of adventure creation tools that exist. There are now multimedia and hypertext frameworks that allow students and teachers to develop their own interactive sequences. These include *HyperStudio*, *KidPix*, *StoryMaker* and *Story Weaver*. The award-winning *Clicker* programs were designed as on-screen alternatives to the concept keyboard. but the latest version includes an impressively easy-to-use hypertext facility.

Questions to ask when considering which framework software to use include:

- can the framework support a branching story, or is it linear?
- does the user have to set up the connections between the different story strands, or is this taken care of by the software?
- how long will it take to produce a worthwhile adventure?

The easiest software will be a linear model. The most creative – and most difficult to use – will be the branching model in which the user can establish a free structure. This kind of narrative handling requires the high levels of IT capability which HMI said (in *The Teaching and Learning of Information Technology*, OFSTED 1993) were not yet being developed in schools. Since the creation of any adventure demands a considerable investment in time, perhaps this is not surprising. But the results, even at a simple level, can more than repay the investment.

Practical subjects like maths and science welcome new approaches to developing the understanding of difficult concepts: one group of teachers and pupils has developed a popular story where students take the role of a food particle coursing through the gut, dealing with the biochemical processes of digestion; another group explored the science concepts in fairy tales such as *Jack and the Beanstalk*, and forensic science in *Who murdered the head?*

Remote-control adventures

It is possible to collaborate in adventures with other schools internationally or just down the road using electronic mail. Some excellent writing has been produced by children from all over the world landing on a new sector of the Planet X on Campus 2000 and describing what they find and do over a term. The role-play aspect of this electronic activity develops students' sense of audience.

This imaginative contact with students in other cultures can have an interesting effect on a school's view of its international neighbours – and that can be an adventure in itself.

Route ■ *Issues for authors*

Authors and new literacies

The writer's craft has altered dramatically. Much published text is processed, edited and proofread on screen, and only transferred to paper in the last few minutes of its creative life. Until that moment, it is in a perpetual state of flux. Authors can, with minimal outlay, 'publish' their own work. Collaborative research, authorship, editing and publishing are undertaken across international boundaries via the telephone line. Hypertext offers a communications environment which is non-linear and non-hierarchical. Text can be combined with graphics, sound and animation. The possibilities are boundless.

Give us the tools...

The computer is the modern tool for working on texts. In her research into authors' habits, Jane Dorner found that 74% of professional writers have embraced the new technology with enthusiasm. They indicate that they have invested in this technology so that they can work at speed, be legible and do their own revisions. They have committed time to learning keyboard skills because of the benefits the computer can provide: a writing environment where authors can research, sort notes, draft and edit writing which they have checked for spelling.

Writers felt that the ease of re-writing raises standards but that good writing is independent of technology. There were some worries: that those who did not embrace the technology would find it increasingly hard to be published; about the effect on health; fear of losing text; anxiety about time spent learning to use software; but such comments came from the few.

Despite the fact that most writers have now succumbed to technology to the extent of preparing their work on a wordprocessor, most still make submissions to their publishers on good old-fashioned paper.

It is false economy for a photographer to invest in an expensive camera-body to use with a poor lens. In the same way, authors who must submit scripts on paper would be well-advised to invest in a printer which does justice to their work. Authors in a British Library survey considered that a laser printer pays for itself, inventing the acronym: Lovely Author's Script Ends Rejection.

...and we will finish the job

Some publishers are not equipped to deal with manuscripts submitted in electronic form, and the ones who can handle copy on disc are hesitant about passing on the financial savings they make by not having to pay for the text to be keyed in again. Yet everybody benefits from using disc instead of paper:

- the author saves on paper and postage;
- the publisher saves time and money because the script does not need to be re-typed;
- the publishing cycle can be speeded up because there is less room for mistakes to creep in so the script needs less proofreading.

Other publishers are moving into electronic books and CD-ROM reference, which opens up different cans of worms relating to new forms of 'writing', and the resultant copyright issues, especially where the CD version is based on a previously-published print-on-paper version.

The publishers are also having to face the writing on the wall: the more writers are computer-competent, the more power they have for self-publishing and community publishing without reference to the accepted authorities.

The Society of Authors is fully aware of new contractual issues arising from aspects of electronic publishing, from supplying copy on disc to writing for multimedia, and educational writers could do worse than approach the Society for advice.

From writers' block to rhymes

The use of the computer could bring unexpected benefits to writers. *Rhymer* will help the inexperienced muse on standard poetic forms and rhymes, while Chandler and Marcus have developed strategies for evading writers' block such as 'invisible writing', recording thoughts with the screen turned off. There must be implications here for children with special needs or poor hand control.

While some teachers find such ideas a useful and thought-provoking adjunct to the teaching and learning process, 'real writers' might recoil in horror at such mechanical devices.

On the other hand, even real writers need to pause from toil sometimes. All work and no play...

Route ■ *Issues for authors*

Books

For several centuries books as authoritative sources of information have been made of paper and card. They are excellent to read on the beach, in the bath, while travelling and in classrooms with only one electrical socket. There is no sign of such books disappearing but their content and nature may be changing.

History of the written word

Chandler and Marcus review the role of books from an historical perspective. They trace the status of the book as a source of authority in our culture. In early print culture, books were rare. Collective rather than individual authorship was the rule and copying text with local embellishments was usual. The international language was Latin, though writing conventions varied. Reading aloud and listening were highly valued, as was an oral tradition of story telling often to musical accompaniment.

Chandler and Marcus look back to the growth and decline of the book as an instrument of authority, commenting that, as literacy spread, books became definitive texts. The concept of plagiarism grew with the rise of the author. Reading became a silent and private affair. Writing conventions were introduced and communications were intra-national rather than inter-national.

These commentators suggest that modern society is moving closer to the oral traditions of our mediaeval forebears. The networked society emerging in the last twenty years is a concept based on computer-mediated communications taking place internationally via telephone lines. The computer becomes the filing cabinet in the paperless office. Screen text is read and edited in a participatory sense. It is public property to a greater extent than is a handwritten report or memo. Accuracy and writing conventions in screen-based communication become a casualty of speed-typing.

What is a book?

As in mediaeval times, printed books are becoming treasured and lavish works of art, while texts keyed on to disc can easily be altered and shared. The author working as an individual gives way to collaborative writing as this becomes easier. The death of copyright is prophesied.

But perhaps it is only the concept of what constitutes a book that is changing. Books these days can be electronic and interactive. They can have animated illustrations and musical accompaniment. Some books read text to the user: talking books – for example, the *Living Books* series, *Look! Hear! Talking Topics* and *Naughty Stories* – fall into this category. Multimedia kits such as *Rainbow, Magpie* and *HyperStudio* let students make their own talking books, while *Kid Works 2* and other talking word processors give students the opportunity to make their own talking texts in a very simple way.

Electronic books, unlike their paper counterparts, are usually in a state of flux and update. They do not have to be read from page one to the end. Sometimes they remain in an electronic state on screen: individuals may download from remote databases only the sections they need, or buy a single CD instead of a multi-volume dictionary or encyclopaedia. Thus many forests are saved.

The computer can also help with identifying printed and computer source materials – for example, the on-line Books in Print service gives 24-hour access to details of current books. For personal and school use, *Bookstore* helps with categorising books and, on a more sophisticated level altogether, *EndNote* offers a professional method of keeping track of all kinds of reference material, including books and articles in electronic or paper formats, and a variety of other resources, including maps, software and audiovisual materials.

Reference goes electronic

Printed story books will always have a place, but reference books may well be superseded by CD-ROM. The latest publication of the *Oxford English Dictionary* on CD includes 290,000 entries, 616,500 word forms, 500,000 cross-references and 2,400,000 quotations. References can be searched by keyword, by phonetic spelling, by etymology or by definition. Answers from the single CD pop up in the scrollable main window – which is easier than searching through a shelf full of volumes. And at £495 the CD costs less than one third of the book set at £1,650.

On-line databases are an increasingly common source of information, and encompass a wide range of resources from raw data such as the Books in Print service mentioned above, to abstracts and even full rep. ts of articles from journals, and whole newspapers, including current and back issues. Unlike CD-ROM, these databases are being updated and sorted constantly, and if you have a modem they are only a telephone call away. Some of the material is never published or printed other than by electronic means. The definition of 'a book' peters out about here.

Choosing literacy software

Literacy is an area fraught with controversy, and there are almost as many opinions on literacy teaching as there are teachers who tackle it. Choosing software is therefore not a neutral activity. This guide interprets 'literacy' in a liberal manner; it takes no attitudes in the arguments for and against emergent reading and phonics, drill and practice, integrated learning, American cultural domination, to teach or not to teach grammar and spelling, or the politics of language. An attempt has been made to find representative cross-curricular examples of many points of view, although equal opportunities was the most problematic.

The only debating position in the literacy argument which has not been represented here is the 'ostrich' stand. Teachers can choose to keep up with computer developments and their influence on communication and literacy or they can decide to miss the boat, but they are not in a position to hold back the tide of exponential technological change.

The software search

While the eclectic approach taken here has its positive side in that practically everybody will find something they like in the *A to Z of literacy software*, it means that everybody will also find something to hate. The problem lies in finding out which is which, without wasting too much time or money.

So how do teachers go about identifying software appropriate for their students?

The first thing to establish is the constraints under which you must work. If you are starting with an absolutely clean sheet – that is, you have a free hand in choosing both software and hardware – choose the software first, then buy a computer which will run it.

Most people are not in that happy position: the school/college/institute) will have a well-defined hardware purchasing policy, will probably already have hardware in place, and will be wholly resistant to any suggestion that the existing hardware is inadequate or inappropriate. Therefore, it behoves purchasers of software to be absolutely certain that the programs they are choosing will run on the hardware they have at their disposal. Look out particularly for

- the computer platform – generally speaking, you won't be able to run Mac software on a Windows or Acorn computer, or vice versa – though a good many products now exist in more than one version, the latest generation of computers combines Mac and PC platforms, and some Acorn users will be able to run PC software using an emulator;
- the format of the software – there is no point in buying a CD unless your computer has a CD-ROM drive;
- multimedia requirements – if the software uses sound and/or video, your computer needs to be multimedia-capable; older machines may need upgrading (or replacing) to take advantage of the latest software;
- networking – if you will only have access to a network, make sure that the software you choose will run on a network.

The price...

If you buy one copy of a book, you are not entitled to photocopy it for a whole class. The same principle applies to software.

In most cases, one copy of a product is intended to run on one computer, and the copyright law applies to software as much as to print materials. The price of software can therefore vary hugely according to whether you want a single copy, a licence to make five or ten copies, a site licence, a network version... or whatever. Moreover, each software house tends to have its own unique pricing structure, so the only general rule is: when buying software, be honest about how many copies you really need. The software guide in this book places each piece of software within a price band for a single copy, which will give a general idea of whether it might fall within your means. Be prepared to (at least) double the unit price for a network copy, and go for site licences rather than buying a number of single copies.

It is not unknown for schools, colleges and local authorities to be prosecuted for software piracy, which constitutes theft.

...and the value

Whatever it costs, price is not a reliable indicator of quality in educational software. Classroom resources are expensive at any price if they do not meet the curriculum need or do not work as intended. The principles of software choice are therefore crucial, and some of the key areas to look at are:

- *the appropriacy of the content*

  By all means look for software which was written with your target audience in mind, but don't overlook other phases. Software can be more adaptable than books, and a well-designed piece of software may be as suitable to an adult audience as to an infant one, especially if it is essentially content-free (say, a

Choosing literacy software (cont'd)

wordprocessor) or can be customised (say, by adding word lists). Pay particular attention to the appropriate use of graphics, colour and sound.

- *political correctness*

  Look for evidence of gender, race and age bias – bearing in mind that a program written for a young audience is not necessarily a poor choice for older children and adults.

- *ease of use*

  How intuitive is the program, and how much do you need to refer to the instructions? Does it work in the same way as other software the students already know? How easy to follow are the paper documentation and screen instructions?

- *adaptability*

  To get good value for money, look for software which can serve more than one purpose. Does it support work the students are doing away from the computer? Can you customise it for different groups of students, add new word lists, use it in different curriculum areas?

- *attitudes*

  A piece of software which is welcomed with open arms by one school may be damned by another on purely subjective grounds. Two such bones of contention are Americanisms (in accent and content) and anthropomorphism, but there are many more.

In order to find out whether the good outweighs the bad, it is helpful to try before you buy – or at least to know which questions to ask. The evaluation checklist on page 49 sets out a pro forma to act as a mnemonic when choosing software, and the McDougall and Squires book *Choosing and using educational software* is also valuable.

The first rule of software

To choose the right software, individuals and organisations must be clear about their approach to teaching and learning. British educational publishers are famous for problem-solving materials which suit a constructivist classroom approach. There are plenty of examples in the *A to Z of literacy software* which complement the constructivist, problem-solving approach to teaching and learning. The behaviourist packages are 'drill and practice' and often originate in the US. Some teachers and lecturers find contexts in which these can be useful although they have had a bad press. What is important is that software purchases are made according to the ethos of the school. Cross-curricular and even administrative purchases can not only reflect an overall approach to teaching and learning, but force the use of inappropriate strategies.

The true worth of a trustworthy educational software supplier can not be over-rated, and once a good relationship is established you will not only receive up-to-date catalogues regularly, but find a friend ready to offer advice and suggestions as and when you need them.

When the evaluation checklist is complete and you are ready to make a 'to buy or not to buy' decision, it is important to recognise the First Rule of Software, which is that no piece of software is ideal. Be prepared to accept some faults in an otherwise generally-useful program – and be prepared to agitate to get the faults put right, certainly for the sake of future purchasers, and because you may merit a free upgrade if you bring a problem to the attention of the developer.

Software developers are happy to answer questions about their products, and are very receptive to new development ideas or new uses for established programs. You should not hesitate to contact them directly. Unlike a book, a piece of software is never 'finished': a good software house will welcome comments, even complaints, and will make sure that new versions of software take account of teacher opinion. Teachers and pupils who make a habit of reporting on products are often asked to test pre-release versions of new software. This real audience and genuine purpose for writing can improve students' critical perspective, their best weapon against commercial exploitation.

Route ■ *Management and productivity*

Collaborative writing

The computer has made collaborative writing easier and generated practices which could not have existed in the pre-computer era. Electronic communications have altered the scope of writing, making collaborative writing and editing an immediate process, whether in front of a single screen, or across the world using text transmitted by telephone line. In his book *2010*, written in 1956, Arthur C Clarke explains:

> *This book was written on an Archive 111 microcomputer with WordStar software and sent from Colombo to New York on one five inch diskette. Last minute corrections were transmitted through the Padukka Earth station and the Indian Ocean Intelstat V.*

This was not part of the futuristic *2010* narrative, but a frontispiece description of the electronic methods of writing and publishing his book 40 years ago. The book you are reading has been developed in much the same way.

Co-authorship has recently become a subject of university theses, and industry already makes full use of collaborative tools. Now that it is easy for computers to communicate, whether across a local network (say, within a college or a company) or across the world, professional wordprocessing software is increasingly providing tools to make it easy to share writing with one or more people, and to gather, interpret and collate the results of collaboration without re-typing:

- electronic 'Post-it™ notes', consisting of written or spoken comments, can be attached to text;
- different versions of documents can be compared side by side on screen;
- there are tools for marking new material, revisions and proposed deletions.

Three-dimensional ideas

The drafting, editing and sub-editing processes are important to professional writers, but they are equally important to young people's understanding of the writing process. There are now some interesting ways of using computers to help in these areas.

For example, the simple fact that a computer screen is vertical encourages group reading and planning in a way that a piece of paper on a desk never can. Moreover, typing on screen irons out differences in handwriting which may seem embarrassing to inexperienced writers, and sharing writing on a computer screen can reveal hidden talents in pupils who 'can't write' and whose composition skills have therefore never flourished on paper.

There is also software which may not have been written with collaborative writing in mind, but which certainly lends itself to a collaborative approach. Drafting on a large screen allows students and teachers to plan together in three dimensions, looking not only at the breadth of idea but at the levels that are possible within each idea. *Expression* is a program that allows students to develop complex ideas in a schematic way, altering the relationships again and again until the sequence and hierarchy are right. Organised in a logical sequence, the ideas and attached notes can then be imported into a word-processor. *Thinksheet* is also a drafting tool, but whereas *Expression* organises thoughts in the form of a spidergram, *Thinksheet* operates more like a card index, with hierarchies of cards representing various levels of detail in developing the writing plan.

Writers' Toolkit allows pupils to structure a piece of writing within a computerised framework. This program provides useful drafting prompts to help students understand the formulae for developing specific writing styles. They can use the outline suggestions for imaginative, technical and personal writing, including newspaper reports, writing up scientific experiments, reviews and a range of other writing styles. Ordering notes, fleshing them out and checking can all be done within the program's word processor.

Positive feedback

During the editing stage pupils can not only exchange texts, they can also read from the same screen and edit before they print. Students of all ages are positive and enthusiastic about the collaborative process of peer review on the screen in a way that rarely happens on paper.

Copyright and censorship

Copyright is not yet dead, but many changes are being forced through by the demands of technology and the greater emphasis on the fluidity and changeability of computer texts.

Freedom of information?

Everybody agrees that freedom of information is a wonderful idea. In principle. However, belief in the principle might be stretched to th . limits when electronic communication renders it so easy to make free with other people's information and the results of their hard work.

The Internet - first and most comprehensive example of the information superhighway - had its origins in US defence departments, but soon broke into the world at large. Internet was the chief communications tool for pro-democracy Soviets when other media were jammed during the attempted coup in 1992. It has been widely suggested that the Berlin Wall was demolished by communication on electronic services which could not be surveyed.

The US federal government which started the Internet service has no clear governance of it. Like most of these electronic systems, no forms of communication are restricted or forbidden: there is no quality control and no editing. Some users would like encryption facilities to protect their material from prying eyes across the globe, but governments are uncertain about the arguments. Encryption would mean that even government agents could not monitor the messages coursing around the superhighway.

These services have their own language and social infrastructure. Exchanges can be positive and negative. Some universities and other organisations such as BT have editing structures to avoid unacceptable messages staying in the system but they cannot prevent them appearing in the first place. Teachers and parents need to be aware, for example, that these boards provide a source of pornographic images which can be downloaded, although suppliers of Internet services to education are increasingly offering a 'filtered' option which prevents access to doubtful areas of the network.

Issues of authorship

Messaging between the citizens of countries which have no diplomatic connections is one matter. The capacity to send out complete documents, even books, in electronic form, raises other questions about intellectual property and plagiarism. Nor have precedents been established for dealing with an increase in texts which were written solely for electronic communication and are not intended to exist in any other form.

This is certainly an issue for authors, whose contracts now need to be couched in such terms as to protect their writing from unauthorised electronic copying and alteration – and in the case of authors who write multimedia materials, to ensure that they are adequately paid for their original work which others may freely access and copy, and as freely pass on to others.

Copyright in school

Some teachers are confused about copyright. Or perhaps they are simply confusing ease of use with permission to use.

For example, in a national competition BT received newspapers from schools into which cartoons, photographs and complete articles had been scanned in from professional newspapers without permission from the owners of the materials. Many newspapers do allow students to copy material, but it is important to find out who does and who does not. A phone call and an acknowledgement are polite precautions.

All the newspaper materials and book selections in the *A to Z of Literacy Software* and can be used freely by schools for non-profit-making activities. Newspapers in Education, The Copyright Licensing Agency Ltd. and the National Council of Educational Technology (NCET) can give advice on the use of other materials.

There is a danger that too much student work may be derivative rather than original unless staff monitor the use that is made of copyright material. On the other hand, some educational materials are designed to be incorporated into pupils' work – these offer complete freedom of use within an educational organisation and give pupils access to the quality and type of material used in 'real' journalism, so they are worth looking for: for example, the *Decades Picture Libraries* and *Photobase Decades* series.

Route ■ *Issues for authors*

Differentiation

Teachers are adept at choosing literacy resources with the age, aptitude and the ability of the class in mind. The computer allows more flexibility in the production of classroom resources as well as increasing the range of learning and teaching media.

A template for the teacher

One of the problems with computers is that they need a great investment of time in the short term in order to save time in the long term. And time is what teachers do not have.

That is where templates come in. A template is a model which is customised for a particular pupil or group, and which can be used over and over again. Many wordprocessors nowadays have a template format, sometimes called 'stationery'. Instead of saving a document normally, the teacher saves it as a template, and thereafter the original document becomes untouchable and pupils automatically open a copy for their own use. This is the computer equivalent of feeding the five thousand – however many times the template is used, it is always there for the next person who wants it.

A small but growing number of template resources are coming on to the market to support different ages, abilities and subject areas. Good examples of cross-curricular templates have been developed for *ClarisWorks* by primary and secondary teachers in Lewisham in partnership with the Technology and Research Unit (TERU) at Goldsmith's College. The curriculum files in *ClarisWorks Primary and Secondary Templates* demonstrate the wide range of possibilities in using text, graphics and sound, and exemplify the potential for differentiated learning and teaching in computer use. Because *ClarisWorks* comprises wordprocessing, database, spreadsheet, drawing and painting modules, templates can support a wide range of activities. Another award-winning framework, produced by Derbyshire teachers, is the *My World* series.

More confident teachers will no doubt want to graduate to making templates of their own. With a bit of practice, one template can be put to a variety of uses: for example, a vocabulary exercise which works well for English can be subverted to practise science or geography vocabulary. When you reach this stage of flexibility, templates become time-savers.

Customise and survive

With a bit of ingenuity and the right initial choice of software, the same professional applications can be customised to serve every phase from infants to post-graduates.

Changing colours, sizes, and fonts is simply done. All that is needed is a template in which the most appropriate choices have already been made, which can include screen colours, preferred margins, type of printer, and so on.

However, the problem with professional applications is that they tend to be top-heavy with gadgets, which means menu-bars full of options, and pull-down menus longer than the screen. Since most of the gadgets will rarely be used, it is worth one computer-minded teacher investing a little time in finding out how to hide them.

For the youngest users, one menu (or set of icons) with Open, Close, Save, Print and Exit, and another with Cut, Copy, and Paste will probably suffice. Older children will need a version which adds Find/Replace, and later on the Spelling checker... and so on. All this is achieved using macros – instructions which the application 'learns' for future reference. This differentiation means that each member of a whole class (or a whole school) may be using the same program but with each user accessing the program at a customisable and appropriate level.

Some pieces of software come ready-primed for several levels of use, one example being the *Information Workshop* database. Users of RM equipment may be familiar with WindowBox – a whole computer system with built-in colour-coded differentiation.

Keyboard alternatives

Differentiation is also required to improve the accessibility of hardware and software for students with physical disabilities. Many peripherals are available to adapt the computer for personal needs. These include alternatives to the ordinary keyboard, such as concept keyboards, a range of switches, trackerballs and touch screens. *Clicker* is an alternative to the concept keyboard which does not require any extra hardware and can be switch-controlled. In the last few years, customised computers have revolutionised the lives of those with learning difficulties and physical handicaps at all levels. The use of voice control – not too far in the future – will increase this benefit.

Help and advice on meeting the needs of individual students can be obtained from the Centre for Micro-Assisted Communication (CENMAC).

Route ■ *Teaching and learning*

Drama

Drama has been reinstated in the new national curriculum in response to requests from industry as well as education, and with the popularisation of CD-ROM drives a plethora of new drama-related software is appearing on the scene.

These products range from the good, via the bad, to the extremely ugly. Ones to avoid are compilations which consist of inaccurately-typed text, poorly presented and with no annotation and little or no illustration. In fact, no redeeming features at all, unless you want to find out exactly which line of which scene contains the words *To be, or not to be*.

Yet there are programs for drama which are exciting resources and which in themselves are a new art form. CDs now incorporate many different ways of exploiting drama, including old standards such as annotated written texts alongside complete theatre performances, interviews with actors, and the history of the play. *Karaoke Macbeth* even lets the user choose which role to play in a professional production. Also in the new canon of dramatic works is *The Crucible*, which explores drama in terms of a 'visit' to a specific theatre.

These products vary in price, but half a dozen might well cost two or three years' worth of a departmental budget, so it is worth looking at cheaper alternatives.

Improvisation

Storybook Theatre can help younger pupils to make their own dramatic stories, while *Scenario Simulations* deliver dramatic simulations with one computer and a printer. The *Inquest* series, also from Scenario, can be used to develop debating skills and interviewing techniques.

For those with an even more limited budget, the following suggestions all use generic software which most schools will have readily to hand.

- A wordprocessor is no mean tool for writing up notes, or even writing your own drama, either individually or as a group effort.

  Try dividing a class into groups of five or six, and giving each group the same sentence or short paragraph as a starter, from which they must generate a brief skeleton plot for a whole play, then write the first scene of it on the wordprocessor.

  They can print out the script, rehearse, then act out their scene for the rest of the class. With a careful choice of stimulus, they – and you – will be amazed at the variety of treatments a single original sentence can produce.
- Drawing and painting programs can be used for set design, especially programs which offer perspective view. These programs can also be used for deciding on blocking from the director's point of view, and designing costumes.
- An integrated package can be used for
  - designing tickets and theatre programmes (drawing module);
  - producing publicity posters (wordprocessing and/or drawing and painting modules);
  - running the box office and finalising a profit and loss account after the performance (spreadsheet module).

Your own, your very own...

Even bearing in mind that recorded sound and pictures eat up hard disc space, it should be possible to develop a mini-production consisting of short sound-bites, recorded in the classroom or 'on location', and pupils' illustrations, built into a simple slide show using software such as *ClarisWorks* or *KidPix*, or a more complex framework with a program like *Genesis*. This approach can work at all levels:

- for infant and junior children drama in this form is easier to sustain than a full production while still offering them the opportunity to create in a medium they understand;
- for older children, a do-it-yourself mix of animation and sound gives opportunities to analyse film and television techniques as well as being a creative activity in its own right – Jonathan Needlands' NATE publication *Drama and IT* has useful things to say on this subject;
- for all ages, it provides valuable practice in translating from one communication medium to another.

Route ■ *Computers across the curriculum*

Editing

Editors who are responsible for quality control have a powerful role, yet the skills of editing are often acquired by accident rather than by design. The term 'editor' applies not only to those who have ultimate responsibility for the management of professional publications, but also to those whose more humble job it is to correct typing mistakes (their own or other people's) in a school publication, make sure the copy fits the space available for it, and take out the worst excesses of purple prose. In practice, both interpretations of 'editing' can mean 'censorship'.

A negative slant in media studies and the behaviour of the more irresponsible tabloid press both help to make teachers ambivalent in their attitude to the publishing industry and blind to some of the best reporting, feature writing and editorial.

Best practice

School publications require organisation, team work and editing ability as much as good writing skills, and much can be learned from the best practice of professional newspapers and magazines.

In a professional publication little is left to chance. Teachers are often surprised at the notion that editors plan which articles they want, the length in numbers of words and the way in which the subject is to be tackled. Early decisions need to be made with the team, like the variety and range of material required and whether the articles will be short or long, whether illustrations are needed for specific articles, and whether an article is to be a news report or a feature.

The choice of 'feature' or 'report' raises an issue which schools rarely address. Lack of attention to the difference between opinion and reporting is reflected in the fact that editorials rarely appear in school newspapers.

Satisfying your reader

A range of detailed editorial considerations affect the look and feel of a publication based on the readership profile. Basic decisions on material include the need for topicality, a local angle and a theme. Editors need answers to a wide range of questions before they embark on a publication:

- Who is the target audience?
- Is speed and concentration on covering all the news quickly the best approach?
- What will be the headline style?
- Is there a clear division between editorial opinion and reporting?
- What are the criteria for the choice of lead story?
- What kind of illustrations can be used, and who will be responsible for obtaining them?
- How will fillers and stretchers be deployed?

A sense of cohesion is important if readers are to feel comfortable with the publication – it is not enough simply to fill the space, but to make it look like a planned whole rather than a miscellaneous collection. Lack of consistency in house style is still a feature of many school publications. Page layout programs nowadays offer style sheets and templates, which can help to develop a house style, adding a professional look to school magazines and newspapers. Newspapers in Education (NIE) can provide help with newspaper house style or schools can build their own rules.

Programs which can be helpful in clarifying the editor's role include *Sub Editor Data Disk*, *My World Proofreading*, and *Writer's Toolkit*. *Docucomp* (or its equivalent provided as an integral part of some wordprocessors) is useful for checking changes which have been made in versions of a text, especially if it is collaborative work.

There are some editorial decisions that are challenging for schools – for example, policies on accuracy and the avoidance of repetition are often dependent on the age, aptitude and ability of the students. At other times decisions can be affected by a range of factors from the head's relationship with the governors to copyright law. Industry partnership can result in sponsorship, advertising and useful income – but might it also affect editorial independence?

The opinion of the 'owner' of a newspaper is a matter which student or teacher editors must tackle if their role is to be discharged responsibly, and this means that relationships with the head and the governing body must be clear. Two enthusiastic investigative reporters for one school newspaper were arrested as they climbed into a sensitive defence site. The student editor was faced with deciding whether publication would make matters worse for them. She published!

Route ■ *Issues for authors*

Electronic communication

Subscription to electronic communication services may soon become essential in a world where information is power. It is certain that, now that international boundaries can be crossed for the price of a local telephone call, the possibilities for schools are boundless.

In order to take advantage of electronic communications, the basic requirements are

a computer;

a telephone line;

some means of connecting the two.

In the simplest set-up, an existing telephone line can be commandeered for occasional use by the computer. A modem sits between the computer and the telephone line to convert the telephone's analogue (wave) signals to and from the digital signals which the computer understands.

What is electronic communication?

The major benefits to schools of electronic communications are twofold – instant round-the-clock access to huge databases of information on almost any topic you could imagine, and messaging facilities which can connect schools which are literally a world apart.

The most popular on-line facilities are

- databases, including general and specialist dictionaries and encyclopaedias, magazine articles, bibliographies, pictures, and information on where to find information;
- forums, which are a means of exchanging information with people of similar interests; forums provide a public letter-box, where users can air their knowledge or ask other users for information on more or less any topic (for example, photography, pets or politics);
- conferences, which are 'live' forums, where participants are all on-line at the same time;
- electronic mail (e-mail), which means sending a note to a specific user at a private electronic 'address'; every time you access the service, you are told when you have mail waiting.

The most widely-used service is the Internet. From being the exclusive domain of higher education, it is now increasingly used in schools. There is more specific information about Internet and other educational services on pages 73/4.

What does it cost?

Some on-line services are free, but most are supplied on subscription – usually a one-off registration or an annual fee, plus a monthly charge. These are fixed charges which can be budgeted in advance, but some services also make a charge for the amount of time spent on-line, and some provide optional extra services for which a charge is made.

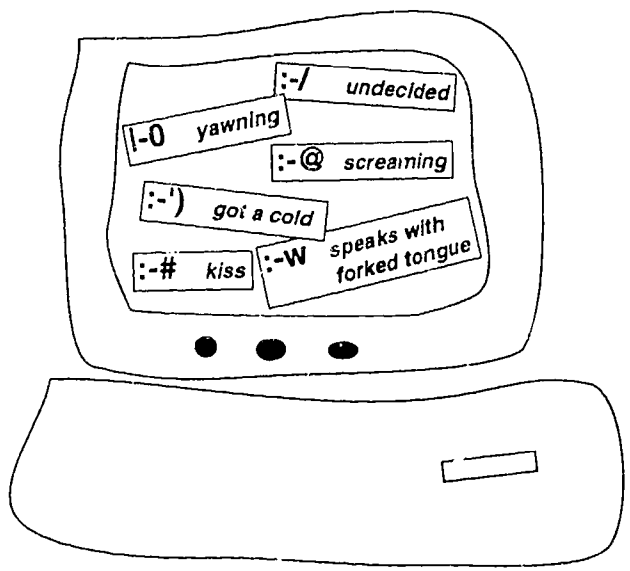
The most important variable cost is the telephone time. All the time your computer is connected to an on-line service, you are paying for the cost of a telephone call. In many cases, particularly with the major international services, you will be charged at local call rates even when the computer you are 'talking to' is on the other side of the world, but this is worth checking before you subscribe. The telephone charges will appear on your ordinary telephone bill.

To save telephone costs, many on-line services can be used during cheap-rate hours, and information can be copied from the remote computer on to your own disc, for reading at your leisure after disconnecting from the service.

Why use it?

What computer-mediated communications already offer are connectivity and interactivity: real audiences for purposeful communication from the classroom base. The books of Mason and Kaye offer a wealth of experience in this medium in post-16 teaching, while NCET publications cover schools.

The effective use of these electronic services in schools and colleges depends upon the visionary and public commitment of specialist groups like English and modern languages teachers. The services must be included as part of the school development plan and well used both for cross-curricular and administrative applications. Most importantly, teachers also need regular personal access to understand and assimilate the potential.



Real superhighway buffs speak a language all of their own. The rest of us use plain English.

Electronic publishing

Electronic publishing is not simply a matter of converting the computer into an automatic page-turner. A true electronic publication, whether distributed by modem, on a CD or a humble floppy, is a publication that is written and devised for the computer screen, exploiting to the full the potential differences between electronic and paper-based media.

There is a lot to be said for printed books: they are lightweight and mostly portable, and they are comparatively cheap. Most important of all is that experienced readers know the 'geography' of a printed book, and can negotiate the Contents page, the Index and the Chapters with relative ease. On the down side, it is not always easy to find what you want on the printed page, despite an index.

Electronic books, even the ones designed to be used on hand-held electronic readers, are not yet either cheap or truly portable. On the other hand, they are fast to search, and hyper-links between screens can make the research and assembly of information on a topic a simple matter. Moreover, the addition of sound and movement add a dimension that paper products can not hope to emulate.

Electronic reference

The true electronic book may have a beginning, but it does not have a middle or an end. Even the 'beginning' is becoming less well-defined as the science of electronic writing diverges from the familiar Contents-Chapters-Index print format. This lack of linearity has caused some pundits to predict that works of reference, where the concept of beginning, middle and end has always been doubtful, will transfer better to an electronic format than works of fiction.

In 1993, for the first time, as many electronic encyclopaedias were sold as paper-based ones. This is hardly surprising. Apart from taking up less shelf-space, a CD work of reference has a lot more to offer:

- a paper-based book can describe a musical instrument or the howl of a wolf: the electronic version lets you hear them;
- illustrations are expensive to produce on paper, but an electronic publication can be profligate, especially with photographs;
- the description of a process – say, the working of the internal combustion engine – is far more meaningful when illustrated with animation.

As portable technology gets cheaper, children will be taking a PDA (Personal Digital Assistant) with them on field-trips to identify specimens on the spot, and the school encyclopaedia, instead of being locked up in the library at night, will go home with a child to help with homework research.

Electronic fiction

The jury is still out on the question of whether electronic publishing is appropriate for narrative. The answer is probably that traditional narrative – a linear story – is best catered for on paper, while electronic fiction calls for different writing and reading strategies, and adds a new strand of meaning to the phrase 'reading for pleasure'.

An electronic story can be different every time you read it – some stories are not intended to be read the same way twice – and many are designed to be exploratory rather than declamatory. For example, the children's CD *Just Grandma and Me* (in the *Living Books* series) has much more in common with a pop-up book than with a traditional storybook.

Electronic fiction extends the role of both the writer and the reader. The ability to add interactive elements of graphics and sound gives the author some of the power of a film-maker, while the reader, instead of being passive, has the freedom to choose a route through a story, and sometimes even to change the storyline.

The end of the printed book?

We have only just begun to exploit the possibilities of electronic publishing, and to realise that it will change the face of publishing in the future – not least because it calls for new skills in both writers and readers.

We can be sure, however, that electronic books do not spell the end of conventional publishing. Will you ever want to read a CD in the bath, or nod off over the screen on your pillow?

Route ■ *Issues for authors*

Equal opportunities

One of the conundrums of the modern age is the tension between the theoretical opportunity to communicate anywhere in the world on the electronic superhighway without editorial or censorial intervention, and the contradictory lack of freedom for poor nations and underclasses to take advantage of this opportunity.

This denial of freedom can arise from

- lack of money – or the matter of setting alternative priorities for such money as there is – say, in the Third World;
- lack of access – which may also be a question of money, since adaptations for those with special needs can be expensive;
- lack of attention to gender, race, class and wealth issues in software.

Hardware customisation

Freedom for individuals includes compensation for disability. Stephen Hawking (author of *A Brief History of Time*) and Chris Nolan (*Under the Eye of the Clock*) are outstanding examples of the power of electronic wordprocessing and speech tools for active minds trapped in recalcitrant bodies. Those with special educational needs, including the complete spectrum from severe learning difficulties, through sensory and physical disabilities to literacy and language needs, can expect to communicate more successfully if they have access to the right tools.

Virtually anyone, however limited or uncontrolled their physical movement, can benefit from access to a computer which is customised to their needs.

A range of peripherals of varying complexity and price is available off the shelf, or can be built to order, including

- keyboard guards to ensure that involuntary pressure on the keyboard does not register on the screen;
- concept keyboards, which sit alongside an ordinary keyboard and act as an alternative or supplementary form of input;
- software and hardware for blind and partially-sighted users;
- switches to assist those with minimal movement, even of a single muscle;
- speech-recognition devices to allow those with some – even minimal – control over the sounds they make to control a computer;
- speech synthesisers to provide a means of communication for those who have little or no voice control.

CENMAC is an organisation which can advise on individual needs, loan equipment and in some cases develop systems to suit an individual user.

Culture and gender equality

Cultural expectations and economics affect the computer use of different racial groups as do social factors. Ninety per cent of electronic communications users are said to be white, middle class, male and American. The study which produced these figures did not take account of the fact that many women register with men's names to avoid the sexual harassment which is rife in certain sectors of Cyberspace.

Counter to world trends in computer use, women in Britain are not enthusiastic about computers. For many this is a matter of choice. British women are not attracted to computers in the numbers that men are. Perhaps we should worry more about boys and men who feel compelled to zap at screens. According to Newton and Beck

> *The 'hard tech' image that is associated with power and prestige is, in fact, inappropriate in an area which is about communication, about interface between people and computers, about organising information, and about devising new ways to work.*

Margaret Bell, the chief executive of NCET, states that there is no doubt that many women are increasingly put off by computers. There are some tentative indications that women prefer to regard the computer as a tool, rather than as an engine that needs to be understood and taken apart if necessary. Celia Hoyles has noted that girls work more cooperatively in groups, helping each other or being prepared to ask for help. When they discuss the value of individual work it is in the way it enables them to work at their own pace. Boys, she says, seem to have a much more competitive speech style in groups, giving preplanned instructions or commands, rather than suggestions for negotiation, and not acknowledging the use of other people's ideas.

Applications which allow a high level of flexibility and have a clear practical value may be one way forward in attracting more women to authoring and using computers.

Toys for the boys?

The games culture associated with computers is almost exclusively a male preserve. Most software designers are male and so they tend to use models that appeal to their gender. Interactive soft porn adventures like *Virtual Valerie* permits the mouse manipulation of women on

screen, unlike magazines. Some of the hard porn video games encourage violence.

One games company is planning to develop comic-strip-style love story adventures to attract girls to computers after the success of Game Boy, though whether this is a step forward is debatable. The Barbie adventure game is already a big seller in the US.

Many British educational software developers do their best to avoid gender stereotyping. Some learning programs have girls as a central figure (*Sitting on the Farm*, the *Amanda* series), or offer a choice (*Smart Alex*), or have ambivalent figures (*Living Books' Just Grandma and Me*) or unisex animals. The *Mapper* series is commendable on all equal opportunities issues.

There are no laws to control output of computer porn except in the case of minors. Whether these new media have a corrupting effect on young minds we do not know. Those with responsibility for the young would be wise to keep themselves well-informed and vigilant. Nevertheless the young, who seem to have an unfair advantage in understanding the new technologies, may well be the ones who find a way of restricting the distribution of this kind of material.

Linguistic equality

Hackers have always had a bad press, while computer scientists have been lucky if they have any press coverage at all. But with the advent of the superhighway and the much-reported improvement in Bill Gates' wardrobe since his marriage, computer people are losing their down-trodden anorak image and greater acceptance of the new technology is being reflected in our language.

As Jane Dorner says,

> *Computerese is creeping into metaphor and it is probable that as authors become increasingly familiar with wordprocessing and desktop publishing they will use its terminology in inventive metaphorical senses. When the words go back into ordinary language they take on new overtones, as in A. Dillyard's, 'I have been doing some scrolling, here and elsewhere, scrolling up and down beaches and blank monitor screens, crying for signs'. Even the word 'access' which is an old library word, has new connotations now. Another curiosity is the expression 'dropping the bread crumbs', taken from the Hansel and Gretel children's story and used now to record links in a hypertext chain so that programmers can retrace their steps.*

Unlike the language of engineering, where male and female parts still co-exist, this neo-language 'computerese' appears to have few sexist tendencies or any other equal opportunities traps: one of the advantages, perhaps, of the new and cleaner technologies. It is clear that our language is being permeated by computer terms, while computer terminology draws widely on metaphors from everyday life. This can only be beneficial. Jane Dorner again:

> *There is a certain liveliness to its cross-fertilisation: the workload starts at the root and its paths form a tree; directories have parents and children; programs have branches; records have fields; printers feed; disks may be worms; screens are dumped and there are bugs, mice and viruses everywhere. Agriculture is one source, then there's mode from music, clone, cell, crash from motoring, and so it goes on , icon, menu, windows. Ordinary concepts shift in their computer senses: terminals can be smart, programs are well – or badly – behaved; there is much handshaking going on before systems talk to each other and when they do, they could well be asking for a brain dump.*

It is not yet politically incorrect to abuse our computers, verbally or physically. However, when the ultimate computer brain dump is perfected, computers may see things differently.

Route ■ *Management and productivity*

ESOL and EFL

The electronic manipulation of language is an important aspect of the teaching of English for Speakers of Other Languages (ESOL) and English as a Foreign Language (EFL), as it is of Modern Languages.

There are two aspects to consider:

- the use of the mother-tongue;
- access to English.

Mother-tongue

Not so very long ago, accented characters were difficult to achieve on a standard computer with an English keyboard and operating system, and this ruled out even French, German and Spanish, let alone languages with unique scripts such as Bengali and Nasq. Basic accented characters like ü and é were there, buried deep in the system and accessible only with difficulty. More esoteric characters were a pipedream.

The Mac was first to break the barrier by making a range of accented characters available on any Mac either by choosing from a screen display or by simple key combinations. There were also fonts for the Mac which made it possible to type in Japanese, Hebrew, Urdu and many other languages, though these were expensive.

The IBM-compatibles lagged behind in language capability for a long time, though one multi-lingual wordprocessor blazed a trail in the use of community languages in education. This was *Allwrite*, which reduced some children to tears of pleasure when they saw that they could write and print in their mother tongue. Although foreign language fonts are now much easier to come by, *Allwrite* – and the more recent Mac wordprocessor, *WorldWrite* – still represent good value for education in terms of price and ease of use. In community language teaching, the use of the mother-tongue creates a sense of worth which can not be over-estimated.

One aspect is frequently overlooked: the difference between foreign-language fonts and foreign-language wordprocessors. Fonts are now readily available which make it possible to reproduce the characters of a language on screen and on paper, but the font will be used through a normal English-language wordprocessor, with all its instructions, menus and so on in English.

A more more satisfying approach is to buy a wordprocessor which, chameleon-like, changes menus and instructions according to the language of the font you choose. Both *Allwrite* and *WorldWrite* offer this choice, and *WorldWrite* will even spell-check in the target language.

Access to English

Many mainstream programs now have scripts and sound tracks in a range of languages. This is particularly useful for students with normal skills and intelligence who need as much stimulation and appropriate illustration as their peers but who are struggling with language differences. This book suggests only a limited range of mainstream cross-curricular programs of this type. A telephone call to a good software house will reveal many more.

Programs with few or no words like *Cosmic Osmo* and *The Manhole* offer a sense of achievement. *No.62 Honeypot Lane* is a fascinating exploratory program with scenes full of common household objects, the vocabulary for which is displayed on demand; although intended for young readers, this program is entirely suitable for older ESOL beginners. *Guardians of the Greenwood* is a particularly delightful resource. In the *A to Z of literacy software*, programs listed with the A to Z headings Special educational needs, Adventures, Knowledge about language, Reading and Writing can often be adapted for ESOL readers, but each title should be evaluated for the intended audience.

Some American materials such as *Living Books' Just Grandma and Me* can be switched to Spanish or Japanese as well as American English. EFL programs such as *Learning English with Asterix* can be customised to take foreign texts. *Telephone Talk* covers the basics of listening to and interpreting telephone conversations, and taking messages. For older students, *Plato* courseware and drill and practice programs like *Cap-It-All* may be useful, and the successful dictionary for language learners, Collins *Cobuild*, now exists in an easily-searched CD format.

Many of the titles reviewed in the Hollin and Rowbottom *Basic Skills Software Guide* will be appropriate for adult ESOL students.

On-line services are also worth exploring. Campus 2000 provides a range of foreign language services including access to Minitel and news materials in French, German and Spanish. Russian Cyrillic script can now be sent on-line which clears the way for the development of some of the community languages spoken in British schools.

Route ■ *Computers across the curriculum*

Illustration and graphics

Since mediaeval illuminated texts, pictures have been an integral part of communication. The abstract pictures of metaphor are a vital aspect of human verbal communication, and the imagery in Shakespeare's words conjured in the mind what early stage-technology could not provide in sets and sound. Virtual reality begins to offer wrap-around experience which closely imitates the sensations of living in a visual world which is beyond metaphor.

Within the mediaeval illumination was a message as complex as the meaning in the text. In the same way computer graphic meaning is often replacing text as Gunther Kress indicates in the preface to this book. He has also said that 'not everything can be said in any medium.'

Meaning systems other than language have not been fully explored as yet. The wide availability of multimedia will probably redress this situation and offer new understandings of how meaning is created. Changes are already occurring in behaviour which no longer relies on text.

> *Some of my colleagues now start 'writing' their academic papers by first producing images – diagrams – which embody the substance of their argument. The multi modal text will therefore replace the verbal text which of course was never simply verbal: a page is always a visual composition.*

In his Sunday Times cultural essay, Chris Barlas, who collects illuminated manuscripts, warns us that just as photography made obsolete some of the ambitions of painting, so the dynamic screen will make some of the traditional purposes of writing oddly bizarre:

> *Why describe in words if you can show in pictures? Landscapes can leap into life, a character can speak or perhaps be described by an image or a colour.*

Creative art

A wide range of art software from the cheap and very cheerful to the sophisticated and professional means that there is something to suit almost every purse and ability.

For many purposes the built-in drawing and painting facilities found in integrated packages and in some wordprocessors and desktop publishing packages will be adequate, perhaps supported by simple software such as *Banner*, *Bannermania* or *Poster* to help with specialised tasks.

More accomplished artists will appreciate being able to use a graphics tablet to transfer the subtleties of variable pressure on the stylus to the screen. Several programs now offer a range of painting styles, so that even the artistically naive can simulate Impressionism, Pointillism and more.

One undoubted benefit of computer art is that it gives access to those with severe physical disabilities to create thrilling art which they could not achieve using conventional materials.

Younger artists, or those of us with lesser illustrative skills, will be glad of the support of a program like *KidPix*, which makes painting even more fun by adding sound to the painting process and providing mystery pictures to be discovered.

Art for the artistically challenged

The many whose talents do not extend to original art can still benefit from the technological revolution

- by using readymade collections of clip art – though with some collections you may have to buy a hundred fairly useless pictures to get half a dozen usable ones – *Just Pictures* is a value-for-money series of educational clip art;
- by using a scanner to capture illustrations from books and magazines for use on the computer – though there are copyright issues to watch out for here;
- by using a digital camera to take photographs which can be on the screen within seconds – the technology for this is dropping in price and should soon be within the reach of most of us.

Why produce plain text when you can write a multimedia essay using, say, CD libraries of photographs like *Exposures*, or select from the same range used by *ITN World News*?

A picture is worth a thousand words, and we should all be taking advantage of the fact.

Knowledge about language

Knowledge About Language has been identified as a key area of the national curriculum requirements for English. Since language is the medium through which everyone learns, children have an implicit knowledge of and curiosity about words. Focused exercises in spelling, punctuation and grammar can be a useful revision route but most good language work is rooted not just in the technical underpinnings and systems but in an understanding of the variety of language, the way in which it is acquired and developed, the histories of language and the impact of different forms and styles. In *Knowledge About Language* George Keith brings together a range of case studies from teachers who have used existing software inventively to increase their pupils' understanding about the power of words and forms.

There is little software written specifically for this area so far. *Word Root* is a multimedia program in its planning stage, based on the national curriculum approach to knowledge about language. Users will be able to explore, listen to and learn about etymology, dialect and the links between words. Attention has been paid to best practice in program design but the effectiveness of the content is yet to be tested.

New features such as talking wordprocessors look promising. Children can quickly hear differences in pronunciation caused by variations in spelling, so a talking spellchecker is more than a gimmick. Among the growing range of speaking software are *Intellitalk* and *Talk Write*, with vocal versions of two favourites, *Talking Pendown* and *Talking Word for Windows*. These two are appropriate for adult use, as is *Write:OutLoud*, which is designed to work in conjunction with the predictive wordprocessor, *Co:Writer*.

Word Stuff is designed as a language development resource for the very young where animated sequences explain different types of words and their sounds. *Sitting on the Farm* is a versatile language development program which can be used in English, French or Spanish. *Guardians of the Greenwood*, an eco-adventure, has potential for language development at keystages three and four. *Storymaker*, a multimedia product evolved for children to create their own stories, shows an appreciation of language content and includes a useful word list option.

Animated alphabet and serious study

There are other programs which encourage a range of ways of analysing language and developing interest in words, even in the very young child. The *All New Talking Animated Alphabet* relates letters and sounds to animal shapes, while *My First Incredible, Amazing Dictionary* doubles as a real 1000-word dictionary and a suite of language games.

Ardent fans of the paper version of Collins *Cobuild* dictionary will welcome the CD version. *Cobuild*, with its thousands of illustrative examples of vocabulary and grammar drawn from modern English texts, is arguably the best dictionary for learners, whether native English speakers or not. At keystage four and later, the growing range of OUP reference CDs, including the *English Language Teaching Shelf* and the *Oxford Study Shelf*, offer a veritable cornucopia of language study. Some products such as *Grammatik* and *Correct Grammar* can be customised for particular audiences, though this is not a job for the fainthearted.

It is also possible to find language awareness in the most unlikely places: the CD encyclopaedia *Encarta* has a fascinating 'world language' section which introduces simple words, phrases and numbers in sixty languages from the expected (English and Turkish) to the more esoteric (Quechua and Yoruba), and allows a comparison between the languages.

Route ■ *Computers across the curriculum*

Monitoring and assessment

The assessment techniques chosen by a school or a government should reflect an agreed perspective on teaching and learning theory. Schools need to recognise what is happening and what is being learnt: the process and the product. A staff will have to generate evidence and have monitoring systems in place. Not only will this be helpful in recording pupil achievement but help teachers to understand and share what is happening in their classrooms. There is an excellent chapter on monitoring and assessment in *Developing English: approaches with IT*. The opening essay by Sally Tweddle clearly distinguishes between the assessment of IT and the assessment of English and suggests how the two areas can be enriched by a dual approach. Sections on teacher management and productivity indicate how the computer can help in simple head counting and registration. Optical Mark Readers have been distributed to help teachers in their national curriculum marking load.

Integrated learning systems

The assessment industry in America has culminated in the integrated learning system. An Integrated Learning System (ILS) is a large software package which has

- curricular material - tutorial, practice and assessment modules covering a range of subjects and levels of ability;
- a student record management system – which manages each student's learning route, keeps a personal record achievement, and provides the teacher with diagnostic reports;
- a learning environment which provides materials at different levels, immediate feedback on progress, and simultaneous tutorial and practice sessions for a number of students.

These systems are used typically by pupils for twenty to thirty minutes a day. Pupils work independently at their own pace. The concept of ILS can be applied to skill development and reinforcement activities, or to more open-ended learning. The three main systems considered in this book are *Successmaker*, *Plato* and *OILS*.

Open or closed?

Software systems vary and the differences will influence the teaching and learning environment fundamentally. Closed systems make the teacher totally dependent on the materials provided by the software developer. Open systems can integrate other software, and sometimes other resources such as books and video into the system.

Both types of system can provide a differentiated learning pathway and include tutorial help. An open system, however, will offer a variety of resources in addition to drill and practice.

The NCET's evaluation of some integrated learning systems (ILS) on trial in Britain offers more information about making effective use of computer assisted assessment in the classroom. This evaluation is examined on page 46.

When personal computing was new in the early Eighties, it was fashionable for amateur teacher-programmers to churn out 'computer-assisted learning' software by the disc-load. This generally took the form of tick-if-you're right-raspberry-if-you're-wrong exercises and games. As computers have grown more sophisticated, amateur software has been compulsorily retired in favour of more exciting commercial products. Where these have been developed by professional programmers working in a team with experienced teachers, the result has been less prescriptive software, dedicated to creativity and problem-solving.

The advent of the integrated learning system may herald the return of the amateur programmer's drill-and-practice methodology. Chris Abbott comments:

> *All the activities are designed to be completed by a child working alone. This would seem to rule out one of the major assets of the computer, its ability to manage and promote collaborative writing... Many teachers are concerned that this development might produce complete curricular packages which deskill teachers and give collaborative activities a lower profile.*

We may be entering a new era of professional educational software, but it is very early in the cycle of integrated learning system development in Britain.All the systems that exist so far have significant flaws. Experimentation is taking place, and it remains to be seen whether the results warrant further investment in British-style assessment and monitoring systems. The costs are great, ILS is an expensive solution to remediation compared with employing extra staff – could the money be better spent in remedial programmes or more research into effective monitoring and assessment? A wide take-up of ILS could distort the British educational software market and the culture of education. Watch this space – it is bound to be controversial.

Route ■ *Management and productivity*

Multimedia

Chris Barlas complains that 'multimedia' is an ugly word, boringly descriptive of the technology but lacking any hint of the joys of the content. Interactive multimedia is worse:

> *To find the right word we might look to the East and borrow the word, 'koan' from Zen philosophy. It is typical of a Zen word, in that a koan is always appreciated uniquely by the individual at the moment it is heard. Sometimes a riddle, sometimes a story, sometimes like nothing that's ever been told before, a koan leads to enlightenment and knowledge. It is just right for this new form.*

Media studies are the focus for criticism of the new literacies. Most media teachers feel equal to a critical consideration of television and film but they now need to promote thoughtful criticism of multimedia - text, sound, animation and visuals in a form that pupils are more comfortable with. Professor Stephen Heppell's research indicates that children want more sound, more speed and more challenge in their multimedia learning. They value interactivity.

Hypermedia, or merely Hype?

Multimedia is exactly what its name implies: bringing together several communications media – text, still images, sound, animation and movies - under one roof, so to speak. But much of the material produced in this way has so far been rushed together.

Jane Dorner warns that

> *good writers with an ability to understand the potential of such a medium will be needed. It could be the opportunity of the future for some writers, just as the early days of the cinema attracted top novelists. Most importantly this potential for interactivity or participation in a work of art or reference is giving writers new freedoms. Interactive fiction permits pupils to control a story: interactive reference permits wider and more personal searches: interactive training using moving pictures for writing-cum-picture dramatisations can be created on a shoe string.*

At the present time, creativity is not high on the list of publishers' requirements. Primarily they want something on the market, and many offerings consist of compilations of ill-assorted out-of-copyright material, whose main attraction seems to be that it is 'now available on CD'. 'Multimedia' has in some way acquired a spurious synonymity with 'CD format', which does neither term any favours. And until Jane Dorner's ideal of innovative writing for multimedia becomes a reality, all too many multimedia products will simply be books in another guise.

Yet there are shining examples to be found among the dross. *ITN World News*, for example, is far more than a re-run of the best TV news stories, and allows news to be explored in new ways, and *Last Chance to See* shows the potential for extending the book format.

Encyclopaedias are variable, ranging from those with excellent search facilities but less than exciting content, to those with brilliant content which are great for browsing but disappointing when you really need help with a specific topic.

Much multimedia material for younger children comes with an American accent, but is not necessarily the worse for it. Examples include *Storybook Theatre* and *Living Books*. More products are now being localised for a British audience.

DIY multimedia

There is nothing mystic about multimedia – you can begin to create your own in a modest way with nothing more sophisticated than *KidPix* or *StoryMaker*.

Presentation tools such as *Persuasion* and *Claris Impact* can be used by older students, and impressive results can be achieved by students of all ages using authoring tools such as *Genesis*, *Rainbow* and *HyperStudio*. Those fortunate enough to have used a digital camera with students will testify to the excitement of seeing a photograph, taken by a student only moments before, on screen with the photographer's voice-over caption.

For most of us at present, multimedia is limited to what we can use on our own PC, but it is already possible to connect worldwide on the telephone system and pick up interesting examples of graphics and movies. Before long, wide band telephone lines will mean that multimedia can readily span continents in 'real time'.

Imagine the situation: two primary schools on opposite sides of the world hold a real-time video conference, recording the event and incorporating edited highlights into their own multimedia newspaper on their CD-R (CD-recorder) machine. This is already a possibility in terms of technology - and not too far away in terms of cost.

Presentation and typing

Playing with text, fonts, colours and graphics is very popular with children, and there is evidence that this interest increases understanding of presentation and improves the general appearance of written work even when students re[illegible]n to handwriting. Some packages like *ClarisWorks*, *Microsoft Word* and *WordPerfect* include templates for guidance in a range of presentation tasks.

The CAR project results in Croydon LEA showed that some learners have such poor hand control that it impedes their understanding of the role of print. These children only see the relationship between their own poorly-formed letters and print for first time when they interact with the word-processor, which can be an important step forward in learning to read from the printed page.

Students appreciate the effect of the computer on the authority of their text. They will often be punctilious about spelling and punctuation in this medium, and will eagerly use spelling and style checkers.

Learning the keyboard

This raises the question of how keyboard skills should be approached. Typing used to be a skill taught to girls who were expected to leave school and spend a year or two in the typing pool before leaving to have a family. Even then, when boys did woodwork, girls did cookery and gender unawareness was the order of the day, this was a very blinkered approach. Today, keyboard skills are almost a necessity, for both sexes.

Not everybody will need to touch-type, but anyone who has attempted to progress from adequate two-finger typing to touch-typing will know that bad habits are difficult to overcome. It is therefore worth instilling good habits at an early age – though how to instill good typing habits when children of five years and downwards are already keyboard-aware using the hunt-and-peck model, is a problem yet to be resolved.

Most schools do not teach touch-typing except in business studies. Some schools allow students to practise QWERTY key board skills on old computers or typewriters reclaimed from offices, but this is neither the easiest nor the most productive way to achieve results. Learning to type is a repetitious process, and interactive typing tutors can improve the experience. For the very young, *Kid Keys* is a first introduction to the keyboard and to correct fingering. *TypeQuick* promises touch-typing success in ten lessons, while *Multimedia Fingers for Windows*, which comes with Language Class tutorials, livens up the process with language exercises in a choice of English, French or German – including, in the CD version, native voices to prompt your audio-typing. Vast improvements to voice-controlled wordprocessors point to a day when the keyboard will not be so important as an input device, but until that time, keyboard skills will be beneficial.

Design skills

Teachers are often drawn to the computer for the first time when they see the possibilities for producing attractive lesson handouts. However, amateur results frequently leave much to be desired, for the want of simple design know-how. The application of a few basic design principles can improve appearances amazingly.

John Miles' *Design for Desktop Publishing* is a slim, easy-to-read volume, and Jan White's *Graphic Design for the Electronic Age* is not only instructive but fun. Either or both will help to sort out your leading from your leaders, and give distinction to even a humble handout.

Presentation is an aspect of writing that is often overlooked in the classroom. Teachers whose own work looks good stand a better chance of instilling principles of good presentation in their pupils.

Designing the electronic page

Some teachers are now using packages that allow them to produce slide shows with colour, animation and sound – for example, *Persuasion*, *PowerPoint* or *Claris Impact*.

These can give stunning results, but the design skills required are different again from those used on the printed page. The most effective results

- use few colours on a screen, in combinations that are easy on the eye;
- are consistent from screen to screen, so that the user can easily learn the 'geography' of the layout;
- and use few words with plenty of blank space on each screen – unlike print materials, empty space costs little.

More and more learning takes place in front of a screen: it behoves us to make the experience as pleasant as possible.

Route ■ *Management and productivity*

Progression

This book identifies a number of areas where literacy skills are enhanced by computer use. IT is a subject in itself in which progression must be achieved. But IT is also a cross-curricular vehicle for learning and teaching. Technology standards will affect teaching and learning styles as well as administrative efficiency. Progress in language literacy may be held back by poor computer provision. Functional literacy may not be achieved if skill in telematics has not been developed both amongst the students and the staff.

The National Curriculum revisions are addressing some of the inconsistencies in progression in IT that had appeared. Subject documents were created at different times and by different committees. There was little discussion across the groups about telematics matters and knowledge about telematics was growing as the experts wrote.

Maths was written first and history and modern languages came last. As a result, at each keystage in maths students were expected to have fewer computer skills and less knowledge than they were at the same keystage in French and History.

Another core subject, English, which was early in publication does not require the knowledge of electronic communications required by, say, modern languages.

The hardware

The impact of the choice of hardware on children's learning needs serious consideration if the National Curriculum is to keep within range of good practice. OFSTED will need to give more attention to the differences in technical skill and understanding that are induced by the machine platform available.

Software in Schools (Harris and Preston) indicates that the choice of hardware also has a bearing on what the minimum requirement for pupils' learning should be. Children who are using intuitive interfaces and powerful integrated packages from year one or at home present a different model of progression from those who have not had access to this type of machine. These new-generation machines have not been found in such numbers in primary schools until recently.

One consequence is that there are places in the country where students are asked to perform less complex tasks in IT as they go up the system. These students meet less powerful machines and have less time with them at secondary level than in primary school.

Another consequence of slow purchase of new-generation hardware is to pass down older and less powerful machines from junior to infant and infant to nursery. In the secondary school they are passed from mainstream to special needs. This may appear to be logical, but the less able and younger a child the more benefit will be gained from computer power.

In primary and secondary schools, student progression in IT skills correlates with the type of hardware and software used in the school. Project Miranda evidence suggests that some of the most interesting practice occurs where the same intuitive interface (Mac, Windows or Archimedes) is used both in the primary feeder schools and the secondary schools or in cross-phase boarding schools and independent schools with preparatory schools attached.

Software progression

Age-related resources for the computer are complicated by the fact that students with poor reading skills can function at high levels on the computer because they are not text-dependent. Environmental clues, visual icons and interaction are a tremendous support to comprehension, and software written for windows-style environments make increasing use of these design features. Some programs are appropriate for almost any user, while others function only within a narrow target band.

Life never is easy for teachers since their students generally refuse to be pigeonholed. In the *A to Z of literacy software* (starting on page 51), the intended target audience for each piece of software is italicised; other possible end-users are suggested, but would-be purchasers are strongly advised to evaluate each piece of software individually to ascertain its suitability for a specific audience, especially when the audience is adult.

And for teachers who want to improve their own computer progression, lessons in sophisticated computer applications from competent and confident pupils can be inspiring for both parties.

Route ■ *Teaching and learning*

Publishing the news

Gunther Kress has commented on the effect of new technologies on communications media and the range of styles which people understand intuitively. Newspapers and magazines present a genre which is constantly adapting to contemporary pressures. One interesting development according to research by Heinemann has been more specialist hobby magazines targeted at a more sophisticated teenage market which has rejected the old mass allegiance to pop culture.

Speculation, hypothesis, analysis...

Newspaper days and newsroom simulation software can have a significant impact on children's learning. An English teacher, observing a BT newsday, commented that the pupils were purposeful and absorbed. The content, structure, style and technicalities in the conversation of four remedial girls sitting at a keyboard surprised her. They were not always so absorbed in their work. She said

> *Every type of talk is happening: speculation, hypothesis, analysis, technical accuracy. If people actually listened to what the pupils are saying they would be convinced of the value of the work.*

The appeal of newspapers for all pupils and the effect on their concentration span was just one of the justifications for extending the newspaper work already in the curriculum at this teacher's school by committing extra resources.

'The newspaper project fits into the ethos of what we do,' Jane Bainbridge observed. Language was, she felt, the tool at the centre of the newspaper day. Learning about the relationship between language and the power of publishing, understanding firsthand the impetus behind media bias and using a range of reporting styles are important elements of English teaching.

However, English should not be the only target: the curriculum can be enhanced by newspapers or magazines with a subject flavour (such as a science review), or written from the perspective of an historical period.

Tools

Many schools now have desktop publishing (DTP) software that is as sophisticated as that used to produce the local newspaper – though with access to presentation and multimedia packages, publications need not nowadays rely on paper.

The basic tools (a wordprocessor or a DTP program plus a drawing or painting package and a spreadsheet for creating charts and handling survey material) are readily available, and can be supplemented if necessary by helpful off-the-shelf products, including perhaps

- *Easyworks*, which simplifies *ClarisWorks* and includes a newspaper template;
- practice in sub-editing skills through aids such as *My World Proofreading*;
- proofreading and checking tools such as *Docucomp* and *The Oxford Writer's Shelf*, *Grammatik* and *Correct Grammar*;
- research sources such as *The Times & Sunday Times* CD, *ITN World News*, *Exposures* and *Decades Picture Library*.

For a real off-the-shelf newspaper day, *Sub Editor Data Disk* provides a set of newspaper resources, including realistic but fictional articles to be edited for a local paper. *Scenario Simulations* offer a dramatic way into news production which requires only one computer.

Methodology

There is much for a pupil to discover about communication by taking on the role of a reporter. Factors such as editorial control, space, the volume of information, presentation and deadlines all affect a newspaper's message and ethos. These, and consequent responsibilities such as copyright, are best learnt at first hand and followed up with reflection on the product.

Many journalists spend as much time researching on-line databases all over the world as they do interviewing contacts in public house rendezvous. In the BT/Campus 2000/TES Newsdays, pupil-reporters trawl for stories from journalists' raw copy sent on the telephone line from a central news agency also run by students, and portable computers release pupil reporters from the school desk. While schools will not normally aim for this degree of verisimilitude, they should find that their local paper will be happy to co-operate with research facilities and class-visits. Newspapers in Education can help with developing good local contacts.

Route ■ *Computers across the curriculum*

Reading

Sally Tweddle, Chair of the National Association for the Teaching of English, New Technologies Committee, reflects on a widely held assumption that books will be children's main route into reading:

> *In many classrooms, however, the importance of the environmental print, particularly for beginning readers, has been recognised for some time. What has not been acknowledged is the need to broaden even further our notions about the reading matter with which children come into contact.*

Her case studies indicate that mixed media, multi-level software yields exciting opportunities for children to extend their understanding of text. An analysis of the characteristics of screen text highlights some of the differences imposed by the new medium.

In *The New Basics : Learning to Read in a Multi-media World*, Margaret Mackey traces the range of media which a six-year-old can understand. It is possible that teachers and parents are failing to value the sophisticated multimedia skills which most young people have. These skills may include reading but depend on a range of environmental clues which are not text-based, but which involve media and computer skills in preparation for the twenty-first century.

The teaching of reading methodology ranges from the reading scheme to emergent reading techniques. Teachers will want to differentiate between programs that support constructionist or drill and practice techniques. Positive benefits of computers in reading have been recorded using both methods. Many teachers will mix methods.

Constructionist approaches

Two schemes using constructionist approaches have produced good results. For example, The Computer Assisted Reading project in Croydon LEA was targeted to help children two years below their chronological reading age. The children in this project were mostly non-readers. The conclusions suggest that understanding the distinctions between handwriting and printing the same word was an important breakthrough for reluctant readers. This comprehension could not be achieved without the use of a word-processor. There are studies that indicate how the computer can support the dyslexic and improve understanding of the structure of language.

ClarisWorks has a mode which reads the screen text aloud – as do *Intellitalk*, the talking versions of *Pendown* and *Word for Windows*, *Write:OutLoud*, *TalkWrite* and others aimed somewhere within a broad keystage 4–adult age-range, and many of which can be configured to suit different reading ages and needs. Reading results from Somerset LEA indicate that about half an hour a day dedicated to using talking wordprocessors can have dramatic effects on the reading scores of reluctant readers. Chris Abbott, however, puts the other side of the case:

> *In future, most computers will be capable of reading out the exercises they display. Teachers need to think carefully about this facility. Will it encourage children in their efforts to read or will it remove the need to try?*

Integrated learning

Drill and practice schemes from America include *SuccessMaker* and *Plato*. *OILS* is the newest British contender in the market. The schools will be reporting on classroom tests of *SuccessMaker* for NCET. The statistics are impressive and there are many types of institution that will find the promise of measurable and predictable achievement attractive. However, at the current prices, schools and colleges are unlikely to rush out and buy unless the evidence is conclusive.

The CD release of the *Oxford Reading Tree* series seems an interesting step in the right direction for integrated reading progression, and the linking of *Rainbow* multimedia materials with the Longman Book Project and *Zargon Zoo* with the Heinemann Graded Reader Scheme are imaginative developments.

However, achievements in integrated learning environments do not imply that a structured reading program is essential to progress. British evidence from Croydon (CAR) was based on the use of a variety of unrelated programs by different publishers which promoted reading. Most teachers incline to a method which uses the best of emergent and phonic approaches and will want to pick and choose.

One of the most useful program-types for prediction is exemplified by *Tray for Acorn*. Such text exploration programs provide a flexible framework into which a teacher can easily slot appropriate texts. The software develops language skills through the use of cloze. Although such programs can be used by one student they are intended for collaboration. The 'game' element is challenging enough to engender enthusiasm and peer teaching. Importantly, they promote co-operation and the sharing of knowledge rather than a competitive atmosphere. The reading skills developed by this software include predicting and recognising contextual and grammatical clues.

Encouraging early reading

Pre-reading adventures include adventures with few words but sounds and graphics, like *Cosmic Osmo*, which is appropriate for any age. There is now a range of pre-reading and early reading packages that often use sound and animation: *1-2-3 Sequence Me, A-Zap, Memory Building Blocks, Multimedia Flash Cards, Animated Alphabet, Look! Hear!, The Playroom, Talking Rhymes, Read with Me, Naughty Stories* and *Word Munchers*. Adventures like *Silly Noisy House* and *Sitting on the Farm* are a source of motivation which allow the 'reader' to participate in the development of the story – the story can be repeated in many different versions. *The Reading Maze, Reader's Explorer* and *Time Detectives* are adventures particularly designed to encourage reading.

Reading for special needs

Special needs teachers match the needs of individual pupils with program features with consummate skill. The *A to Z of literacy software* suggests some software which may be appropriate for students with 'special needs', but the application of this term is so broad that the recommendations should be regarded only as a general guide. Teachers will need hands-on trials to decide what will be useful to them and should aim to attend an exhibition or arrange a demonstration from a good software house. There is no consistent attitude as yet to reading skills amongst publishers and teachers are constrained to pick and mix from a range of titles and prices.

The *Easyread* system is being used with students up to year nine who have severe difficulties with reading. *Easyread* uses four colour-coded rules to simplify the reading process: black letters say their sounds (like the *a* in *sad*) red letters say their names (the *a* in *name*), blue letters are silent, green letters exemplify special rules. Text can be imported from a wordprocessor, and the system can be taught new words, or modified to suit a regional accent. A teacher observes that

> *The system seems to work by reducing the amount of processing needed to read a word. Instead of trying to work out which phonic rules apply – not terribly useful given the number of exceptions in the English language – all the reader needs to know is letter/sound correspondence and the four colour rules. Interestingly, the brain processes sound and colours in different ways and this seems to get round the information overload experienced by failing readers... As children become proficient it is possible to progressively reduce the amount of colour coding until they are reading normal text.*

For the older reader

Reading is part of the general package in attractive cross-curriculum products that include: *Where in the World is Carmen Sandiego?* and *Myst*, and software which aims to develop vocabulary skills, such as *Guardians of the Greenwood*. Some of the more imaginative multimedia products also encourage reading by the extensive use of photographs and video sequences which provoke even reluctant readers to explore the accompanying text. AVP's wide-ranging *PictureBase* series allows students to hear and read text, and create their own sequences by choosing pictures, video clips and supporting text, and adding their own writing.

Literature

The best way to encourage reluctant readers is to provide reading material which they will enjoy and find interesting. Multimedia products score here, because many pupils will prefer working at the computer to straight text from a book. Examination classes and literature students may appreciate the use of the electronic editions by the OUP of Austen, Chaucer, Coleridge, Shakespeare. References, quotations and word searches can be listed in seconds. Hypotheses can be tested with ease and perhaps some profound and unexpected discoveries made. These can be useful tools for supporting and provoking literary debate. Some of the drama CDs which include full performances by distinguished casts can also catch and hold the attention, especially when the script can be followed on screen along with the reading, or the student can choose a role to read, as in *Karaoke Macbeth*.

Route ■ *Computers across the curriculum*

Research

Authors and journalists often spend longer in research than in writing. In this age of new technology, research skills are changing radically: formerly the chief skill was in identifying a source of information, whereas now it is in choosing which of many sources is likely to prove most fruitful. Knowing is much less important than knowing how to find out – or how to collate research findings, for example, with datahandling software such as *Information Workshop*.

Hypertext

Much research is still done by combing card indexes and bookshelves, but increasingly hypertext is taking over. There seems little point in having a shelf full of volumes of the Oxford English Dictionary when the whole thing fits on to one compact disc, and can be searched in a matter of seconds.

Navigating hypertext is a new literacy skill of growing importance. Hypertext cannot be defined precisely, but see it in action and the idea instantly slots into place.

It is a term that applies to material intended to be read on screen and the basic characteristics are that text is arranged in chunks of information (a little like file cards), connected by links which are activated by screen 'buttons' or 'hot spots'. Readers choose which chunk of text they would like displayed from the links that are available. It is the reader control over selection and the speed of access which makes this computerised form of searching text so different from researching tomes in a library. Using the *Oxford English Dictionary* disc, it is possible to search not only by the keyword entries – the only way of searching the paper-based version – but also by date, part of speech, variant forms, etymology, quotations and even pronunciation.

In lay terms, one compact disc can contain the equivalent of 86 million words, and you can typically find the information you are looking for in about 1.5 seconds. Research materials on CD currently include picture libraries, encyclopaedias, TV and newspaper collections, and specific topics such as *Desert Storm* and *A Hard Day's Night*. *Landmarks* and *Landmarks Microworlds* are good for period research.

Mix and match

Information previously printed in books is now available in a more fluid form. Five universities in the United States are now piloting a scheme called Primis which is the start of new publishing strategies. The publisher has sold systems to campus book shops enabling professors to tailor a text book to their own needs by selecting from a McGraw Hill electronic database of texts, journals and case studies and combining them with their own supplementary writing. The shop prints the book and binds it while the student waits. The copyright implications are being worked through in Britain.

Professionals need to research for a range of tasks including technical and report writing. Lawyers, academics, stockbrokers, reporters and travel agents pay heavy subscriptions to international specialist databases via the telephone line for this current data. *Profile* allows journalists to download any articles written in international newspapers and journals in the last ten years. Electronic database information can be updated daily, even hourly. This wider world of information is available to schools, including the *Profile* database in a special arrangement with Campus 2000.

Benefits for schools

Margaret Meek has been looking at sources of information for primary children including books, CD ROM, on-line research and interactive computer systems. In her review of work in progress at the Domains of Literacy conference 1992 at the Institute of Education, London University, her address revealed a sharp, new perspective on the benefits of IT in information retrieval. In her analysis of effective and stimulating communication of information she had found too much that was cloying and mundane in paper-based books, and questioned whether the book was always the best medium for the transmission of fact. She recognised that in the area of information the computer may have considerable advantages over book storage.

The current generation of learners is becoming adept at browsing, dipping, scanning and skimming – the basic skills required for hypertext research.

Route ■ *Issues for authors*

Special educational needs

The term 'special educational needs' (SEN) is used to refer to a broad band of students, from those with severe physical disabilities and learning difficulties through to those in mainstream education at any level with a particular learning difficulty, and the exceptionally able.

In a recent NFER/NCET report *Software in Schools*, a range of evidence is offered to the researcher showing the support computers can give in the special needs area at all levels. Teachers mentioned these advantages:

- extended concentration on task;
- improved quality and length of work;
- accuracy supported by spelling checkers and calculators;
- pleasure in presentation;
- greater interest in words from the use of a thesaurus;
- extra support of sound, particularly speech;
- flexible use of graphics for communication.

Teachers, in particular, liked programs which used synthesised speech to read text to the user. Although much speech synthesis is stilted and mechanical, it can still give invaluable support to poor readers and even to some extent helps hesitant writers to check their spelling. Another aid to writers is the predictive wordprocessor (whose methodology is described on page 44). A great help to those without typing skills or with physical disabilities which make keyboard access slow or difficult, the predictive wordprocessor can also be of benefit to students whose reading is more confident than their writing. *Co:Writer* is an excellent example of the genre. Used with its stable-mate, *Write:OutLoud*, or with one of the many other talking wordprocessors now on the market, *Co:Writer* provides comprehensive help with reading and writing skills.

Most wordprocessors, even those aimed at the primary school market, now offer a range of functions which will meet the needs of all but the most demanding user. However, powerful industry-standard packages such as *Microsoft Word*, *PageMaker* and *ClarisWorks* can also be used for SEN as their power is concealed by a simple and consistent user interface.

Special needs, special software?

According to the NFER/NCET report, mainstream teachers were particularly aware of the contribution computers could make to basic numeracy and literacy training in the primary and secondary schools, though there were complaints about software that 'got too difficult, too quickly' and material that failed to understand the problems of the slow learner.

Going through a structured program is not enough. What students get right today they may not get right tomorrow, so consolidation is vital. Software needs to be of a quality that will bear repeated use.

Evaluation

Nearly half the titles in this booklet have been used in a SEN context although not specifically designed for this purpose. Often programs which provide a simple specific closed function are of great value since they motivate but do not distract the pupil. These are often decried by teachers in mainstream education as 'drill and practice' and a poor use of an expensive and scarce resource. But the motivational power of the computer cannot be overstated and the increased power of concentration is evident. The best programs provide extensive language opportunities. One of the most important advantages of the computer in this context is as a tool for aiding differentiation in teaching and learning. These are all justifications for further work on integrated learning packages.

Although the software list attempts to assign each piece of software to a specific age-range and area of usage, this can only be a very rough guide to its value in a special needs context, and each product should be evaluated with particular students in mind. The section on *Choosing literacy software* together with the evaluation checklist on page 49 provide a guide to the aspects to look at when assessing any new piece of software.

Route ■ *Teaching and learning*

Spelling

The expression 'problems with spelling' covers everything from minor mental blocks with specific words to the fashionable and over-used term dyslexia.

From the moment the personal computer was born, teachers have been seeking their Holy Grail in the form of A Program That Teaches Spelling. In the early days of personal computing, drill and practice material aimed at dyslexics was commonplace. However, as Alison Townsend points out, dyslexics have difficulty in generalising from basic principles, which means that retaining words learned in isolation and then applying them in a real-life context is problematic. For this reason, generic applications are likely to be of more value – both to dyslexics and those with less serious problems – than the 'spelling programs' which teachers often crave as a panacea.

Mixed blessings

The main applications of benefit to those with spelling problems are wordprocessors and spelling checkers. Teachers might wish to give special consideration to the ones which read text aloud, and spell out individual words.

Spelling checkers ought to be a blessing, but the blessing is certainly not unmixed. The very features of a spelling checker which are strengths to the average user can also be immense drawbacks, some of which are discussed on page 16.

There is, however, a lot to be said for interactive spell-checking – that is, a spelling checker which signals a possible mis-spelling as soon as it has been typed. It is possible to buy interactive spelling checkers, such as *Thunder 7*, which will work in conjunction with most common word-processing programs.

Nobody likes proofreading, even just to pick up the odd mistake, but proofreading a complete document when virtually every word is suspect can be a nightmare. A discreet beep to warn of a potential mistake means that the typist is alerted to possible errors on the fly, and can take immediate action. However, there is the same necessity for caution as with any other spelling checker – an interactive checker only helps, it does not replace proofreading.

To know or not to know...

Some wordprocessors now provide an auto-correct facility. This means that the program learns your common errors and corrects them quietly in the background. For example, it will substitute *and* for *adn*, and *the* for *teh*.

The potential drawback is that the typist is not alerted to the mistake. This might be irrelevant if the only purpose in correcting a mistake is the achievement of a faultless printout, but quite apart from the pedagogical aspects, there could be a problem if the same typist occasionally uses a wordprocessor which has no auto-correct facility, or one which has learned a different vocabulary.

The only way to improve skill at identifying and recognising errors is through practice. *My World: Proofreading* and *Sub Editor Data Disk* can help, but there is no substitute for careful proofing of the student's own texts.

I predict...

The auto-correct feature should not be confused with predictive wordprocessing.

A predictive wordprocessor attempts to guess what you want to type before you type it. For example, you type the letter *w* and the options *wait, was, work* appear in a list on screen as if by magic. If none of these fits what you want to say, you type the next letter (say, an *r*) to get a further list of suggestions – perhaps *write, writing, written* – which you can choose from, or again ignore. Competent typists find predictive word-processors irritating and confusing, but such software finds a place in the hearts of those with serious writing and spelling difficulties, physical disabilities which affect their motor skills, or simply underdeveloped keyboard skills.

These programs come primed with predictions, but the library of predictions can be modified, and the best examples learn from the writer – for example, *Co:Writer* or *Penfriend* – and some, like *Co:Writer*, even know enough about grammar to make their predictions mostly sensible.

It is possible that predictive libraries could be built to help with say, story-telling or writing experiments or instructions, but not enough work has been done to show whether this could be done with success.

Route ■ *Teaching and learning*

Storytelling

Storytelling began with an oral tradition: stories were memorised within the family and passed on by word of mouth from generation to generation. The transformation of a communal oral pastime into a solid object called a book to be enjoyed alone was a monumental technological achievement. It probably had more effect on our social structure and development than ever the computer will, turning the art of storytelling into a specialist activity indulged in by those who had the means to get the products of their imagination down on paper.

Storytelling for all

The advent of 'wordprocessing for the masses' in the 1980s was a great liberator for reluctant writers of all ages. The wordprocessor enabled the distinction to be made between 'not being able to write' in the sense of having physical difficulty with getting words on paper and 'not being able to write' in the sense of having nothing to say. Many people suffer from the first problem, for a variety of reasons, whereas few suffer from the second, and the wordprocessor released the frustrated author inside many a non-writer.

With more sophisticated computers came the ability to illustrate with ease – either by drawing and painting on-screen, or by using readymade pictures (clip art) as a stimulus for storytelling. With the addition of sound facilities, the wheel comes full circle and returns the reading of stories back to their oral roots. Students can now add their own sound and animation, taking an active role in using the tools of multimedia to tell their stories where once they could only watch passively.

The status of community languages

In Chile the Mapuche Indians have no written language. The children's self esteem has risen as they have been encouraged to develop a networked national multimedia sound and picture dictionary. They have invented new words, a sure sign of language survival. Mapuche teachers have designed point and click software that shares their experience, their culture and their legends in a medium that lends a new prestige to ancient skills and knowledge.

Multilingual wordprocessors have done much to raise the status of community languages in British schools. Children and parents alike are thrilled to be able to write and print their writing in Bengali, Nasq, Turkish, Greek... or any one of a wide range of language scripts. Programs such as *Allwrite* and *WorldWrite* bring community language wordprocessing well within the financial scope of schools.

New tools, new techniques

Wordprocessing supports the creation of traditional 'linear' stories, but other kinds of software can encourage and develop different storytelling skills. For example, *StoryMaker* encourages collaborative story writing using a mix of writing, sound, pictures and simple animations. *Storybook Theatre* makes animation easier, and promotes oral storytelling skills, but whereas *StoryMaker* requires storywriting from scratch, *Storybook Theatre* comes with a range of built-in pictures and sounds to help if the imagination runs dry. *Genesis*, *Rainbow* and *Magpie* promote the generation of non-linear stories, where clickable 'hot-spots' on the screen can reveal more text, sounds, pictures or whole new storylines. The award-winning *Clicker* programs takes this flexibility a step further by combining an on-screen concept keyboard with an easy-access multimedia authoring system. Any concept keyboard user would be well advised to take a look at *Clicker*, which can be switch-operated by students with physical disabilities.

A new package which has a range of story starters is Microsoft's *Creative Writer*, though this product – developed principally for home use – has a controversial 'fun' approach which will probably suit children better than teachers.

On-line stories

On-line electronic communication opens the way for the re-birth of community storytelling on a large scale. Chris Warren and Tony Clifford describe a project in which secondary school children developed the story of a journey made by four characters, while a primary class had to solve the problems these characters encountered on their travels. At an international level, the Planet project on Campus 2000 allows children to weave a story with contacts in schools across the world.

Chris Abbott speaks from experience when he says that

> *this kind of electronic link can be far cheaper and more exciting than almost any other way of extending the curriculum and the horizons of our young people.*

Writers' tutorials

Exercises in the technical skills of writing tend to be of the mechanical, drill-and-practice type. Whether or not teachers approve, students often appear to enjoy such programs – perhaps because they require little in the way of real thought?

Teaching effective writing is very difficult and relies greatly on a teacher's judgement, though the integrated learning systems (ILS) discussed on page 35 attempt to tackle this area through independent learning. The self-assessment aspects of ILS may be useful with older students, but post-sixteen work has not yet been evaluated in Britain. *Plato* courseware may be worth looking at in this context although it is a closed system which is entirely self-contained and can not be linked with other relevant work.

Preliminary evaluation

The NCET's preliminary evaluation of integrated learning systems revealed little difference in reading test results when users of the *SuccessMaker* ILS reading programme were compared with a control group, and the NCET report interestingly notes that

> *Learning gains were inversely related to children's own perceptions of their progress.*

More positive evidence from the same report suggests that under-achieving students reach normal levels of attainment, especially in the area of basic skills like literacy. Significant improvements in learning attitudes, motivation and attendance levels are reported. An extended trial and evaluation is looking in more detail at the effects over time.

The most likely areas of application of integrated learning systems are in learning support and remedial teaching. However, there is no clear evidence yet that ILS has a lasting effect, or that students continue to make good use of it once the novelty has worn off. The NCET report comments:

> *Many students disliked the multiple choice questions, and observations were made that some students simply clicked on any response in order to complete the activity.*

Topic tutorials

ILS is a large-scale solution. Other software tackles smaller areas of literacy need – for example, *An Eye for Spelling, My First Incredible, Amazing Dictionary, Word Bank, Word Munchers, My World English Packs, Word Bank* and *Work Rooms* offer writing exercises for young children. *Write with Me* is the most structured although largely for home use, while *Thinksheet* and *Expression* can be customised by the teacher to help slightly older students to learn about planning a writing activity.

Cap-It-All is a British product advertised as an integrated teaching system offering a wide range of spelling, punctuation and grammar exercises. The authors claim that the materials are suitable for primary students through to university level. Students can work at their own pace. The advantages of on-screen corrections, immediate feedback, individual progress reports and recording the scores offer some features a book cannot provide. However, the design departs little from a book approach. The computer is being used as a page turner. Secondary students at a London school thought these grammar, spelling and punctuation exercises better done on paper. They associated the computer with more complex processes of teaching and learning that involved interactivity and problem solving rather than drill and practice. Higher education and further education students may be sufficiently motivated to make use of such remedial exercises.

Assignment support

Success with Writing is an American collection of more than twenty tools designed to support the key stages of the writing process. It has particular relevance for students who are re-sitting exams or need to catch up with their peers. A teacher has observed that it is excellent for students who have a grasp of basic English skills but who lack inspiration and organisational abilities. It is ideally pitched for GCSE re-sit students who require guidance and support when writing assignments.

The pull-down menus indicate the stages of composition. 'Prewriting' is the brainstorming stage. 'Arrange' supports drafting according to the style required and 'Compose' represents the first write-up. 'Evaluate' is a stage so often missed out. It encourages the students to make a critical analysis of their text. The product still needs some development; navigation around the program is not easy and it takes time to realise the worth and the potential. Some teacher intervention is required if all the relevant options are to be explored which suggests some initial training. Nevertheless this is a valuable tool.

Route ■ *Tools for writers*

Writing

Written words are the bricks we use to build visible thoughts. The technologies used for recording thoughts through the centuries have included flints, quills, chalk – even lipstick in emergencies. The invention of the printing press made the written word more accessible to a wider audience. Now computers have added writing in light, a medium which is infinitely flexible - paradoxically both transitory and indestructible. The superhighway adds interactive power to text and puts remote communicators in closer intellectual contact than they may have with their physical neighbours. An increase in the use of telephone lines capable of transmitting live pictures as well as sound could make written text redundant for many purposes of communication. The days when pictures in text were only for young children are numbered. In fact, the end of this century may be the last celebration of the dominance of written text.

Feeling good...

Computers have increased the opportunities for every writer to enjoy publishing power. Users can see in advance exactly how their printed publication will look. Students can experiment with layout, fonts and even pictures, colours and sound.

The opportunity to enjoy professional publication standards is an important element in encouraging the student writer to respond to an audience, to find real purposes for writing and to develop appropriate presentation methods. Wordprocessing can encourage the reluctant writer by giving opportunities for text manipulation which increase interest and engagement in language structure and accuracy.

...looking right

Practising transactional writing takes on more significance when students can print the results in a format that approximates what they see around them. Letters, advertisements, newspapers and other writing tasks are more motivating when the visual aspects of layout and illustration can be integrated with the text. Writing to persuade, whether it is a letter of complaint, an estate agent's blurb or a prospectus for the school, is more convincing when it looks like 'the real thing' (not to mention enhancing the writer's appreciation of the use of text for manipulation in the world at large). Using an integrated package to paste appropriate graphs into statistical reports into a piece of writing increases understanding of how words and figures can work together to emphasise a point.

The tools for the job

We are thankfully approaching a state where there is a more or less common interface between wordprocessing packages, and the amount of new learning involved in switching to a new package is minimal.

This means that tools can be chosen to suit the writing job in hand, rather than the student's IT skills. Where a few years ago, students laboured to learn one wordprocessing package, they can now use a different one for each kind of writing, or graduate to different features as they move up the school or through the college.

Younger children will need a package that readily allows pictures, sound and text to be mixed on a page. This first choice will probably be an integrated package, which will be equally appropriate later on for integrating spreadsheet figures and graphs into a piece of writing. The young will need to plan their work with software like *Thinksheet* or *Expression*, while older writers will do the same thing using an outliner in their main wordprocessor. Older children and adults might need a package with long-document tools – footnotes, indexing and cross-referencing, and a word count facility.

Page 73 gives details of the best-known writing packages on Mac, PC and Acorn platforms.

Many tools which used to be found only in professional packages are now almost universal in educational wordprocessors, and they make a real difference to the quality of learning. Most importantly they provide an environment that supports independent writing for students of any age.

Route ■ *Tools for writers*

Evaluation checklist

Package details

Title .....

Source

Computer .....

Special equipment required .....

Subject area

Topic .....

Age appropriacy .....

Target ability .....

Use *Individual* ❑ *Group* ❑ *Whole class* ❑

Technique(s) used

Tick one or more:

- *Wordprocessing* ❑
- *Database* ❑
- *Spreadsheet* ❑
- *Drill and practice* ❑
- *Information retrieval* ❑
- *Utility* ❑
- *Tutorial* ❑
- *Game* ❑
- *Problem Solving* ❑
- *Logo* ❑

National Curriculum

Tick one or more:

- *Information Technology* ❑
- *Numeracy* ❑
- *Literacy* ❑
- *Communications* ❑
- *Data handling* ❑
- *Modelling and simulation* ❑
- *Measurement and control* ❑
- *Authoring* ❑

Assessment

	Excellent	Good	Adequate	Poor	Unacceptable
Sound	❑	❑	❑	❑	❑
Colour	❑	❑	❑	❑	❑
Graphics	❑	❑	❑	❑	❑
Documentation	❑	❑	❑	❑	❑
Screen instructions	❑	❑	❑	❑	❑
Ease of use	❑	❑	❑	❑	❑
Robustness	❑	❑	❑	❑	❑
Educational value	❑	❑	❑	❑	❑

What are the program's stated aims?

.....

.....

.....

Achievement of educational aims and objectives

Does the program achieve its stated aims?	*Yes* ❑	*??* ❑	*No* ❑
Is it adaptable?	*Yes* ❑	*??* ❑	*No* ❑
Is it teacher/childproof?	*Yes* ❑	*??* ❑	*No* ❑
Does it enhance the school curriculum?	*Yes* ❑	*??* ❑	*No* ❑
Do I really need it?	*Yes* ❑	*??* ❑	*No* ❑

About the A to Z of literacy software

The software

The *A to Z of literacy software* was compiled following discussions with teachers and pupils all over the country about the software they use in the classroom, and how they use it. The majority of the titles are therefore included because someone, somewhere, has recommended them. And because so many teachers and lecturers would regard themselves as functionally illiterate where computers are concerned, software has also been selected to support teaching staff who are learning about information technology.

Consequently the titles range from those appropriate for the Reception class through to software for Higher Education and beyond. Titles from the business market stand next to titles from educational developers. Sometimes this is because only the commercial market can, at the present time, fill a gap in the curriculum offering, especially in reference and research material.

With few exceptions, the titles in the list have been recommended by teachers – some reporting student opinion faithfully against their better judgement. Students do appear to gain from some programs which teachers are doubtful about. Teachers may have to address here a growing cultural gap between generations that relates to assumptions about appropriate contexts for learning and teaching. Strong American influence is noted because teachers often find it irritating or inappropriate – most children do not notice.

The inclusion of a product in the *A to Z of Literacy Software* does not imply that it is perfect, or even educationally sound, merely that in some educational context, it has served its purpose well enough to be recommended. Or in the case of new products, that it shows promise. ■

The information

Each entry in the A to Z consists of:

- the name of the software;
- a brief description;
- the target audience(s):

KS1 – 4	the four keystages (KS1 includes Reception);
SEN	special educational needs;
ESOL	English for speakers of other languages;
ABE	adult basic education;
Adult	further/higher education, teachers.

An *italicised* entry indicates that this is the developer's or distributor's recommended target audience. Non-italicised entries are suggested extensions to the target range.

- the A to Z topics, which refer to relevant subject areas in the alphabetical *A to Z Index* (pages 15–47).

  An *italicised* entry indicates an A to Z topic in which the product is mentioned by name.

- The name and telephone number of a supplier.

  In some cases, the product may be available only from one source. Many products are available from more than one source, and the suggested name simply indicates a possible first port of call.

  A complete list of suppliers mentioned in the *A to Z of Literacy Software* can be found on page 80.

- Icons indicating the platform, the medium and the price (see next column). ■

The icons

- The platform, which will be one or more of the following:

   Apple Macintosh

   Windows PC (all the products with this icon are either Windows prod or, in a very few instances, are not Windows products but will run in a Windows environment)

   Acorn Archimedes

- The medium, which will be one or more of the following:

   floppy disc

   CD

   network

- The price, which will be in one (or possibly more) of the following bands:

   £0–£20

   £21–£40

   £41–£60

   £61–£80

   £81–£100

   £100+

  The price indicated is generally for a single copy. Note that Band F (£100+) could mean £101 or £20,000. ■

A to Z of literacy software

1-2-3 Sequence Me

Pre-reading skills, sequencing and early reading. Reinforcement to young readers working independently through tutorials replacing pictures with text. Simple controls and helpful prompts.

Target *KS1*, SEN
A to Z *Reading*
From TAG 01474 357350

62 Honeypot Lane

An unusual open-ended program which allows students to explore a house at any time on any day in a year. Good for vocabulary and brilliant in concept. Supporting materials.

Target *KS1-2*, SEN, ESOL
A to Z Adventures, Reading, ESOL
From Resource 01469 530818

A Hard Day's Night

The uncut Beatles film with a commentary, notes on the songs and an interview with the film director. Excellent presentation. Good for GCSE poetry.

Target KS3-4, SEN, ABE, *Adult*
A to Z *Research*, Multimedia
From KimTec 01202 888873

A – Zap

Simple customisable word-building tool for young children. Each block speaks its letter sound phonetically and 26 activities give a range of learning opportunities in a language context.

Target *KS1*, SEN
A to Z *Reading*, Writing
From TAG 01474 357350

Albert's House

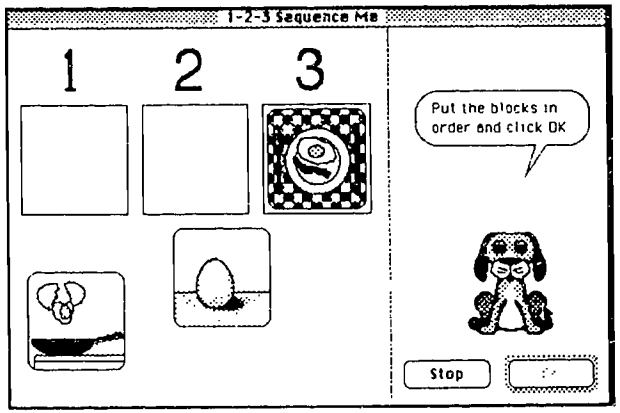
An adventure designed to develop mouse skills and basic language skills. In a simple exploration of the home, children can play hide and seek, or rescue Albert from the Cat.

Target *KS1-2*, SEN, ESOL
A to Z *Adventures*, Reading, *ESOL*
From Resource 01469 530818

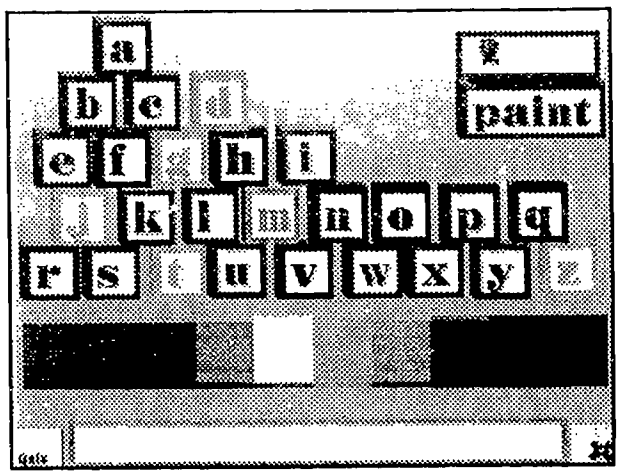
All new talking animated alphabet

Each letter of the alphabet is linked with a picture, with games to practise visual and aural discrimination and letter recognition. Some pictures too stylised to be easily recognisable.

Target *KS1*
A to Z *Reading, Knowledge about language*
From Sherston 01666 840433

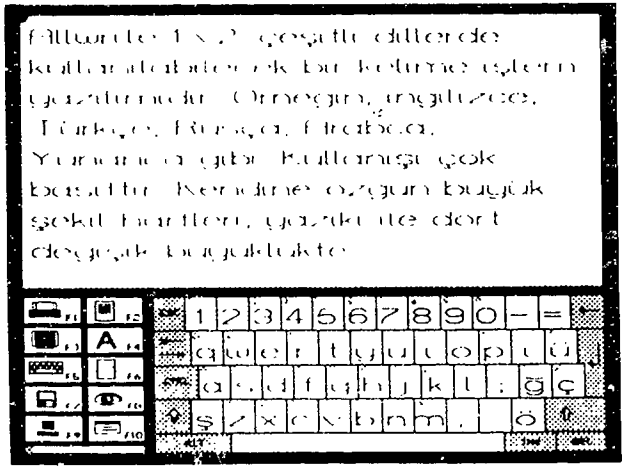


1-2-3 Sequence Me



A – Zap

A – B



Allwrite

££

A	£0-£20	D	£61-£80
B	£21-£40	E	£81-£100
C	£41-£60	F	£100+

Allwrite

Multilingual wordprocessor with a choice of 19 languages (up to 4 on screen). An easy-to-use, basic wordprocessor for educational use. No spellchecking, unfortunately.

Target *KS1-4*, SEN, ESOL, ABE
A to Z *ESOL*, Equal opportunities, *Storytelling*
From LETSS 0181 850 0100

££C

Amanda Stories

Pictures without words used to develop sequential story telling skills. Helps with shape recognition and mouse control. No reading required.

Target *KS1*, SEN
A to Z Storytelling, *Equal opportunities*
From TAG 01474 357350

££B

An Eye for Spelling

Word Bank to show how to spell a word and develop joined script. 3,500 words in letter patterns able to reinforce correct spelling. Customisable from known vocabulary.

Target *KS1-4*, SEN
A to Z Spelling, *Writers' Tutorials*
From ESM 01945 63441

££B

Banner

Makes posters and prints them in any size, incorporating borders, backgrounds and shadowed text.

Target *KS2-4*, All
A to Z Writing, *Illustration and graphics*
From TAG 01474 357350

££A

BannerMania

Makes posters easily from favourite pictures or from scratch, any size. Can communicate effectively in a few words and inexpensively transform the walls with professional banners.

Target *KS2-4*, All
A to Z Writing, *Illustration and graphics*
From TAG 01474 357350

££B

Bookstore

Useful for enlivening literary criticism classifying, storing and retrieving book reviews using a ready-made index format.

Target *KS1-4*
A to Z Books
From ESM 01945 63441

££D

Busy Town

Children adopt a character and move through a collection of shops, houses and services. Designed to provoke curiosity and early problem-solving. Based on Richard Scary's characters.

Target *KS1*
A to Z *Adventures*, Storytelling
From TAG 01474 357350

Cap-it-all English

Drill and practice tutorials in punctuation, spelling and grammar. Could be useful for individual students who have specific areas to develop and are motivated by using a computer.

Target KS3-4, ESOL, *Adult*
A to Z *Writers' Tutorials, Academic writing, ESOL*
From Capedia 01727 869791

CatchWord

Wordprocessor tailored to help writing difficulties, excellent spell checker; individual and class word lists; good simple outliner; ideas notebook. Easily customisable button bar and menus.

Target *KS1-2*, SEN, ESOL, ABE
A to Z Writing, Spelling, Presentation
From Black Cat 01874 636835

ClarisWorks Primary Templates

Thirty templates designed by teachers to develop a range of skills including language development, story telling, story starters, diary and word change.

Target *KS1-2*, SEN
A to Z Reading, Writing, *Differentiation*
From TAG 01474 357350

ClarisWorks Secondary Templates

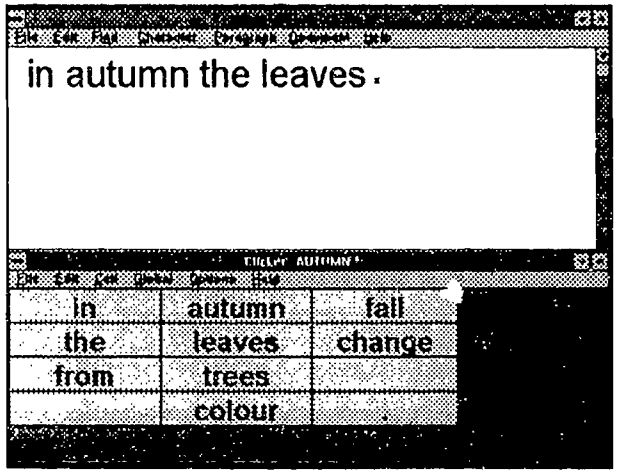
Over 50 templates for activities across the curriculum which teachers can customise for spelling, newspaper work. book reviews, letters and so on. Full range of integrated applications.

Target *KS3-4*, SEN
A to Z Reading, Writing, *Differentiation*
From TAG 01474 357350

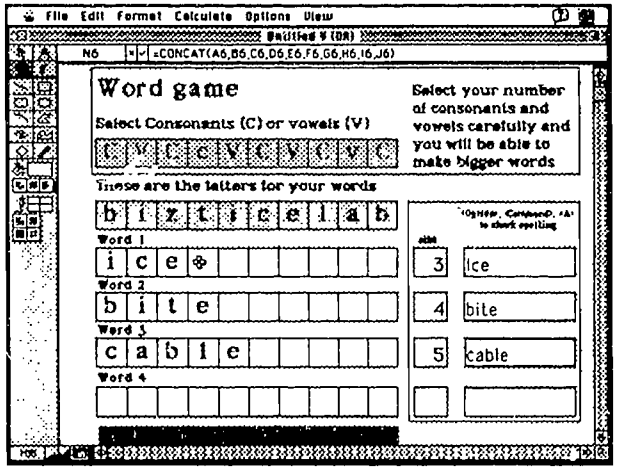
Clicker Plus / Clicker for Windows

Clicker is an on-screen 'overlay keyboard', replacing concept keyboards for mouse and switch users. Brings simple multimedia authoring within reach of teachers and children.

Target *KS2-4*, All
A to Z *Differentiation, Adventures, Storytelling*
From Crick Computing, 01604 713686



Clicker for Windows



ClarisWorks Secondary Templates

C

Decades Picture Libraries: People disc

£££

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

Co:Writer

Intelligent predictive word program – works with any wordprocessor. 40,000-word dictionary, plus unlimited personal lists, sensitive to grammatical context. Pricy, but good.

Target *SEN*, ESOL, ABE
A to Z *SEN, Spelling, Knowledge about language*
From Don Johnston 0161 628 0919

£F

Cobuild Dictionary

CD version of the popular Collins dictionary. Although designed for English language learners. Cobuild is deservedly popular with a wider audience.

Target KS3-4, *ESOL*, ABE, Adult
A to Z *Knowledge about language*, Spelling, *ESOL*
From KimTec 01202 888873

Complete Lemmings

The user guides the hapless lemmings on their perilous journey. 120 levels of increasing difficulty ensure a constant challenge. Ideal for in service training – and early retirement.

Target *Adult*
A to Z Teachers' playtime
From MacLine 0181 401 1111

£B

Concise Oxford Dictionary

Computerised version of the 8th edition of this classic dictionary 120,000 entries and 190,000 definitions.

Target KS4, *Adult*
A to Z Writing, Knowledge about languages
From OUP 01865 267979

£C

Correct Grammar

A tool for adults who understand the basics of grammar already. Can suggest corrections in grammar, usage, style, punctuation and spelling. Customisable.

Target KS4, *Adult*
A to Z *Knowledge about language, Publishing*
From MacLine/WindowLine 0181 401 1111/1177

£B

Cosmic Osmo and The Manhole

Two imaginative adventures without words that encourage exploration of worlds that do not operate by the usual rules. Black and white only, but classics in adventuring, suitable for all ages.

Target *All*
A to Z *Adventures, ESOL, Reading*
From MacLine 0181 401 1111

£B

Creative Writer

A wordprocessor with graphics, stickers, clip art, story starters, multiple levels of undo and rebus words. Children love it, but some teachers hate the whacky interface.

Target *KS2-3*, SEN, ESOL
A to Z *Academic writing, Storytelling*
From TAG 01474 357350

Crossword Creator

This crossword generator allows students to build their own dictionaries to create puzzles. Includes Roget's Thesaurus with wild card search features. Useful for newspaper- making.

Target *All*
A to Z Writing, Reading
From MacLine/WindowLine 0181 401 1111/1177

Decades Picture Libraries

Each decade (20's, 30's, 50's, 60's) is covered by 2,500 images that typify the events, people and places of the era from the unique Hulton Deutsch picture collection.

Target KS2-4, ABE, *Adult*
A to Z *Copyright, Publishing*, Research
From Hulton Deutsch 0171 266 2660

Desert Storm

Used as a resource in newsroom simulations with pictures and text from authentic news materials from the Gulf War.

Target KS4, SEN, *Adult*
A to Z *Research*, Writing
From Schools Direct 01604 770099

DocuComp

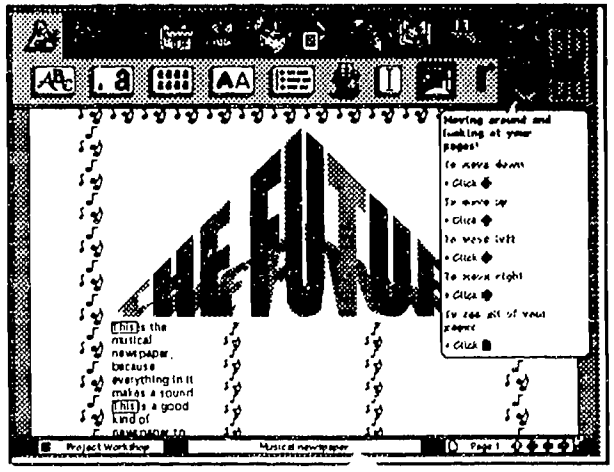
An editorial tool which allows the writer to compare versions of a text by overlaying changes without altering the original. A similar feature is built into some wordprocessors.

Target KS4 *Adult*
A to Z Academic writing, Editing, *Publishing*
From Opensoft 0181 445 4416

EasyRead

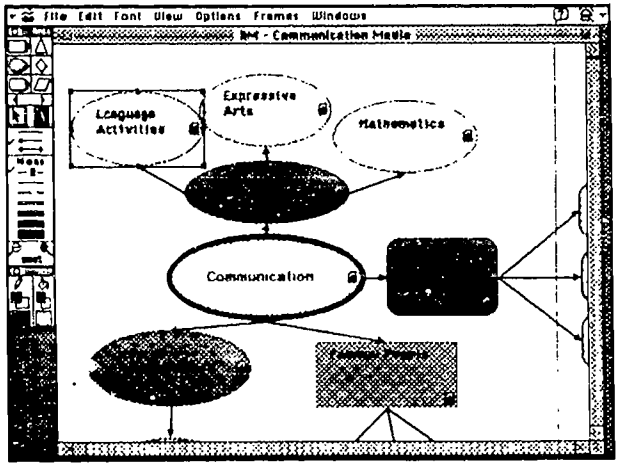
Colour coded letters printed in wordprocessed text according to four basic pronunciation patterns – designed to help failing readers and dyslexics to read aloud

Target *KS1-4*, SEN
A to Z *Reading*, ESOL, Spelling
From Colmex 0120 657 2571



Creative Writer

E – G



Expression

EasyWorks

Extensions files for ClarisWorks with word-processor, newspaper, painting, database, spreadsheet and charting modules. Ideal for newspaper reporting and for taking a survey.

Target *KS1-2*, ABE
A to Z *Publishing*, Differentiation
From Aztec 01274 596716

EndNote / EndNote Plus

If you want to make a bibliography, or just keep tabs on your collection of books, magazines and cuttings, EndNote handles the job professionally and flexibly. Works with most wordprocessors.

Target KS4, *Adult*
A to Z *Academic writing*, Research
From Cherwell Scientific 01865 784800

Exposures

From The Times series of archive material two titles: *Britain since the 1930s* and *How Things Change* (over 100 years). Over 300 original black and white pictures with teachers' pack.

Target *KS2*-3, ABE
A to Z *Illustration*, *Publishing*, Writing
From News Multimedia 0171 782 3982

Expression

An outliner tool to be used for drafting. The user sets up hierarchical structures in a diagrammatic form using linked boxes. Encourages planning in breadth and depth.

Target *KS1-2*, All
A to Z *Writing*, *Collaboration*, *Writers' tutorials*
From TAG 01474 357350

First Page

A desktop publishing package which is easy to use yet with sophisticated features such as text wrap and graphic rotation. Designed to be used in the primary classroom.

Target *KS2-4*, All
A to Z Writing, Presentation
From TAG 01474 357350

Genesis

Genesis is an easy way into creating multimedia scenes – Genesis Project is for younger users, while Genesis Professional offers more control and scripting facilities.

Target *KS1-3* (Project), *KS3-Adult* (Professional)
A to Z *Storytelling*, *Multimedia*, *Drama*, Illustration
From Oak Solutions 01532 326992

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

Grammatik

The latest version proofreads for grammar errors and can be customised to cope with personal idiosyncrasies. Also provides readability statistics for different audiences.

Target KS4, *Adult*
A to Z *Publishing, Knowledge about language*
From AVP 01291 625439

Guardians of the Greenwood

A novel technique combines realism with fantasy in an ecological setting. Motivates language exploration. Users can hear story and listen to characters. Large word reference store.

Target *KS2-3*, SEN
A to Z *Adventures, Knowledge about language*
From 4Mation 01271 25353

How God Makes God

An intelligent analysis of the mechanisms of human emotions, religion and capitalism from the point of view of probability theory. On screen dialogues and opportunities to test theories.

Target *Adult*
A to Z Teachers' playtime
From MacLine 0181 401 1111

HyperStudio

Suitable for teachers and students who want to try making multimedia. A friendly animated dog gives hints and tips on what to do next in the use of this multimedia authoring tool.

Target *KS1-Adult*
A to Z *Multimedia*, Storytelling, *Adventures*
From TAG 01474 357350

Information Workshop

A simple-to-use Windows database program with three display modes to suit different ages. Pictures and sound can be incorporated with records, and colourful graphs displayed.

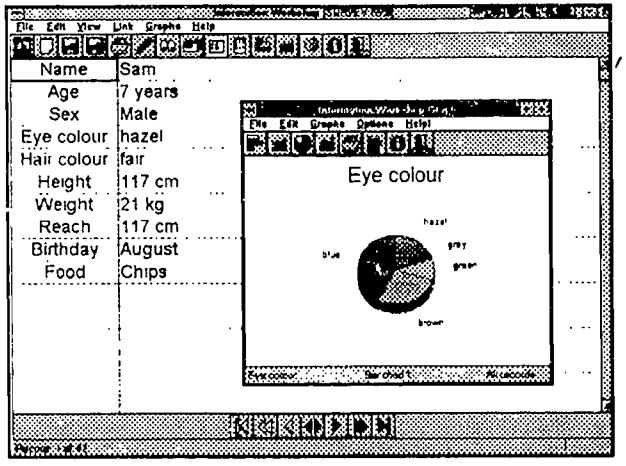
Target *KS1-2*, SEN, ESOL, ABE
A to Z Research
From Black Cat 01874 636835

Inquest: Macbeth, Romeo & Juliet etc

Computer simulations to promote deeper exploration of text. Students interview Shakespeare characters. Each Inquest culminates in a dramatised classroom debate.

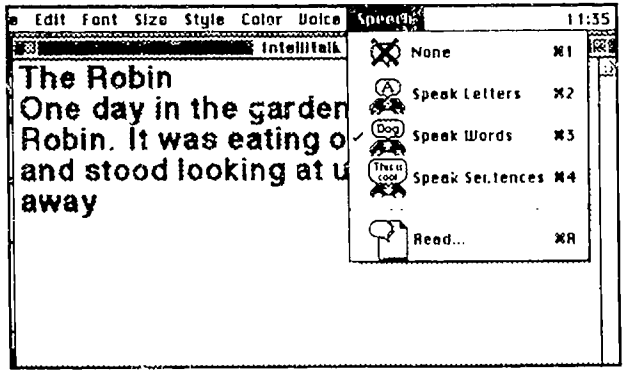
Target *KS4*, ESOL, Adult
A to Z *Drama*, ESOL
From Scenario 01246 205965

HyperStudio



Information Workshop

I – K



Intellitalk

Intellitalk

A powerful talking wordprocessor with flexible word lists. Display can be configured to suit different users, from KS1 to adult. Good sound reproduction, with customisable pronunciation.

Target *KS1-2*, ESOL, SEN, ABE
A to Z *Knowledge/language, Reading*, SEN
From TAG 01474 357350

ITN World News

World events from the ITN news of 1992 and 1993. Video, written/spoken text, photographs, maps, searched by date, timeline, topic, region Attractive presentation. Over 3,500 news stories.

Target KS3-4, ABE, *Adult*
A to Z *Illustration, Publishing, Multimedia*
From TAG 01474 357350

Just Pictures and Just Sounds

Colour drawings and sounds: Aztecs, Egyptians, Farm, Fruit and Veg, Holidays, Home, I Can, Maths, Once Upon a Time, Percussion, Romans, Seaside, Vehicles, Victorians. Excellent value.

Target *KS1-2*, All
A to Z *Illustration*, Storytelling
From SEMERC 0161 627 4469

Karaoke Macbeth

Pictures, text and audio recording of Macbeth. Students can take the part of one or more characters in a professional reading of the play. A serious product, despite its title.

Target *KS3-4*, Adult
A to Z *Drama, Reading*
From TAG 01474 357350

Kid Keys

A collection of games for the very young, developing into a first touch-typing tutor for older children. More fun than your average typing tutor!

Target *KS1-2*
A to Z *Presentation and typing*
From TAG 01474 357350

Kid Pix 2 and Kid Cuts

Simple to use but powerful drawing/painting, plus sound and fun special effects. The KidPix Companion allows the user to link pictures , add sound effects and create animated slide shows.

Target *KS1-2*, SEN, ESOL, ABE
A to Z *Illustration, Multimedia, Adventures*
From TAG 01474 357350

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

Kid Works 2

A creative kit for the home that develops writing painting and speaking. Talking wordprocessor, talking dictionary. Good for combining skills of publishing and multimedia.

Target *KS1-2*, SEN
A to Z Writing, Illustration, *Books*
From TAG 01474 357350

Kid's Time de luxe

A suite of programs combining drill and practice with creative computer uses. Story Writer includes picture fonts and reads back the story. Letter recognition tutorials. Dot-to-dot and Match It.

Target *KS1-2*, SEN
A to Z Writers' tutorials, Storytelling
From TAG 01474 357350

Landmarks

Interactive adventures linked to BBC series . Permits interrogation of a child in the story so the user can explore various historical times – WW2, Aztecs, Victorians.

Target *KS2-3*, SEN, ESOL
A to Z *Research, Adventures*
From Longman Logotron 01223 425558

Landmarks Microworlds

Enables children to travel back in time and examine lifestyles of the past, through an animated virtual world.

Target *KS2-3*, SEN, ESOL
A to Z *Research*, Adventures
From Longman Logotron 01223 425558

Last Chance to See

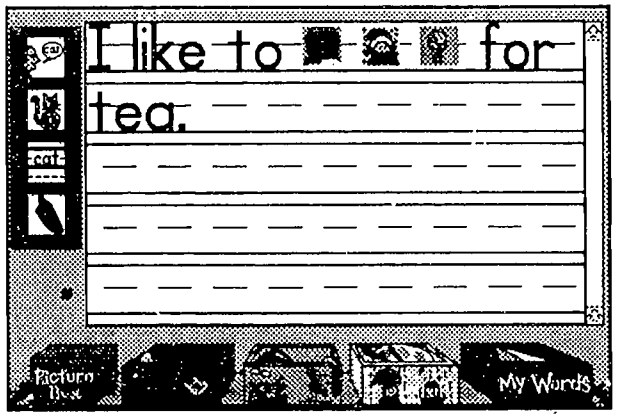
The full and witty text and photos of the journey by Douglas Adams and Mark Carwardine to see endangered species. Epilogue parable presents an extended approach to book writing.

Target *KS3-4*, ABE, Adult
A to Z *Multimedia*, Books, *Teachers' playtime*
From MacLine 0181 401 1111

Learning English with Asterix

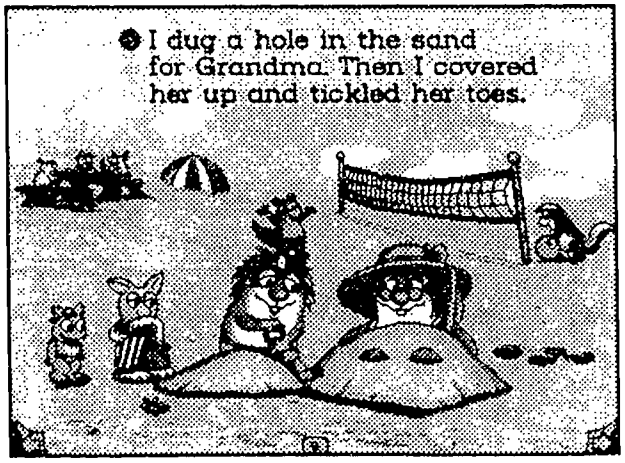
Learning English is made more entertaining in following the animated comic activities of Asterix. French and Spanish versions also available.

Target KS3, *ESOL*, SEN
A to Z Reading, *ESOL*, Books
From TAG 01474 357350



Kid Works 2

L – M



Living Books: Just Grandma and Me

Living Books

A series of American early-reading animated stories with sound, activities and exploration. Already-famous titles include Just Grandma and Me and Arthur's Teacher Trouble.

Target *KS1-2*, SEN
A to Z *Electronic publishing, Adventures, ESOL, Books*
From TAG 01474 357350

££B

Look! Hear! Talking Topics

Six multimedia books for infant reference, with graphics, animation and digitised human speech: choice of Body, Dinosaurs, Homes, Land Transport, Pets, Seashore.

Target *KS1*, SEN
A to Z *Reading*, Books
From Sherston 01666 840433

££A

Magpie

Interactive facility to combine words, pictures, videos and sounds. Magpie can prepare reports and projects, create talking books and explore desktop publishing.

Target *KS1-4*, SEN, ESOL, ABE
A to Z Multimedia, *Storytelling*
From Longman Logotron 01223 425558

££C

Mapper Series: Body, Weather, Home

A well-illustrated series that addresses vocabulary through illustration in order to prompt reading and language development. Can be customised for language difficulty.

Target *KS1-2*, SEN, ESOL
A to Z *Equal opportunities*, ESOL
From TAG 01474 357350

££C

Memory Building Blocks

An interactive storytelling pack with a host of features covering pictures, words, colours, shapes, patterns and tunes. Teachers can record their own voice and alter levels and speeds.

Target *KS1*, SEN
A to Z Storytelling, *Reading*
From TAG 01474 357350

££C

Microsoft Reference CDs

Research materials to give authenticity to writing and reporting in the classroom – series includes Dinosaurs, Encarta, Art Gallery, Asimov's Ultimate Robot, Cinemania, Bookshelf.

Target *KS2-4*, ESOL, ABE, *Adult*
A to Z Research
From KimTec 01202 888873

££C

£££

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

130

131

Multimedia Fingers for Windows

A typing tutor which merges keyboard and language skills, incorporating *Language Class* exercises for English/French/German, with (on CD) native voices. You see, you hear, you type.

Target KS3-4, *Adult*
A to Z *Presentation and typing*, Writers' tutorials
From AVP 01291 625439

Multimedia Flash Cards

Activities to support early learning, pattern recognition and pre-reading activities. Children link pictures with spoken labels and play back their own recorded slide shows.

Target *KS1*, SEN
A to Z *Reading*
From TAG 01474 357350

My First Incredible, Amazing Dictionary

This1000-word picture dictionary can be searched like any dictionary, but has word games and puzzles to help reinforce alphabet and dictionary skills, with sound and animations.

Target *KS1-2*
A to Z *Writers' tutorials, Knowledge/language*
From Dorling Kindersley 0171 836 5411

Myst

A surrealistic adventure in an island world where every rock, scrap of paper and sound may hold a vital clue. An adventure with imagination and even a little soul. Emphasis on written clues.

Target KS3-4, *Adult*
A to Z *Adventures, Reading*
From MacLine 0181 401 1111

My Word

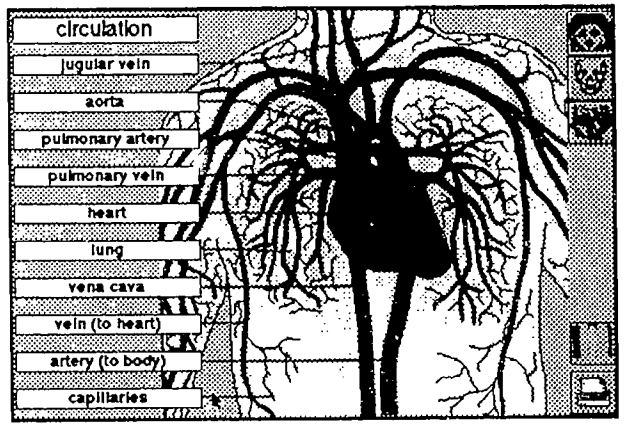
Simple wordprocessor with theme-based word lists. Words are entered from a list with a single mouse-click, and new words can easily be added by a child or teacher.

Target *KS1-2*, SEN
A to Z Writing
From TAG 01474 357350

My World & My World English Packs

The award-winning My World framework is supplemented by a range of language modules teaching basic skills. Modules include cloze, FuzzBuzz, alphabet, phonics, etc.

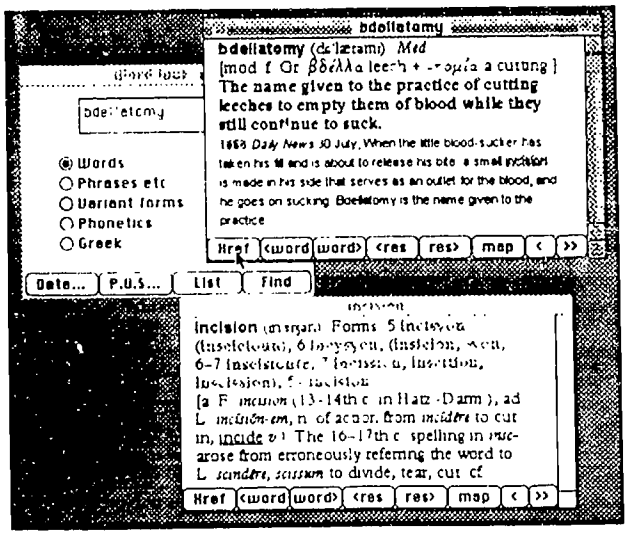
Target *KS1-2*, SEN
A to Z *Differentiation*, Spelling, Writers' tutorials
From TAG 01474 357350



Mapper Series: Bodymapper

My first incredible, amazing dictionary

M – O



Oxford English Dictionary

My World Proofreading

Short texts to be proofread for punctuation, spelling etc. Real proofing symbols are used to mark mistakes. Could be customised for adults. Needs My World framework (see above).

Target *KS2*, SEN, ABE
A to Z *Editing, Publishing, Spelling*
From TAG 01474 357350

£A

Naughty Stories

Talking stories featuring animations, sound effects and human speech. To develop pre-reading skills, word recognition and reading practice. Individually, or on one CD.

Target *KS1*
A to Z Books, Reading
From Sherston 01666 840433

£A £E

New Shorter Oxford English Dictionary

Browse the half-million definitions in this dictionary, or make rapid searches for precise words, or search by date or etymology, or among the 83,000 illustrative quotations. Very flexible.

Target KS4, *Adult*
A to Z Writing, Academic writing
From OUP 01865 267979

£E

OILS

A British cross-curricular Integrated Learning System with National Curriculum English modules. Component materials can be purchased without the network management system.

Target *KS1-4*, SEN
A to Z *Monitoring and assessment, Reading*
From Global Systems 01773 820011

from £C

Oxford ELT Shelf

This EFL/ESOL collection contains a pocket dictionary of 17,000 words, English Grammar, Basic English Usage and Idioms for students of English as a foreign language.

Target KS4, *ESOL*, Adult
A to Z Writing, ESOL, *Knowledge about language*
From OUP 01865 267979

£F

Oxford English Dictionary

The complete authoritative English dictionary with two million quotations. The package has a well-organised searching interface including searching phonetically or by word-root.

Target KS4, *Adult*
A to Z *Research, Academic writing, Books*
From OUP 01865 267979

£F

£

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

Oxford Reading Tree Talking Stories

Talking stories to allow children to listen to sentences and highlight individual words to read aloud . Lively pictures and sound effects. Linked to the Oxford Reading Scheme.

Target *KS1-2*, SEN
A to Z *Reading*, Books
From OUP 01865 267979

Oxford Study Shelf

Especially for secondary schools, an accessible dictionary and thesaurus with stimulating tutorials and games for vocabulary extension and spelling.

Target *KS3-4*
A to Z Spelling, *Knowledge about language*
From OUP 01865 267979

Oxford WordCruncher Texts

A full range of classic texts (eg. Jane Eyre, Moby Dick, Frankenstein), constantly updated for use with this retrieval software. Text analysis possible in a variety of ways.

Target *KS4*-Adult
A to Z Books, Research, Academic writing
From OUP 01865 267979

Oxford Writer's Shelf

A specialist reference for writers and editors including Dictionary, Guide to English Usage, Quotations and compact Encyclopaedia. Access to problems of spelling, punctuation etc.

Target KS4, *Adult*
A to Z Knowledge about language, *Publishing*
From OUP 01865 267979

Penfriend

Predictive typing program which learns the user's vocabulary. Display options include an on-screen QWERTY or alphabetical keyboard. Speech synthesiser reads out text. Good value.

Target *SEN*, ABE
A to Z Writing, SEN, *Spelling*
From SEMERC 0161 627 4469

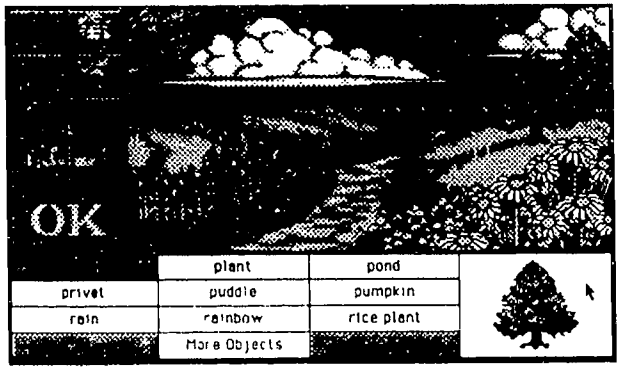
Photobase Decades series

Collections of photographs related to decades 1920-1960 plus Victorians, Landscapes and Science. Picture content as for Decades Picture Libraries, but with better interface for education.

Target *KS3-4*, Adult
A to Z Research, Publishing the news, *Copyright*
From TAG 01474 357350

Oxford Reading Tree

S



Storybook Weaver

£££

A	£0-£20	D	£61-£80
B	£21-£40	E	£81-£100
C	£41-£60	F	£100+

Sitting on the Farm

This computerised book , based on the story of a girl with some rather hungry friends, is based on a tune and can be read or sung.

Target *KS1-2*, SEN
A to Z *Knowledge/language, Equal opps, Books*
From TAG 01474 357350

£££B

Smart Alex

Alex is a cartoon character with decided likes and dislikes. Experiment to find the words Alex knows, teach new ones, or tell Alex about yourself. Choose Alex's sex and race.

Target *KS1*, SEN
A to Z Reading, Storytelling, *Equal opportunities*
From Brilliant Computing 01274 497617

£££B

Start Write

Start Write enables sentence construction through copying or dictation. A customisable program which can be set up with words and sentences according to the user's needs.

Target *KS2*, SEN
A to Z Knowledge/language, SEN, Spelling
From SEMERC 0161 627 4469

£££C

Storybook Theatre

A multimedia environment in which students can interact with a given story or build their own scenes, animate and narrate them, and write their own text. Several topic modules. Pricy.

Target *KS1-3*
A to Z *Drama, Storytelling, Multimedia*, Writing
From TAG 01474 357350

£££D

Storybook Weaver

A story book program which encourages storytelling with music, text and graphics. It includes a large library of clip art and sounds so that children can build their own stories.

Target *KS1-2*, SEN
A to Z Storytelling, *Adventures*, Multimedia
From TAG 01474 357350

£££B

StoryMaker

A multimedia storytelling environment using HyperCard that allows students to combine text, graphics, animation and sound. Helpful for the reluctant writer. Not in colour.

Target *KS1-3*, SEN
A to Z *Storytelling, Adventures, Knowledge/language*
From NCET 01203 416994

£££B

Sub Editor Data Disk

Realistic new stories and pictures for students to edit and lay out as a newspaper. Can be used preparatory to school newspaper, or as tutorials in comprehension, editing and page layout.

Target *KS3-4*, ABE, Adult
A to Z *Publishing, Editing, Spelling*
From TAG 01474 357350

Success with Writing

A program designed to help older students learn about different forms of writing and practise them. Only motivated students would use this and teacher intervention would be required

Target KS4-*Adult*, ESOL
A to Z *Academic writing*, ESOL, *Writers' tutorials*
From Capedia 01727 869791

SuccessMaker ILS

American integrated learning system with literacy module. Student responses assessed to create an individual development strategy. The reader's workshop has 3,000 hours of instruction.

Target *KS1-4*, SEN, ESOL
A to Z *Monitoring, Writers' tutorials, Reading*
From RM 01235 826789

Talking PenDown

Talking version of the original PenDown, a popular Acorn wordprocessor for education. Talking spellchecker, word lists, and cloze exercises.

Target *KS1-3*, SEN. ESOL, ABE
A to Z Writing, SEN, ESOL, *Knowledge/language*
From Longman Logotron 01223 425558

Talking Rhymes

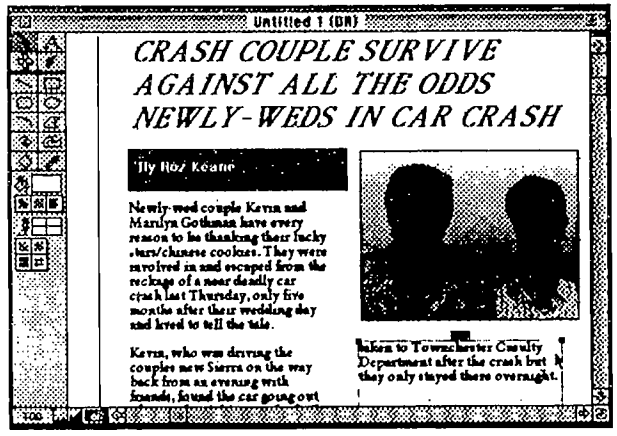
Word picture and sequencing activities based on nursery rhymes. Jumbled rhymes assembled by sound or sight. Customisable for different levels. Completed activity greeted by animated rhyme.

Target *KS1*, SEN
A to Z Drama, Reading, Spelling
From TAG 01474 357350

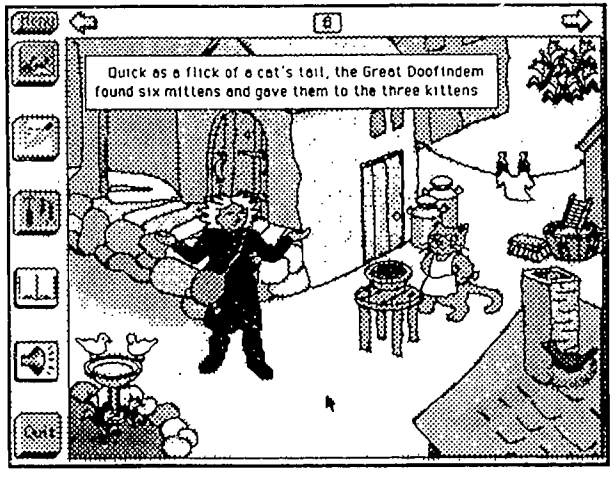
Talking Word for Windows

An addition to Word for Windows 2 or 6 which speaks on demand. Rather stilted voice, but acceptable. The software simplifies some Word options and includes customisable word lists.

Target *KS1-3*, SEN, ESOL, ABE
A to Z Writing, SEN, ESOL, *Knowledge/language*
From Longman Logotron 01223 425558

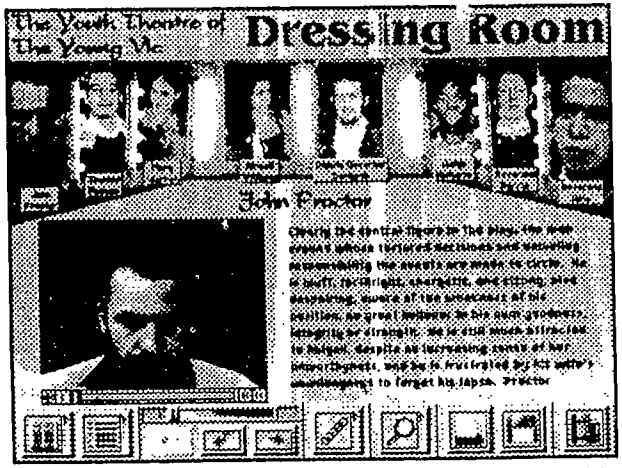


Sub Editor Data Disk



Storybook Theatre

T



The Crucible

TalkWrite

Talking wordprocessor with very simple, friendly appearance. Good font, word lists, and spell checker. Looks attractive, and pronunciation can be edited to suit individual needs.

Target *KS1-2*, SEN, ESOL, ABE
A to Z Writing, SEN, ESOL, *Knowledge/language*
From Resource 01469 530818

Telephone Talk

All the skills you need to answer the phone and take a message. Produced for EFL, but with a wider application.

Target KS4, *ESOL*, ABE, Adult
A to Z Editing, *ESOL*, Knowledge/language
From KimTec 01202 888873

The Crucible

This CD is built round a visit to the theatre and can be used to explore many aspects of the play from the text to the performance, the reviews and the actors' views.

Target *KS3-Adult*
A to Z *Drama*
From TAG 01474 357350

The Farside Calendar

Gary Larson's eclectic cartoons can provide an unusual story stimulus for students or just a little light relief in the staffroom.

Target KS4, *Adult*
A to Z Teacher's playtime
From MacLine 0181 401 1111

The Playroom

A child-sized world filled with games, toys and surprises. Early learning about number, letters, time, spelling and words.

Target *KS1*, SEN
A to Z *Reading*, Storytelling, Spelling
From Capedia 01727 869791

ThinkSheet

An ideas organiser which creates 'cards' of information arranged hierarchically as 'cards within cards'. A great planning tool for individual or collaborative writing.

Target *KS2-Adult*, ABE
A to Z *Writing, Collaboration, Writers' tutorials*
From TAG 01474 357350

££

A	£0-£20	D	£61-£80
B	£21-£40	E	£81-£100
C	£41-£60	F	£100+

Thunder 7

An interactive spelling checker and thesaurus which can be used in conjunction with most software including wordprocessors, DTP, databases and spreadsheets.

Target KS4, ABE, *Adult*
A to Z Editing, *Spelling*
From MacLine 0181 401 1111

Time Detectives...The Victorians

Studying the Victorians through a story that follows the adventures of three children. Pupils follow a trail to track down the lost children and absorb the period.

Target *KS1-2*, SEN
A to Z Research, Adventures, *Reading*
From Sherston 01666 840433

Times & Sunday Times

Instant access to text and some images using good word search strategies from the Times and Sunday Times from 1990. Buy back issues, or a current subscription.

Target KS1-*Adult*, ABE
A to Z Research, *Publishing*
From TES 0171 782 3000

Times Bookfind

Even the cheapest version of this authoritative information resource combines more than 750,000 titles with reviews from the TES, NATE NEWS and other sources. Updated each year.

Target KS4, *Adult*
A to Z Research, Publishing the news, Books
From TES 0171 782 3000

Tray for Acorn

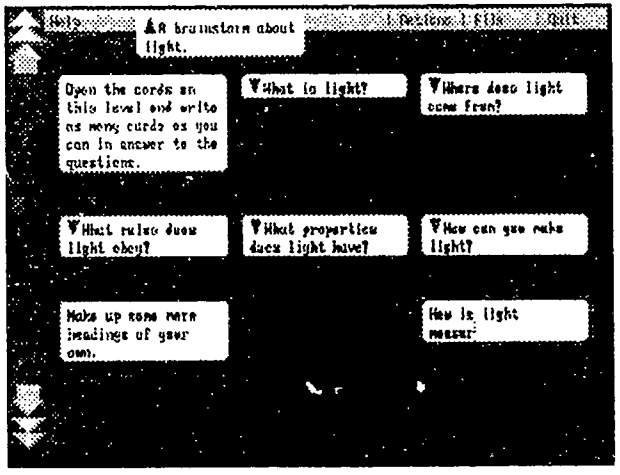
Cloze program to develop reading, spelling, comprehension & intuitive prediction. An imaginative tool for teachers to customise with their own text. Students of all ages love Tray.

Target *All*
A to Z Knowledge/language, Spelling, *Reading*
From SEMERC 0161 627 4469

Twelfth Night

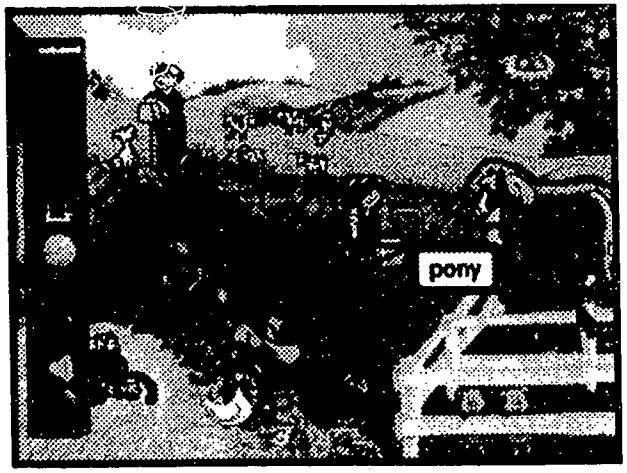
Text of the play with additional information about Elizabethan theatre and society. The navigation tools allow exploration of the text in a range of ways. Not as rich as newer CDs.

Target *KS4-Adult*
A to Z Drama
From TAG 01474 357350



Thinksheet

T – W



Word Stuff

TypeQuick

Typing tutor promising typing in ten lessons. Easy to get started, but needs perseverance. Also in a version called Talking TypeQuick for blind users, which could have SEN/ABE applications.

Target KS4, SEN, ABE, *Adult*
A to Z *Presentation and typing*
From Comprix 0161 926 9328

Where... is Carmen Sandiego?

Four adventures in which users interpret clues to catch Carmen and her gang as they travel the world and through history. Fun, but time can be a pressure in solving puzzles.

Target *KS3-4*, ABE, Adult
A to Z *Adventures, Reading*
From Capedia 01727 869791

Word Bank

Can be used with wordprocessors to customise create a dictionary of words for a particular class or pupil. As new words are added a personal word bank is created.

Target *KS1-3*, SEN, ABE
A to Z Writing, Differentiation, *Writers' tutorials*
From TAG 01474 357350

Word Munchers

Munchers eat their words unless the Troggles can stop them. There are four problems to solve and six levels of difficulty focusing on target vowel sounds. Early reading skills, mostly for home use.

Target *KS1-2*, SEN
A to Z *Reading*, Storytelling, *Writers' tutorials*
From TAG 01474 357350

Word Stuff

Interactive scenes – visiting a farm, having a picnic, playing in snow. Animated, with sing-along sections to draw children into the stories, encouraging them to think about new words.

Target *KS1-2*, SEN
A to Z Reading, *Knowledge/language*
From TAG 01474 357350

Work Rooms

Work Rooms is a suite of nine HyperCard activities to promote computer literacy and language development. Useful cloze-type exercise.

Target *KS2-3*, SEN
A to Z Reading,Writing, *Writers' tutorials*
From Ultralab 01277 200587

A	£0–£20	D	£61–£80
B	£21–£40	E	£81–£100
C	£41–£60	F	£100+

WorldWrite

Multilingual wordprocessor/DTP supporting English and other languages including Czech, Hebrew, Urdu etc. Includes target-language spell-checking. Text-to-speech uses English voices.

Target *All*
A to Z Equal opportunities, *ESOL*, *Storytelling*
From TAG 01474 357350

Write:OutLoud

Talking wordprocessor with the usual features, plus a speech module which speaks letters, words and/or sentences as you type, or on demand. Talking spell checker useful. Choice of voices.

Target *SEN*, All
A to Z *SEN*, ESOL, ABE, *Knowledge/language*
From Don Johnston 0161 628 0919

Write with Me

Children create own cards, signs, books & documents in an 'edutainment' context. Introduces basic wordprocessing and talking text feature and is a powerful tool.

Target *KS1-2*
A to Z Writing, *Writers' tutorials*. Presentation
From Novell WordPerfect 01344 724000

Writer's Toolkit

Supports writing styles including journalism, reporting experiments, reviewing and others under the headings of Imaginative, Technical and Personal writing. Prompts self assessment.

Target *KS2-4*, SEN, ABE
A to Z *Collaboration*, *Editing*, Publishing
From SCET 0141 334 9314

Writing with Symbols + Symbol Collection

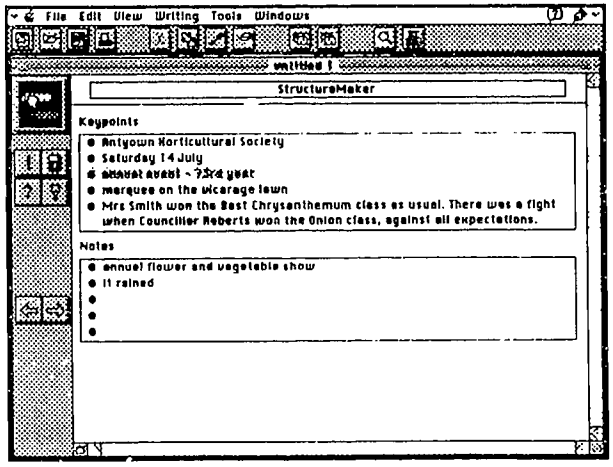
Talking wordprocessor supported by 1500+ Rebus symbols which appear as you type. Symbol-supported English, not a symbol-language, but a useful support for literacy.

Target KS1-2. *SEN*, ESOL, ABE
A to Z Writing, Special educational needs
From Widgit Software 01926 885303

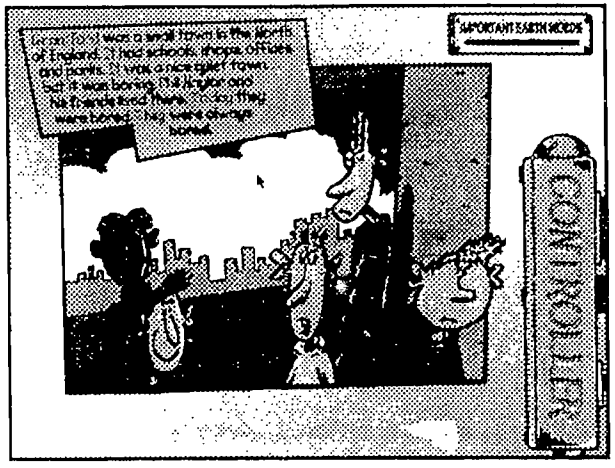
Zargon Zoo

An interactive comic book based on Heinemann International Graded Readers. These entertaining stories are graded for readers. Resources and support materials included for teachers.

Target *KS1-2*
A to Z *Reading*
From TAG 01474 357350



Writer's Toolkit



Zargon Zoo

Word tools

Although primarily aimed at the business market, the word tools mentioned in this section have a place in education, for the use of both teachers and students. These are the best-known, but not the only examples of their kind. The purpose of this page is not to promote particular products, but to open up lines of investigation for any prospective purchaser.

Wordprocessors

*You are strongly recommended to read the sections on **Integrated packages** and **Office packages** before choosing a wordprocessor.*

Mac

Microsoft Word *(v.5 for most people, v.6 only for very powerful Macs)*

Nisus Writer *(multilingual)*

WordPerfect *(powerful, especially for long documents)*

WriteNow *(very cheap but full of excellent features)*

PC

Ami Pro *(less well known, but highly thought of)*

Microsoft Word *(v.6 identical to Mac v.6)*

WordPerfect *(most widely used in business)*

Acorn

Easiwriter

Integrated packages

An integrated package consists of a wordprocessor, database, spreadsheet (and sometimes other elements such as drawing/painting/communications) combined into a single product. Integrated packages offer fewer features than dedicated wordprocessors, but are excellent value for money.

Mac and PC

Several to choose from, but ClarisWorks has cornered the educational market.

Acorn

FireWorkz

Office packages

Office packages are a more economical purchase than individual products. Even greater savings can be made by trading in your old wordprocessor in part-exchange. Office packages generally contain a wordprocessor, spreadsheet and presentation software, plus other elements which vary from one package to another.

Microsoft Office *(Word, Excel, PowerPoint etc)*

PerfectOffice *(WordPerfect, Quattro Pro, Presentations etc)*

Lotus SmartSuite *(Ami Pro, 1-2-3, Approach etc)*

Desktop publishing

Desktop publishing software gives more control over page layout than a wordprocessor, allowing the combination of text and graphics with flexible page design.

Mac and PC

PageMaker

PageMaker Classic *(PC only – cut-down version of PageMaker, ideal for educational users)*

Quark Xpress

ClarisWorks *(not a DTP program, but with page layout features for a fraction of the price of a full DTP package)*

Acorn

Impression Publisher

Presentation applications

Presentation software is primarily designed to provide a framework for the creation of computer 'slide shows'. Additionally, teachers can use these packages to make well-designed overhead transparencies, which can also be printed as worksheets.

Mac and PC

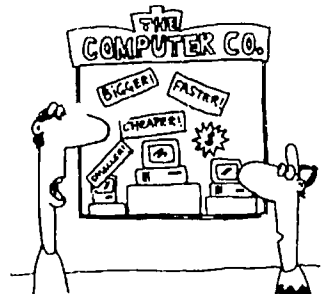
More

Persuasion

PowerPoint

How to choose

- Find out whether your educational establishment has a purchasing policy which may limit your choice of software or designate a supplier.
- Find out whether there is a licensing agreement within your establishment which will allow you to use one of these products either freely, or for a small fee. Within a product-group, each product offers similar features – for example, all wordprocessors handle text and produce broadly similar results. It may well be that the product your establishment already uses will do the job you need to do.
- However, if you find a product which does a specialist job within your curriculum area, be prepared to put up a fight to be allowed to use it in preference to the establishment choice.
- Remember the copyright laws: unless you have a specific agreement which says otherwise, you will need one copy of the software for each computer you want to run it on.
- Before buying any product, shop around for competitive prices. All the titles mentioned on this page are widely available, and are advertised in the computer press.



Technology is changing so fast I'll soon have to get a smaller shop!

On-line services

There is an introduction to the basics of electronic communication on page 28. This section introduces the Internet in more detail, and some ways of accessing the wealth of educational materials it contains.

The Internet

The Internet started life as a military network, graduated to academic use in higher education, and has now been extended to the commercial world. Schools in the UK are just beginning to take advantage of Internet services. Estimates suggest that there are some ten million users and about four million computers connected to the Internet, and that the number of users is growing at the rate of four per second.

From being a text-only system which called for perseverance and a great deal of technical know-how, the Internet has gradually been simplified. Text-only access is still appropriate for many services, including exchanging electronic mail, which is the main area of Internet use, and this can be achieved with minimal equipment. However, a growing amount of Internet material is displayed on the World Wide Web (known as WWW, or 3W), which is an easy-to-use standard for transmitting multimedia, including graphics, sound and video. 3W needs a more sophisticated computer with multimedia capabilities.

It is 3W which makes the Internet attractive to commercial users. Although it is now possible to find serious publications (including The Guardian, The Daily Telegraph – and Playboy) on 3W, it is the potential for advertising which is responsible for the recent massive growth of the system, and browsers can find themselves reading 'factual' articles which are in fact advertisements in disguise.

Educational users with one eye on the Internet and the other on the telephone bill need to know what resources are appropriate, where to look for them – and how to get on to the Internet in order to do so.

Internet in education

The Internet was born in the US, and much of the material on it is still US-based, but the more UK schools find their way on to the system, the faster the UK resources will grow. There is already a vast education-base to choose from including

- KidLink, which aims to get children between 10 and 15 years old communicating on the Internet. This is a text-only system, and so requires only the most basic equipment. KidLink allows young people to exchange messages on a public bulletin board, and find 'keypals' with the same interests.
- Kid'sWeb, a 3W resource which needs more sophisticated hardware. The Kid'sWeb system is a subset of 3W – that is, it gives access to those parts of the main 3W database which are appropriate for and targeted at children.
- DeweyWeb – a classroom project which encourages the provision and exchange of information by role-playing activities.
- Diversity University – one of many text-based virtual reality environments, the Diversity University explores themes of education, disability and community services.

Higher education institutions have free access to the Internet through JANet, a joint academic network which is not yet available to schools. Access for schools is at present either through a commercial provider primarily serving the business community, or through one of the services tailored for education users and providing materials designed for the UK education market. Three major providers of educational services are described on page 74.

Other services

In addition to the Internet, there are many other providers of on-line services. Some of these offer general services, similar to Internet but on a smaller scale, and some offer specialist services.

The best-known service for general users is Compuserve, with a huge range of material including local weather reports and UK or international news, forums on many topics of general interest, and the Books in Print service. It is particularly helpful with hardware and software problems. Education issues tend to be mainly US-related, but UK-specific enquiries usually get an answer from another UK-based subscriber. One of the benefits of subscribing to Compuserve is its excellent monthly magazine – still delivered to subscribers by 'snail mail', printed on paper.

On-line services (cont'd)

BBC Networking Club

The BBC Networking Club is available on the World Wide Web. This new service includes BBC educational broadcasting information and teacher resources, and a bulletin board called Auntie, where there are archive, library and conferencing facilities.

The service is aimed at the general public but with a particular bias towards educational users. BBCNC gives access to more or less the whole of the Internet, but with certain 'undesirable' services filtered out. Access is by password.

The cost of the full Internet service is £25 for a start-up kit, plus £12 per month. £5 per month buys Associate membership of the Club for existing Internet subscribers.

Telephone 0181 576 7799 for further details.

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Campus 2000

Campus 2000 is the BT education network which has been in schools for over a decade. Campus 2000 provides electronic mail, conferencing, education databases, and some optional extra services. The service now includes access to Télétel (the French Minitel system). From the summer of 1995, Campus 2000 expects to provide its services through the Internet World Wide Web.

A range of activities is provided throughout the school year by Primary/Special and Secondary/FE support teams. Curriculum subjects include history, maths, English, modern languages, Science and Technology. Among the on-going projects are the on-line magazine (SWIFT), which is owned and run by students, and Planet X, an opportunity for classes to land on a new planet which they share with international neighbours (see page 18). Science-net is a computer database of questions addressed to a panel of scientists and the answers prepared by them. Instant-access resources include the news in French, German, Spanish and Welsh.

The current cost of a Campus 2000 subscription is £10 per month for Primary and Special Education, £20 per month for Secondary and Further education.

Telephone 01345 626253 for further details.

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RM Internet for Learning

This new RM service is provided to schools and to individual teachers or students. An Internet for Learning account can give access to the whole Internet system, or can be 'filtered' to exclude offensive material. An aspect of the Internet for Learning which will interest schools is the quota facility, which allows users to opt for a weekly or monthly quota of dial-up time. Once the quota is used up, the service is cut off, which means that schools can not run up huge and unpredictable telephone bills. RM will also provide support materials and on-line services to help with the preparation of lessons and courses which utilise the Internet.

Subscribers pay a £25 registration fee, then £120 a year.

Telephone 01235 826868 for further details.

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Seen IT in the UK
Seen IT in the USA

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Association for Computers and Information Technology in Teaching (ACITT)
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Tel 0181 591 5656

Adult Dyslexia Association
336 Brixton Road
Brixton
London
SW9 7AA
Tel 0171 737 7647

Adult Literacy and Basic Skills Unit (ALBSU)
Commonwealth House
New Oxford Street
London
WC1A 1NU
Tel 0171 405 4017

British Broadcasting Corporation
BBC Room 401
Sulgrave House
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London W12 8QT
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British Computer Society (BCS)
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Educational Computing & Technology Magazine
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English and Media Centre
136 Chalton Street
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Initial Teacher Training and Education (ITTE)
219 Osward
Courtwood Lane
Croydon
Surrey

Internet Magazine
Bowling Green Lane
Clerkenwell
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National Association of Advisors for Computers in Education (NAACE)
Thorncliffe
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Broadfield Business Centre
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Tel 01753 574123

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Priory Industrial Park
Christchurch
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Bloomsbury Square
74-77 Great Russell Street
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Scottish Council for Educational Technology (SCET)
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Glasgow G12 9JN
Tel 0141 334 9314

Parents Information Network
Red Hatch House
St John's Road
Ascot
Berks SL5 7NH

Society of Authors
84 Drayton Gardens
London
SW10 9SB
Tel 0171 373 6642

The Net Magazine
Future Publishing Ltd
30 Monmouth Street
Bath
Avon BA1 2BW
Tel 01225 442244

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Admiral House
66-68 East Smithfield
London E1 9XY
Tel 0171 782 3000

Writing & Computers Association
Department of Education
Kings College
University of Aberdeen
Aberdeen AB9 2UB

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