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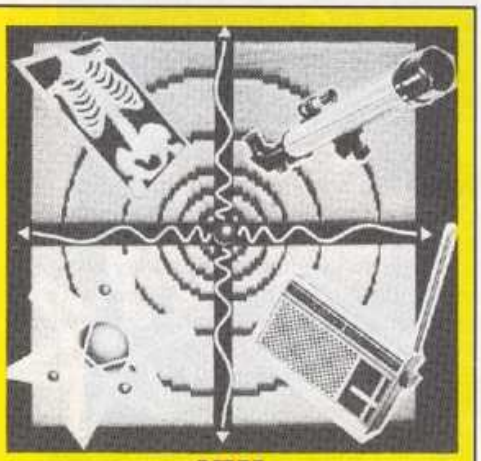
EDUCATIONAL SOFTWARE

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DEALER LIST: EDSOFT SPECIALISTS

With the demise of the Microcomputers in Education Project (MEP), so beloved of Micro Live, the prospects for educational software look bleak. The local education authorities will have money to spend on software, certainly – by one estimate, the equivalent of six pencils-worth for each pupil per year.

Now more than ever, the edsoft houses are relying on concerned parents and groups such as Parent-Teacher Associations to spread the word about educational programs. Though the field is still dominated by the BBC machines, all home micro owners should be able to find good products for their machines.

Despite the arguments of some houses about low production costs and short development time, there's no excuse for low quality software – great graphics may not be compulsory, but a boring program will almost certainly teach you nothing. ◄

MIRROR ON THE BALL?

JOHN MINSON TALKS TO PAT BITTON OF LEADING EDSOFT PRODUCERS MIRRORSOFT

Though probably best known today for successful arcade hits like **Dynamite Dan** and the soon to be released **Biggles** Mirrorsoft has been involved in the educational market since the earliest days. They've remained faithful to the area, gathering good reviews, though not always commercial success. With this in mind I visited the software arm of Robert Maxwell's empire to ask Pat Bitton about the trials, tribulations and occasional rewards of publishing educational software and we started with a brief history of the company.

First steps

"Two of the first three titles that Mirrorsoft published in October 1983 were, in fact, educational titles. These were **First Steps With the Mr Men** and **Quick Thinking! First Steps** has gone on to be a tremendous success in its little niche in the market, having sold 30,000 copies since it was published."

What had led to that initial decision to get involved in an unglamorous field, often criticized for poor quality programming?

"It should be seen in the context in which Mirrorsoft first started, which was not as a company per se but as a development project within Mirror Group Newspapers. At least one of the people involved in that original project had small children and was looking for software for those children."

Reaction to those first programs was very good indeed. "It appeared that we'd found a gap in the market that nobody else had really tried to fill."

Since them Mirrorsoft has acted as a publisher for several programming companies, among them **Chalksoft, Widgit** and **H & H Software**. "There never has been any in-house writing," I was told.

Instead, Mirrorsoft works closely with software developers which are either part time involved with education themselves, or work closely with teachers. "They are aware of the constantly changing requirements of the market." Programs are then fully tested, "By both urban and rural schools – because the requirements are different in different situations – and by families with children."

There are now approximately 15 educational titles in the catalogue. "All of which remain active, really. The backlist carries on selling."

Despite limited involvement with the general educational adult market, including the successful *Star Seeker* astronomy program, Mirrorsoft products are primarily



aimed at the younger age group – the below eight year old level – which have given Mirrorsoft the greatest success. "At the time we started the Mr Men were probably the most universally popular characters among small children. They were easy to implement on the computer as their shapes were well defined and it seemed an obvious choice."

This need for a fun factor doesn't seem to be recognised by some educational publishers while others make half-hearted attempts of the mathematical **Space Invaders** variety but, I suggested, it was obviously important for Mirrorsoft to do it and get it right.

"This again should be seen in the context of just having developed for the home market rather than the classroom. Children don't want to come away from a formal learning environment like a school and then be put into another semi-formal environment at home. It has to be at least as much fun as anything else they might want to do at home." And presumably also fun for the parents who are going to have to play them with the child. "Absolutely. And very, very easy for the parents and children to use because the average mother does not have time to sit for two hours with the child at the computer. Children should never, ever be forced to do anything. It's another form of play."

In this respect Mirrorsoft have made efforts always to use key cards or overlays in one form or another.

With characters other than the Mr Men Mirrorsoft have been less successful. **Caesar the Cat** had been the hero of the arcade game that completed the first three releases but **Caesar's Travels**, an attempt to create an interactive, multiple option story book around the character failed. "Although it's been widely praised by everyone who's seen it and played it. It's not been then commercial success that the Mr Men products have, unfortunately."







The same lack of acceptance met the excellent **Phineas Frogg**, a beginners level adventure with arcade sequences that taught the user to think problems out logically and to make maps in a most entertaining and stylish fashion. Pat Bitton recognises the problem in constantly relying on the Mr Men's universal recognition.

"The retail trade recognises them as being potentially profitable because they can identify with them. We did attempt to set up our own licensing and merchandising with **Caesar the Cat** which trickled along for a while but never got going in a major way because we didn't have the resources to become a licensing company."

More recently **Crack-It Towers** and **The Giddy Game Show** have used existing titles to provide the basis for educational content but sales have been 'somewhat disappointing'.

"The retailer doesn't feel that the product's profile is high enough. It's already difficult enough to convince the average retailer to stock children's or early learning software without trying to convince them of the marketability of a product as well."

Despite their emphasis on good packaging, including colourful and comprehensive booklets, and comprehensive information support leaflets, the inbuilt resistance to educational software remains.

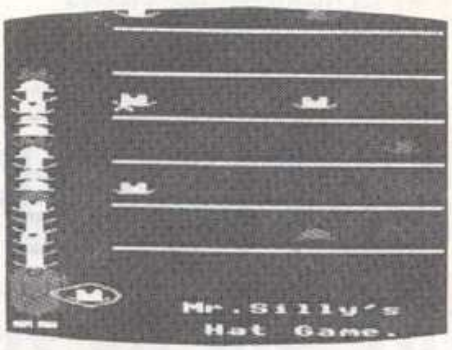
"It's not as easy to sell as games, either for the wholesaler or retailer. There has to be more depth of product knowledge. The wholesaler can't just ring round to the retailer, saying 'Hey, I've got this great new game.' He's got to say, 'I've got this educational software program which does x, y and z.' They're not fast moving products – they never will be – but they're steady sellers as we've found from our own mail-order sales."

Children's software, the area that encompasses programs that are not overtly educational, such as **Phineas Frogg**, is even more hazardous, partially because of the reluctance of bookstores – the natural place to reach the junior end of the market, or at least the purchasing parents – to take software.

But all is not gloom. There are considerable sales to schools, despite the home target market, because the wider marketing means that they have to keep costs down compared with most specialist classroom software. Mail-order is another important factor, accounting for half of **First Steps With the Mr Men**'s 30,000.

"Most of the other titles have not done a significant amount when related to **First Steps**. Between three and five thousand would be a good seller out of the other titles – and some of the more recent ones that we expected more of have sold no more than two thousand."

New hope will soon appears in the shape of a promotion in Boots, arranged by BESA, the educational software publishers' association. "Boots is the obvious place, given that Mothercare and Early Learning Centres don't yet stock software. But I would like shops to offer a special order service and hold information on the counter, like the BESA catalogue, so the base information is at least there for the customer."

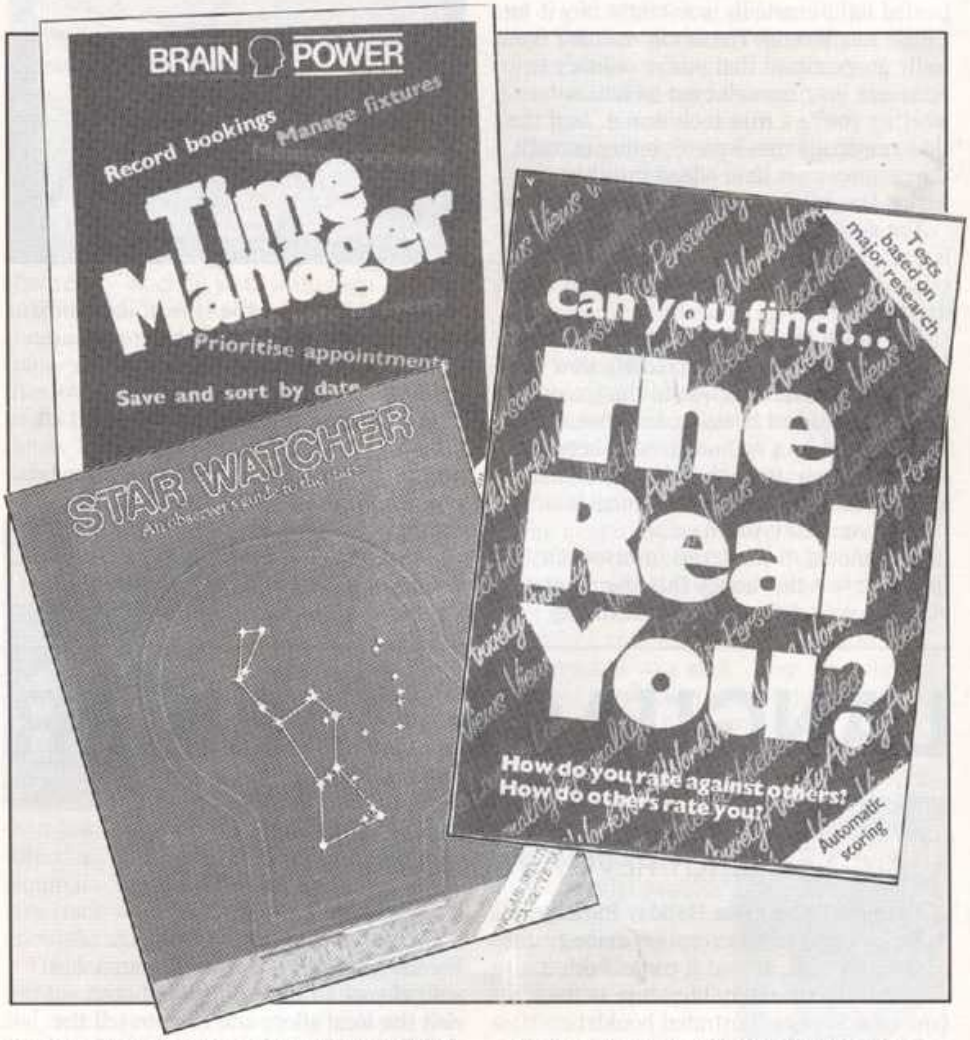


Interestingly this is an area where BBC micros still have predominance, though this may create another problem with retailers as hardware sales fall. AS these machines were sold with heavy emphasis on their educational function, I suggested that there should be no wariness amongst parents to use them as an educational tool, but Pat Bitton suggested that many had been disappointed by their earliest encounters with, "quote – educational software" standards.

Despite all these hazards, Mirrorsoft still feel they have a role to play. "Our experiences over the last year or so have really led us to the conclusion that it is essential to get into character licensing – to move educational software to the home market. It's unfortunate because it's an expensive way to go about producing this software and it does sometimes put the price beyond the reach of those parents who are buying it. But our policy is likely to be in the future that we will do one or two major titles and leave it at that. It's a heavy programming effort for educational software for, at the moment, not a great deal in return of sales – although we know the market is still there. It's a frustrating area to be in." ◄

AFTER SCHOOL

YOU SHOULDN'T HAVE TO STOP LEARNING JUST BECAUSE YOU ARE TOO OLD FOR SCHOOL. PAUL ŠVYCARSKY LOOKS AT COLLINS' ADULT TITLES



Defining an 'adult education program' is less easy than one would imagine. A number of topics, such as music or languages, reviewed elsewhere in this supplement, are suited to any age group. There is also the question of quite where the boundaries of 'educational' should be drawn. All in all, , it's a tricky business.

Eighteen months ago 'educational' was much more prevalent as a buzz word among software producers than it is today. There were several companies releasing programs with serious intentions, aimed at the post-teenage micro user. There were even rumours of a computerised version of The Joy of Sex though this never appeared – for which perhaps we should be thankful. Since then the number of adult educational programs has declined dramatically. However Collins continue to publish the Brainpower series which first appeared two years ago and gathered some good reviews. Here we look at three programs from that series plus another of their adult offerings and consider whether they are still so impressive in the light of current developments.

Constellations

Star Watcher was among the first releases and is an astronomy tutor and planetarium. Obviously such a program is hardly limited to adult users though as it calls for a more serious study of the heavens than watching for the next wave of Thargoids, we will include it here.

In common with most of those early Brainpower programs, Star Watcher comes complete with a spiral bound manual that will stand in the video case for easy reference when used next to your monitor. More recent releases don't include this feature, which is a pity.

The book provides the first couple of lessons in astronomy, on calculating the positions of stars and how they are named. Then it's time to load the turorial side of the tape and indulge in some star recognition exercises. The constellations, divided for the learning process into three groups, are presented to you as seen from your latitude and after reviewing them there are tests to check you know your Orion from your Auriga.

After that use the applications program to set up star charts for different dates and locations, either to prepare yourself for a night of star gazing or to see the heavens as you never could from your home town. This obviously extends the life of the program way beyond it's educational beginnings.

Astronomy is an area where there never seems to be a shortage of programs and this one, though well presented and competently implemented, is beginning to show its age and appears a trifle expensive in the light of more recent competitors that include phenomena such as Halley's Comet (not surprisingly there's been a spate of these recently).

Time Manager is more of an aid to organised living than a truly educational program, though it could be argued that learning how to allocate time efficiently is the greatest lesson that you can have.

The package contains a utility for the creation of databases dedicated to arranging your affairs within the 365 days of a year. An accompanying booklet contains not only instructions on how to operate the program to create an 'electronic diary' closest to your needs, but also an essay on why it is so important to be organised an how to achieve this state. As the instructions do not presuppose any prior knowledge of database jargon it is also something of an education in the meaning of fields, et al.

Four main types of entry can be created for each day, under six different titles. There are provisions for text, integer numbers, money with two decimal places and simple yes/no binary decisions. each entry can be given a level of priority so that the presence of a business appointment in a text field would overrule another test entry for the Cup Final (if you have such warped priorities).

Providing you pay careful attention to the booklet and follow the examples it shouldn't prove too difficult to set up a proper regime and who knows, if you take its lesson to heart you may even have more time to devote to self improvement.

The Real You? is not part of the Brainpower series. Its been said that to know anything you should first know yourself. But before you get too excited at the thought of revealing the real you, look again at that title. The question mark is there for a reason.

This is very much the equivalent of those tests that lurk in the pages of Reader's

Digest. For the most part they seem to be based on statistics, so that the compatibility test will measure your responses to a questionnaire and compare them with those of an unnamed cross section of the (American) public. There are one or two exceptions to this system of measuring, such as the IQ test or stress factor measure.

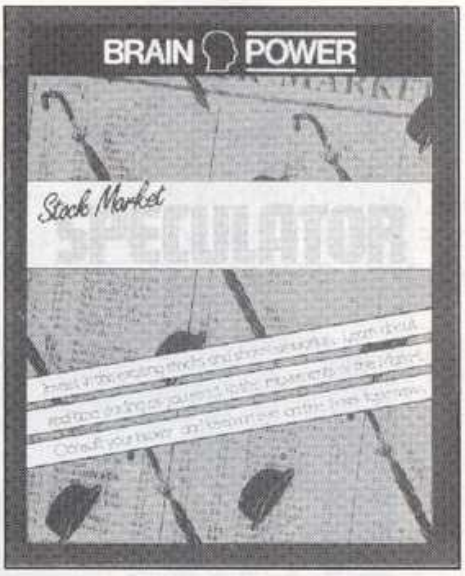
Bullish

Given then that the package should be treated light-heartedly, you might buy it for a little fun. Wrong! The whole exercise is so badly programmed that you're unlikely to persevere long enough even to find out whether you're a true snob or not. As if the slow response times weren't injury enough, the programmers have added insult by letting you break straight into the Basic.

The most disheartening thing is that this is a recent release. There is no excuse for releasing such an amateurish effort in this day and age.

The Stock Market Speculator fares rather better, though it is still incredibly slow at times. It is an introduction to the arcane world of bulls and bears, and is once again accompanied by a manual divided between instructions on using the program and an essay on just what all those figures mean.

Once you think you have an understanding of the terms involved it's time to invest the money that the program places at your disposal – and there are



various amounts for the type of investor you want to be, from a mere Dabbler with an inheritance to Fund Manager with five million!

The program is run by menus and it all goes fairly smoothly, though on the Spectrum version it wasn't always clear how you get out of all the charts. As you'd expect in a simulation of this type there are lots of figures to assimilate, but to stop it becoming a mere exercise in spotting statistical trends there are two indications of an outside world. The news reports tell of company business or world events, such as rumours of an OPEC rift, while your broker will have inside information on trading success and failure. it's up to you to react to these tips.

Used over a period of time I have no doubt that **Stock Market Speculator** would give you a greater understanding of the machinations of those pin-striped city types, even if it wouldn't guarantee you a fortune overnight. However it seems a pity that the booklet puts such emphasis on the speed of dealings on the floor when the creation of screens and time spent 'thinking' are so tediously slow. I was also unamused by the fact that when I was found to be buying shares without the necessary capital the program dumped me unceremoniously back to Basic. I suppose it was somebody's idea of teaching me a lesson in honesty. If only the real business world was so unforgiving!

Serious

I find it depressing that even in such a short survey we have uncovered one abominable program and one that should be far faster in its responses. The best of the four is undoubtedly the oldest, which suggests to me that there is a lack of serious effort being put into developing serious programs for the older user. And that leaves the home micro more than ever the domain of the alien blaster! ◄

LANGUAGE BARRIER

DO YOU FIND FOREIGN LANGUAGES IMPOSSIBLE TO MASTER? JAMES DELROY REVIEWS SOME VALUABLE AIDS

Granville, The Prize Holiday Package, is something of an exception among edsoft programs, in that it comes with a wealth of documentary literature in the form of a 50-page illustrated booklet.

Granville is a French seaside resort, and the program – designed for fourth and fifth year students – challenges you to plan a whole range of entertainment and holiday activities with a restricted money and time budget.

At once an adventure game, with random occurences affecting the outcome, and a language course, Granville also involves sub-games including a visit to the casino – so there should be something here to entertain every computer owner. The five-day holiday opens when you arrive at your hotel and enter your name in the register. You are then given a "room number", which, ingeniously, also acts as a file number, so that you can re-enter the program again and retain the same details.

The graphics then illustrate your "state of affairs" – your level of money, hunger, thirst, time of day, and so on. You should then consult the "daily paper" to find out what events may take your fancy during the first day of your stay. All option choices are made using the cursor and return keys, so it's very quick and easy.

Up to this point your knowledge of French has not been severely tested, but your chance to show off comes when you visit the local shops and have to tell the shopkeeper that you want to buy "des chausettes" or whatever. Here the program will try to guess what you mean if you make simple spelling errors. You can add various types of accents using the function keys.

Warning messages flash up if you become dangerously low on food or money, and it is up to you to rectify the problem by finding something to eat (and if necessary changing Sterling, or winning money at the casino or the fair to pay for it). The booklet is full of interesting local details – maps, guide books, posters, and so on – and has a word list at the back.



Overall the package is one of the most interesting language programs around – not much good for hard-core vocabulary or grammar revision, but great for stimulating a general interest in using the French language. My only reservation is that I doubt whether Granville would function as well in a group learning situation as it would for individual use.

Other programs in the series include French Connections, a vocabulary and geography revision aid, Quelle Tete/Jeu de Menages, two vocabulary building games, and Kopfjager/Umziehen, a German equivalent with similar furniture arranging and face drawing exercises. ◄

Program: Granville – The Prize Holiday Package
Micro: BBC B
Supplier: Cambridge Micro Software
Price: £24.95 + VAT

School Software remains one of the most prolific producers of edsoft packages, despite being situated in Ireland and suffering some lack of exposure. Covering a wide range of machines including EBM 64, Amstrad and BBC B, the company also has an unusually wide range of titles, including programs for the very young.

Apart from their Maths, Physics, Biology, Chemsitry, Geography and music programs, School Software produces a large range of language titles.

Aside from a French title which consists of a vocabulary builder, using several hundred words grouped in families, there are also two Irish titles – Better Irish 1 and 2. Aimed at the 10-14 age group, the first package deals with basic grammatical

requirements, concentrating on the use of the present tense. The second also covers the past and future tense.

The programs are available on CBM 64 cassette or disk, BBC B cassette or disk, and Amstrad cassette, at £9.95 cassette and £12.95 disk. There's also a five-pack "Junior Software Library Set" including Maths 1, Spelling, Irish 1 & 2, and French.◄

Program: Better Learning series
Micro: BBC B, Amstrad, CBM 64
Supplier: School Software
Price: £9.95, £12.95

Possibly the best-known language packages around are those from Kosmos, in the Modern Language Learning Aids series.

Each of the packages – **The French Mistress, The German Master** and **The Spanish Tutor** – follows the same format. Designed for CSE/O level, the programs include a large vocabulary list arranged in sections by subject. In each case the "control program" is the same, with the pace being set by the pupil. All the necessary accents are provided for, and colour-coded displays assist learning genders.

Interestingly, it's also possible to create and edit your own learning files using simple commands. This is particularly useful if you are deficient in a certain area, and do not want to have to work through a whole program just to revise that one part.

There are two packs in each series; on the first packs, subjects covered include food, clothes, the family, weather, shops and so on, while the second packs cover more esoteric subjects such as conjunctions, prepositions, adjectives, adverbs and the like.

There are disk versions available which include both pack A and pack B from each language; but at £19.95 per disk it doesn't seem much of a bargain.

The Kosmos series serves very well as a straightforward vocabulary tester – but in failing to use any aspect of the computer's real power, it limits itself to the sort of thing which could well be done with a notebook and pencil.◄

Program: Modern Language Learning Aids
Micro: BBC B, Electron, Spectrum, CBM 64, Amstrad CPC
Supplier: Kosmos Software
Price: Cassette £8.95, disk £9.95 BBC, £12.95 Amstrad

Deutsch Direkt! is described as a vocabulary builder, and as such is of little use to any German beginners who have no knowledge of the structure and grammar of the language. (It would be like giving a German an English dictionary and expecting him to be able to speak English). That apart the program does its job well, if you need help with vocabulary alone.

The package consists of an audio pronounciation tape, a 24-page user guide and software on 40-track disk. It's possible to transfer the program to 80-track disk, or for use on Econet systems, if this is required.

The program's "dictionary" contains over 1000 words on a variety of topics. All the words are reproduced on the audio pronounciation tape – what a pity that home computers aren't yet at the stage where they can talk you through the words themselves!

The disk contains six teaching programs selected from the main menu. Some of these are very valuable and enjoyable, others seem a waste of time.

In all cases, selections from menus are made with the cursor keys, and choices entered with RETURN. The first exercise, WORDS, introduces the vocabulary in blocks of fifteen words at a time. You may choose any block to start with, from 1 to 69.

The words from the block you have chosen appear one by one against varying colour backgrounds, according to whether they are masculine, feminine or neuter, singular or plural. In the first exercise you simply type in the words as shown, making sure to use a capital letter at the start of a noun (the program is very fussy about this). The umlaut and German double-s are represented by and $ signs.



The second exercise consists of typing in the same words with the appropriate definite article. You can then link the words with appropriate adjectives (the translations are available if required). You should listen to the audio tape track while working through this exercise.

The second main section, REVIEW, allows you to check through each word in a block and re-test yourself on any of which you are unsure.

A more interesting exercise in SQUARE, in which a grid of letters is printed on the screen. You use the cursor to find the start of a hidden word, then trace the word out to remove it from the list. If you get stuck you can press H for help.

LINKS tests you on relationships between words. Your task is to take a start and end word, and construct a pseudo-sentence which links them together. Again, there's a help facility if you get hopelessly lost.

The last section is TOPICS, which tests you on vocabulary from a certain subject (such as Music or Work) rather than from vocabulary blocks.

Overall Deutsch Direkt is a good package if you accept its limitations.◄

Program: Deutsch Direkt!
Micro: BBC B/B+
Supplier: BBC
Price: £22.95

A Vous La France! is a more wide-ranging course, with a series of exercises based around everyday situations, including shopping, map-reading, games, and so on. The course consists of 45 exercises stored on two cassettes, the contents of which can be transferred to disk.

The exercises are very varied, and present a better selection of learning experiences than the Deutsch Direkt program. The first, for instance, is in the form of a list of food and drink and a list of different kinds of shop. You have to match the items to the correct shops, scoring ten for a correct guess and losing ten for a mistake. You can also "pass" if you're unsure.

The second exercise, Scramble, gives you a series of sentences which are arranged in the wrong order. You can rearrange them in any order you require, then press Return to discover whether your sentence makes any sense.

Article, the third exercise, allows you to test your knowledge of when to use UN and UNE. It has always baffled me that the French regard railway stations as being feminine and wardrobes as masculine – or is it the other way around? – so this is a helpful exercise. You must type in the correct article into an incomplete sentence.

The next exercise, Where, tests you on directions – left, right, over there, third left after the traffic lights, and so on. One of the more graphical of the exercises, it involves directing a spurious French person to a point marked on a map. There are follow-up exercises in which you must quiz people as to their place of birth, and ask for directions in a new town.

The rest of the exercises fall into roughly the same pattern: building vocabulary, sentence structure, and colloquial use, always in the context of real situations. There are, for instance, sections on counting, quantities, matching the gender of nouns and adjectives, telling the time, using public transport, food, using the phone, navigating, and so on.



Overall, the program is certainly more ambitious and testing than Deutsche Direkt, using a limited amount of graphics but maintaining interest by devising interesting exercises rather than just testing vocabulary. The package comes complete with a keyboard overlay which indicates which function keys to use for the accented letters, and despite the disadvantages of the tape format it's all very straightforward and enjoyable, pitched at the right level between education and entertainment.◄

Program: A Vous La France!
Micro: BBC B/B+
Supplier: BBC
Price: £19.95

TALKING TECHNICALLY

HI-TECH SUBJECTS ARE PERHAPS BEST SUITED TO COMPUTER – ASSISTED LEARNING. GODFREY DUFF LOOKS AT THE SCIENCE SOFTWARE SCENE

ELECTROMAGNETIC SPECTRUM is in three parts, each in the form of an adventure game with options selected from a menu. Designed to test your knowledge of waveforms from gamme, through visible light to radio waves, the program takes the form of a quest for a mysterious rock, somewhere in space, which then has to be returned to earth and analysed.



In the first part you use a "telescope", typing in co-ordinates until you find the star system in which the rock is hidden. In part two you must construct a radio and send a message in morse code, and finally analyse the rock using a series of scientific instruments and tests which will determine its nature. The format of the program is familiar enough the adventure gamers to add to the interest, without being so complicated as to put off more serious students! The program comes with a usefully illustrated booklet, and stresses understanding of formulae and principles rather than learning parrot-fashion, and as such is to be recommended.

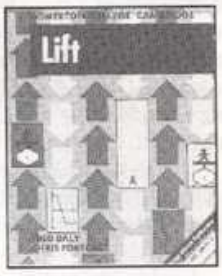
► **Micro:** BBC B
► **Supplier:** BBC Software

ELECTRONICS IN ACTION covers the subject of computer control of outside hardware. Three control system simulations are included; a robot arm, a kettle, and a water tank. The software is fully interactive, so that you can modify the 6502 assembly language subset used in the control programs and test out your own ideas. Each control system is illustrated with a graphic which responds appropriately as you modify the control parameters. For those of you who are not conversant with 6502 (myself included), the program also displays explanations in English of exactly what's happening. Graphically, this program is unusually interesting, though the subject it covers is a little limited.



► **Micro:** BBC B
► **Supplier:** BBC Software

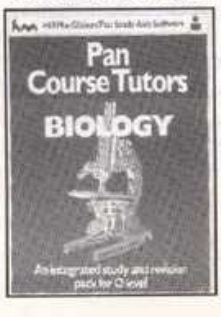
LIFT is a physics program demonstrating the principles of mass and elasicity. I well remember the spring balances, weights and elastic bands of O Level Physics lessons; this program does away with the lot, demonstrating the interaction of mass, gravity, velocity and elasticity using examples such as a lift shaft, a spring scale, and a number of vector and displacement diagrams.



Heroine of the program is a very small person called Mabel, who for some reason seems to spend her whole life going up and down in lifts. You will need a joystick to control Mabel's journeys up and down the lift shaft, and it's useful to have a printer for hard copies of the "ticker tape" print-outs which demonstrate the principles of related variables. Lift is good fun and comes with an interesting 46-page booklet.

► **Micro:** BBC B (80-Track disc)
► **Supplier:** Cambridge Micro Software

BIOLOGY COURSE TUTOR is one of a valuable revision series from Hill-McGibbon. Complete with the relevant Pan Study Aids course book, the two-cassette pack (there's also a disc version available) covers five main subjects to O Level standard. The Cell, Nutrition and Respiration, Genetics and Ecology, Movement and Co-ordination, and Reproduction, Excretion and Temperature Regulation are the five main areas, and each has a "computer-marked" diagnostic test to pinpoint your areas of weakness.



The multiple-choice format of the revision modules is certainly well-suited to use with a computer, but the resulting graphics are hardly inspiring; all you get on the screen is a series of question numbers, which you must respond to by entering the correct option from the course-book. In effect, all you are getting in the way of software is a list of the correct answers which are given in the book anyway. Hardly pushing the computer to the limits of its abilities, especially since the book contains lots of pretty diagrams of body parts which would look great in hi-res colour. Not an exciting series of program, but a valuable one if you can't find a partner to help you work through these basic revision exercises.

► **Micro:** CBM64
► **Supplier:** Hill-MacGibbon

THE MOLE CONCEPT is not, thankfully, an academic dissertation on the life and art of Sue Townsend. In fact it has no connection at all with the spotty schoolboy Adrian, since the moles of the title are chemical rather than fictional. A mole, as any fule kno (go it, Molesworth, show them wot yore made of), is a measure of quantity dependent on the number of particles making up a single molecule of a compound. It's a difficult concept to get to



grips with, but the colourful graphics and straightforward explanations of this package make it all simpler.

The great gimmick of The Mole Concept is that it is one of the few successful interactive audio tapes. Used in conjunction with an audio commentary by unctuous Fred Harris, the program combines explanation with demonstration. Although the tone of the commentary is meant to be light-hearted, it does sometimes spill over into the realms of the feeble-minded with jokes about garden pests. There are some great graphics demos – cakes rising, liquids running out of burettes, molecules combining – and the whole thing is very polished. Recommended if you have any difficulty in getting to grips with the more esoteric aspects of chemistry.

- **Micro:** BBC B
- **Supplier:** BBC Software



FORENSIC stays with the theme of chemistry, presenting you with a murder mystery which has to be solved using your knowledge of practical chemistry.

You are given a list of suspects and the alibis they have offered. Oddly enough, all of them revolve around using a particular chemical, which you can test for using a number of options such as chromatography, flame tests, acid tests, adding barium chloride, and so on. Each test of the suspects' alibis is animated very nicely, with the flame tests, for instance, showing different colours, the chromatogrphy (filter paper) test giving different tint patterns, and so on.

Once you have done enough tests to establish which of the suspects is lying, you can go to the report screen – having made your notes on a sheet provided with the scanty documentation – and find out whether you have identified the killer by a process of elimination. It's all jolly good fun, and has plenty of help pages which explain the chemical tests, the principles of forensic science and the methods of investigation by which you can solve the mystery. Unusually good, and well up to the standards set by one of the most prolific edsoft houses, Chalksoft.

- **Micro:** BBC B
- **Supplier:** Chalksoft

SPACE TRACK is described as a "NASA-style" computer simulation of a space mission.



Considering their current record of blunders and blow-ups this may not sound like much of a recommendation, but I suppose you have to take the rough with the smooth.

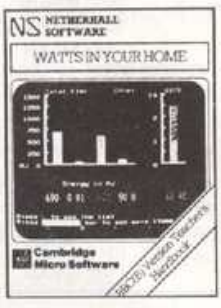
Unfortunately, the program seems to sacrifice any aspect of reality, while claiming to consit of "practical simulations". The second exercise consists of typing in LOGO-style direction instruction to guide a rocket through a meteor storm. It's more Flash Gordon than James Burke.

The main part of the program, however, is more valuable, consisting of a simulation of the inner planets of the Solar System. You are shown the Sun in a central position, then the courses of the planets out to Saturn are plotted and they are seen moving in their orbits. However, just when you think that something interesting is about to happen, you realise that is all you get for your money. Space Track is all promise and no delivery – I didn't see how anyone could learn anything from it, and Patrick Moore should be ashamed of having written the blurb.

- **Micro:** BBC B
- **Supplier:** Cambridge Micro Software

WATTS IN YOUR HOME (is that supposed to be some joke? Surely they meant Ohm Sweet Ohm!) – is designed to help you calculate the costs of running electrical equipment in your house. Data is provided for different fuel sources, so you can calculate the day-to-day costs and make comparisons between households. Although the materials isn't related to any specific syllabus, it's of general interest, as well as practical value to physics students.

Before starting, you must be familiar with basic units such as joules, therms, and kilowatt-hours. There are copious teaching notes suggesting how the program could be used in science or home economics lessons.



The format of the program is one of lists and bar charts. Students enter details of the energy-consuming appliances in their homes, and the program calculates costs and displays them in the form of tables and charts. You can then alter the variables to, for instance, predict the effect of oil shortages on power costs, or work out how to run your applications within a fixed budget.

Not very graphically stimulating, but well-documented and covering a valuable subject.

- **Micro:** BBC B
- **Supplier:** Cambridge Micro Software

DIGITAL ELECTRONICS is the one subject which all computer-users should be expected to know something about. Addison-Wesley's computer-aided tutorial package covers all aspects of the subject, including binary, analogue switching, digital to analogue conversion, bits and bytes, number bases, and control functions.

The graphics include animated demonstrations of how a "chip" counts, how binary, hex and denary are related, and how "gates" can react to a series of "and/not/or" operations. The 22-page booklet (which contains more information than you'd expect) works through all the demonstrations, explaining exactly what's going on and giving short exercises to test your comprehension.



Part One, Coding Information , is really just an introduction to the subject. It's much too large a subject to be covered in one program, but I can't help feeling that most users of this package are going to feel that they should have had something more for the money.

- **Micro:** BBC B
- **Supplier:** Addison-Wesley

British Educational BESA Software Associates

▶▶▶DEALER LIST◀◀◀

The national list of edsoft specialists overleaf has been compiled by BESA, the British Educational Software Association. The BESA has ten member companies; A.S.K., B.E.S., Calpac, Collins, Griffin, Hill MacGibbon, Kosmos, Macmillan, Mirrorsoft and Widgit. If you have any difficulty in locating your nearest approved dealer, or want to know more about the BESA products, you can get a catalogue from BESA, 4 Little Essex Street, London WC2R 3LF, telephone 01-836 6633.◀

DEALER LIST

RETAILER'S NAME	TOWN NAME (ALPHABETICAL ORDER)	TELEPHONE
	SOUTH WEST	
A B & C Computers	St Austell	0726 64463
Software Plus	Bath	0225 61676
Microtest Limited	Bodmin, Cornwall	0208 3171
Avon Computer Rentals	Old Market, Bristol	0272 550600
Lawrence Associates	Yate, Bristol	0454 321088
George's Computer Bookshop	Bristol	0272 276602
The Forum Computer & Bookshop	Chard, Somerset	04606 5009
Solent Micro Systems	Christchurch, Dorset	0202 470468
Cwmbran Computer Centre	Old Cwmbran, Gwent	06333 60996
Seven Counties (Computers) Ltd.	Dorchester	0305 66022
Seven Counties (Computers) Ltd.	Exeter, Devon	0392 211211
Computerware	Exeter, Devon	0392 210507
Computech (Gloucester) Ltd.	Gloucester	0452 423288
Software City	Newbury, Berks	0635 31696
Blackwells Ltd.	Oxford	0865 249111
Computer Systems	Paignton	0803 524284
Lansdowne Computer Centre	Poole	0202 670901
Anderson's Computer Services	Freemantle, Southampton	0703 32729
Barbury Computers	Swindon	0793 611487
Trowbridge Computer Shack	Trowbridge, Wiltshire	02214 67299
	WALES	
Computer Knowhow	Cathays, Cardiff	0222 373000
Cardiff Microcomputers	Cardiff, South Glamorgan	0222 387579
Cardigan Electronics	Cardigan, Dyfed	0239 614483
Computability	Ebbw Vale, Gwent	0495 301651
Computer Centre	Haverfordwest	0437 68228
Gwent Computers	Newport	0633 841760
Microcare Computing	Newport, Gwent	0633 50482
Bucon Ltd	Swansea	0792 467980
	IRELAND	
Educational Company Ltd.	47-49 Queen Street, Belfast	0232 231027
Belfast Micro Centre	Lisburn, Co. Antrim	08462 76446
F C Computers	Lurgan, Co. Armagh	07622 28543
	MAIL ORDER	
Books For Keeps Software	Aylsham, Norfolk	0263 734864
Load and Run	Dartford, Kent	0322 79987
Talktapes	London	01 485 9981
Morris Ecucational Associates	Newtown	0686 252610
Cornwall Software	Sennen, Penzance	073687 569
N.E.S.S.	Stockton	0642 601676
Courseware	Nr. Warwick	0926 494777
	MIDLANDS	
Electronequip	Kings Lynn, Norfolk	0553 773782
Greens	Coventry, West Midlands	0203 28342
FBC Systems Limited	Derby	0332 365280
Oaktree Consolidated Ltd. (D)	Grantham, lincs	0476 76994
Logic Computer Centre	Heanor, Derbyshire	0773 769680
R & B Computer Software	Hinckley	0455 61133
Dimension Computers Ltd.	Leicester	0533 57479
Micro-Fix	Lincoln	0522 25907
Tetronite Computers Ltd.	11A Castle Meadow, Norwich	0603 663798
G A Computers Ltd.	Ruddington, Nottingham	0602 211225
Micro City	Nuneaton, Warwicks	0203 382049
Logic Sales Ltd	Peterborough	0733 49696
Town Computer Store	Hanley, Stoke on Trent	0782 287540
Homesoft Computing	Tamworth	0827 63549
New Horizon Computer Centre	Walsall	0922 24821
Software City	Wolverhampton	0902 25304
	NORTH EAST	
Alnwick Computerware	Alnwick, Northumberland	0665 604816
The Computer Room	Barnsley	0226 204000
Computing World	Dyer Lane, Beverley	0482 881831
Chester Green Videotheque	Derby	0332 360552
Danum Computer Systems	Doncaster, Yorkshire	0302 20355
Computer Centre	Hull	0482 26297
Spectrum Business Centre	Hull	0482 24346
Telerents (Northern) Ltd.	Morpeth	0670 513537
Tynesoft	Newcastle-upon-Tyne	0632 723093
Computer Shop	Newcastle-upon-Tyne	0632 616260
Computer World	Scarborough, Yorkshire	0723 352381
Topsoft Computer Software	Stockton on Tees	0642 670503
	NORTH WEST	
Cumbria Audio Visual & Electrical	Barrow-in-Furness, Cumbria	0229 29109
Data Exchange	Birkenhead	051 647 918
Computer World (UK) Ltd.	Bolton, Lancs	0204 49430
IMO Computer Centre	Burnley, Lancashire	0282 54299
Elbee Computers	Colne	0282 861275
Micro Abacus Ltd	Formby	07048 31662
Thoughts and Crosses	Heckmondwike, West Yorkshire	0924 4502337
Microman Computers	Mill Lane, Rainford, St. Helens	074488 5242
Castle Computers	Lancaster, Lancashire	0524 61133
Microbyte Software	Leeds	0924 376656
Hargreaves Computers	Liverpool, Merseyside	051 525 178
NSC Computer Shops	Manchester	061 832 226
Home & Business Computers Ltd.	Oldham, Lnacashire	061 633 160
Central Studios (Photographics) Ltd.	Southport, Merseyside	0704 31881
Microbyte Software	Wakefield	0924 376656
Northern Computers	Fordsham Nr. Warrington	0928 35110
Pyramic Micros	Warrington, Cheshire	0925 35713
P D Hendren	Whitehaven, Cumbria	0946 2063
	SCOTLAND	
Micro Shack	Aberdeen, Grampian	0224 636081
Dee Micro	Aberdeen	0224 644350
T C Farries & Co. Ltd.	Lochside, Dumfries	0387 720755
Recent Events	Elgin, Morayshire	0343 49937
Mobile Micros Marketing Ltd.	Elgin, Morayshire	0343 49944
Commscot	Glasgow	041 226 487
Micro Mart	Kirkaldy, Fife	
Tommorows World	Lerwick	0595 2145
Vics Independent Computer Supplies	Perth	0738 36704
	SOUTH EAST	
CBM Data Software Ltd.	Banstead, Surrey	07373 54717
Data Store	Bromley	460 8991
Adams World Of Software	Edgware, Middlesex	952 0451
Microworkshop	Epsom	78 21533
Trionic Ltd.	Harrow	01 861 0036
Harrow Micro	Harrow, Middlesex	01 427 0098
Simnett Computers Ltd.	380 Richmond Road, Kingston	01 541 1495
Software City	Kingston	01 541 4911
Software City	Chelsea, London	01352 9220
Computers Inc.	London	01 209 0401
Adams World Of Software	North Finchley, London	01446 7170
Games World	Hammersmith, London	01 741 4467
Chromasonic Electronics	London	01 883 3705
CYB Computers	Crown Lane, Morden	01 542 7662
P & H Micro and Photo Ltd.	Eastcote, Pinner	01 868 6830
Mu Games & Computers	Slough	0753 21594
Logic Sales Ltd	The Bourne, Southgate	01 882 4942
Nimbus Computing	West Wickham, Kent	01 777 3160
Soft Spot	Banbury	0295 68921
Gamer	Brighton	0273 728681
Soft Centre	Brighton	0273 776576
W Heffers & Sons	Cambridge	0223 358351
Canterbury Computer Centre	Canterbury	0227 462101
Computermania	Chichester	0243 779263
Colchester Computer Centre	Colchester	0206 47242
The Book Castle	Dunstable	0582 605670
Electronequip	Fareham	0329 230670
Computer Magic	Ipswich	0473 50965
Computermania	Littlehampton	0903 716187
C S Computer Systems	Margate, Kent	0843 292660
Soft-ly	Central Milton Keynes, Bucks	0908 67020
Compute	St.Neot's	0480 72013
Absolute Sound & Video	Headington, Oxford	0865 65961
Micro Choice	Drayton, Portsmouth	0705 327591
Leakes Ltd.	Sidcup, Kent	01 300 1142
Computers Plus	Sittingbourne, Kent	0795 25677
LTC	Southampton	0703 024703
ACS Computer Centre	Strood	0634 723679
Software Supplies Company	Whitstable, Kent	0227 266289
Worthing Computer Centre	Worthing	0903 210861
Hobbyte	St. Albans	0727 41396
Dgh Software Centre	Ashford	0233 32597
Geerings Of Ashford Ltd.	Ashford, Kent	0233 33366
Chelmsford Computer Centre	Chelmsford	0245 35994
Farnham Computers	Farnham, Surrey	0252 723107
Regal Software Supplies	Gillingham	0634 579634
Gravesend Computers	Gravesend	0474 23871
Adventurer's Guild	26 Harmer Street, Gravesend, Kent	0474 334008
H. Reynolds	Grays	0375 5948
Orchard Computer Centre	Horsham, Sussex	0403 64884
Hobbyte	Luton	05823 457195
Kent Micro Computers	Maidstone	0622 52784
Computerama Business Systems Ltd.	Southend-on-Sea	0702 335443
D J Toys Ltd.	Stevenage	0438 65501
Modata Computers Ltd.	Tunbridge Wells	0892 41555
SRS Microsystems	High Street, Watford	0923 26602
Harpers	Woking	04862 25657