BBC

CONTINUING EDUCATION TELEVISION

Computer Literacy Project

BBC COMPUTER LITERACY PROJECT

The BBC is to launch a major new project in the field of computer literacy, in January 1982. The aim of the project is to introduce interested adults to the world of computers and computing, and to provide the opportunity for viewers to learn through direct experience how to program and use a microcomputer. The project is built around a ten-part television series, and includes a book, a linked microcomputer system complete with User Guide, a range of applications programs, and an associated course in programming in BASIC provided by the National Extension College.

The project forms part of a long-term commitment by BBC Education to public information in the broad field of microelectronics, which has included the three-part series **'The Silicon Factor'**, and in the current year also includes the five-part series on applications of computers in business and industry, **'Managing the Micro'** (to be repeated Mondays, BBC-2, 7th January - 4th February 1982), and two programmes on the implications of microelectronics for teachers, **'Micros in the Classroom'**. For details of future radio and television series see below.

THE TELEVISION SERIES

The ten television programmes will be entitled **'The Computer Programme'**. They are designed to be useful both to home-users and to viewers in schools and colleges.
For colleges and schools, the series will be transmitted weekly on Mondays at 1500 on BBC-2 from January 11th 1982, and repeated at a similar time in the Autumn from mid-October. The series will probably have several further repeats for both home-users and institutional use in later years.

It was originally intended that the first broadcast of the series for viewers at home would run from January 10th 1982. However, demand for the microcomputer has been so great that it has been decided to postpone this transmission for five weeks, so as to allow more potential viewers to acquire microcomputers before the first programme. The programmes will therefore now be transmitted on Sunday mornings on BBC-1 weekly from February 14th 1982, and repeated late-night on BBC-1 on Mondays from March 22nd 1982. The series will be repeated on Sunday mornings on BBC-1, in the Autumn, from October 10th to December 12th.

Although viewers who possess a BBC Microcomputer (see below) will be able to try out the examples shown in the programmes on their own equipment, the programmes will be designed to be of interest and value either to people who own other microcomputers, or to those who do not have access to a computer at all.
The series aims to illustrate and explain the fundamentals of computing at both a practical and a theoretical level. The programmes will be built around themes and the examples of

what computers can be used for will be drawn from a wide range in the real world. Although the use of large and small computers will be shown we will aim to illustrate principles through the use of the microcomputer wherever possible (see also the note on the supporting software for the BBC system).

The explanation and use of a computer language will arise naturally out of the themes of the series and each programme will contain a practical illustration of the use of BASIC coding. The approach will be pitched at a level which beginners can understand. All the studio demonstrations will offer insights into the use of the personal microcomputer and, since the 'lay' presenter will himself be introduced to the techniques from scratch, these will encourage the audience to feel that they could perform similar tasks if they had access to a machine.

Viewers who buy the book or follow the course should be able to go rather further into the subject; but since in the end the only way one can learn about computing in any depth is to gain practical experience of it, the hardware and software of the BBC Microcomputer system is being specially provided in order to create the opportunity for direct "hands-on" experience. All parts of the project will use the same dialect of BASIC.

SOFTWARE SPECIFICATION

The BBC BASIC specification is fairly standard, close to a number of BASICs. There is a powerful BASIC interpreter, with a number of extensions; these include long variable names, integer type and extensive string operations. Attention has been paid to the need for structures and the BBC BASIC supports IF... THEN... ELSE, REPEAT... UNTIL, and multi-line named functions and procedures with local variable declarations. Assembly language routines can be written into a BASIC program and high resolution colour graphics are well supported. There are numerous other powerful extensions. A number of minor modifications to the language specification have been made since it was issued in April 1981. These have partly been dictated by technical constraints and partly by a wish to increase the number of facilities which can be offered. A re-issue of the specification is now available.

THE HANDBOOK

This will look at the wide range of practical things computers can do and, broadly, at how they work. There will be sections on personal computing - what's possible and what's not - and an introduction to problem solving in plain English, leading to a section introducing the basic principles of computer programming. It will be available in bookshops and from BBC Publications, 35 Marylebone High Street, London W1M 4AA, from mid-January 1982.

THE NEC COURSE

The National Extension College is providing a 30-hour introductory course in programming in BASIC in association with the BBC project (with which it will be software compatible). It will be possible to follow the course as a home-based correspondence student, to use it as a flexi-study course with a combination of home-based work and work in a supporting college, or simply to buy and use the course material independently. The course is being linked to a network of local colleges where individuals can have access to machines and tuition if they wish. It is hoped that this will be the first of a range of such courses in this field. For details of the course, and of supporting services, write to: THE NATIONAL EXTENSION COLLEGE, 18 Brooklands Avenue, Cambridge, CB2 2HN.

THE BBC MICROCOMPUTER SYSTEM

The BBC Microcomputer system consists of two alternative models of a microcomputer (which can both use either a domestic TV receiver or a monitor as the display unit), a range of expansion options, a Teletext receiver, a Prestel option, and a disk system. A substantial part of the system will be available by cash post from the fourth quarter of 1981.

1. **The Microcomputer** (price £235 from December 1981)
The standard model of the microcomputer is based on a 2 MHz 6502 microprocessor with 16k of RAM and 32k ROM; the ROM includes a 16k BASIC and a 15k operating system. The system has a variety of eight different display modes, notably a teletext mode, a 40 x25 characters mode, and a 320 x 256 high resolution graphics mode; it can display up to eight colours.

The system has cassette, television, and video interfaces, and a full travel keyboard. It has been designed with the capability for substantial expansion in terms of RAM, second processor, and high-speed communication to other computers.

The enhanced model of the microcomputer (price £335 from December 1981) will have the following additional features: 640 x 256 high resolution graphics, memory extension to 32k RAM, A-D interfaces, Centronics (printer) interface, RS423 (5-0-5V) interface, "Tube" and Bus connector. These will permit users to interface their equipment with a wide range of existing peripherals, including, for instance, printers.

A User Guide, which will include an equipment manual, a detailed software specification, a guide to programming, and a range of simple introductory programs, will be boxed in with both models of the microcomputer and included in the price. It will also be separately available.

A 'Welcome Package' of software, on cassette, will be included in the price of each machine. This will contain a series of introductory programmes which will take the first-time user through the range of facilities offered by the microcomputer.

2. Additional interfaces

- a disk interface will be available from early 1982, which can be connected to a range of disk drives.

- a networking interface will be available from early 1982. This will make it possible to connect a number of microcomputers to each other, and to a central disk system or printer.

3. Second processor expansion options
There will be a range of expansion options available in an add-on box.

- a second 8-bit processor (3 MHz 6502 with additional 64k RAM)will be available from early 1982.

- a second 8-bit processor (Z-80 with additional 64k RAM) will be available from early 1982

- a further 16-bit microprocessor (with additional 128k of RAM) will be available from early 1982.

4. Disk expansion options

- through the disk interface option it will be possible to use the system in association with a range of available disk drives. Two disk drives will be available as part of the system (available early 1982); a 5 1/4" single- sided disk drive providing 100k storage, and a 5 1/4" double-sided double-track density drive, giving approximately 800k storage.

- through the Z-80 second processor expansion (available from March 1982) it will be possible to use the microcomputer in association with CP/M® disk systems. This will make it possible to run and store CP/M® applications programs.

Note: CP/M is a registered trademark of Digital Research.

5. Teletext Receiver
The teletext receiver (available from March 1982) will be contained in a separate case, and will be capable of receiving teletext transmissions from the BBC and IBA for display on a domestic TV receiver, and of downloading computer programs, transmitted in the form of telesoftware, directly into the

memory of either model of the microcomputer. For an additional cost there will be a Viewdata option which will provide access to British Telecom's Prestel databank. Experimental transmissions on CEEFAX of telesoftware for development purposes have already begun, and the Council for Educational Technology are currently experimenting with a telesoftware service through PRESTEL.

6. Servicing

A network of approximately 50 retailers will be providing servicing support. This network is well spread throughout the country.

BBC SOFTWARE LIBRARY

A range of applications packages, available on cassette or disk, is being developed at the same time as the computer system. In addition to the 'Welcome Package', which will be included within the price of each microcomputer, there will be an initial inventory of simple packages, available from early 1982, which are intended to reinforce understanding of the principles of computing explored elsewhere within the project. This will include:

- a home finance package
- a computer aided design 'starter' package
- a music package
- games packages
- a home data base package
- various programs to develop skills in primary school Maths and English, and in pattern matching
- scientific and business simulations
- programs which 'learn'

From early 1982 onwards a range of more substantial programs will become available, including games, programs for teachers and students, programs of practical use in the home, programs for hobbyists, and programs which should be of practical use to small businesses. Programs currently being considered include a word-processing package, an enhanced graphics package, engineering packages, a VAT package, a high-level language utility, energy-saving calculations, a more advanced music package, further educational packages, an astronomy package etc.

Some of these programs will be available in printed form, some in recorded form on disk or cassette, and some through telesoftware. Some of this software is being specially written, and some is being adapted from existing programs, and the BBC is actively interested in any available software which may be suitable for this system. Guidelines for software writers are available from the BBC.

Much of the simpler software will run, with little or no modification, on various other machines. Software requiring

high-resolution graphics or sound is unlikely to be compatible for the time being at least. Details of the full BBC Software Library will be announced as they become available, and an initial price-list will be included with the microcomputers.

REFERRAL AND INFORMATION SERVICE

A postal referral service will be available in association with the series, to put viewers in touch with local sources of advice and help, and provide information about the project. This is being organised by Broadcasting Support Services. Various familiarisation and training courses are being developed in association with the project, and the BBC is in touch with an extensive network of people who are active in the field. Details of these will be provided on request when they become available.

FUTURE BROADCAST SERIES

The Computer Programme will be repeated again, probably more than once, during 1982/3. In addition there will be a further series of ten television programmes for the micro-user, and three new programmes for teachers on uses of computers in the classroom. Transmission details will be available later. The current radio series, **Learning About the Chip**, which examines the challenge posed to the teaching professions by micro-technology, is being repeated on Radio 4 VHF on Tuesdays at 11 p.m., from March 16th to April 13th.

For schools a new television series for 13-16 year olds, **Computer Club**, is being provided in Summer 1982, on BBC-1 at 11.17 a.m., starting on April 26th, with a repeat on Thursdays at 2.40 p.m. Ten radio and radiovision programmes are also being provided for schools in Autumn 1982, under the title **Electronics and Microelectronics**. The programmes, designed for 14-16 year olds, will relate basic school electricity to solid state electronics. There is a strong practical element, supported by a kit of parts, available from Stem Walton Unit, 65 Walton Lane, Liverpool L4 4HG. Teachers' notes and film strips for the series are available from BBC Publications, 144-152 Bermondsey Street, London SE1 3TH.

All enquiries about any aspect of the Computer Literacy Project should be sent to: BBC COMPUTER LITERACY PROJECT,
BROADCASTING SUPPORT SERVICES,
P.O. BOX 7,
LONDON W3 6XJ.

PLEASE ENCLOSE A LARGE S.A.E. WITH YOUR ENQUIRY.