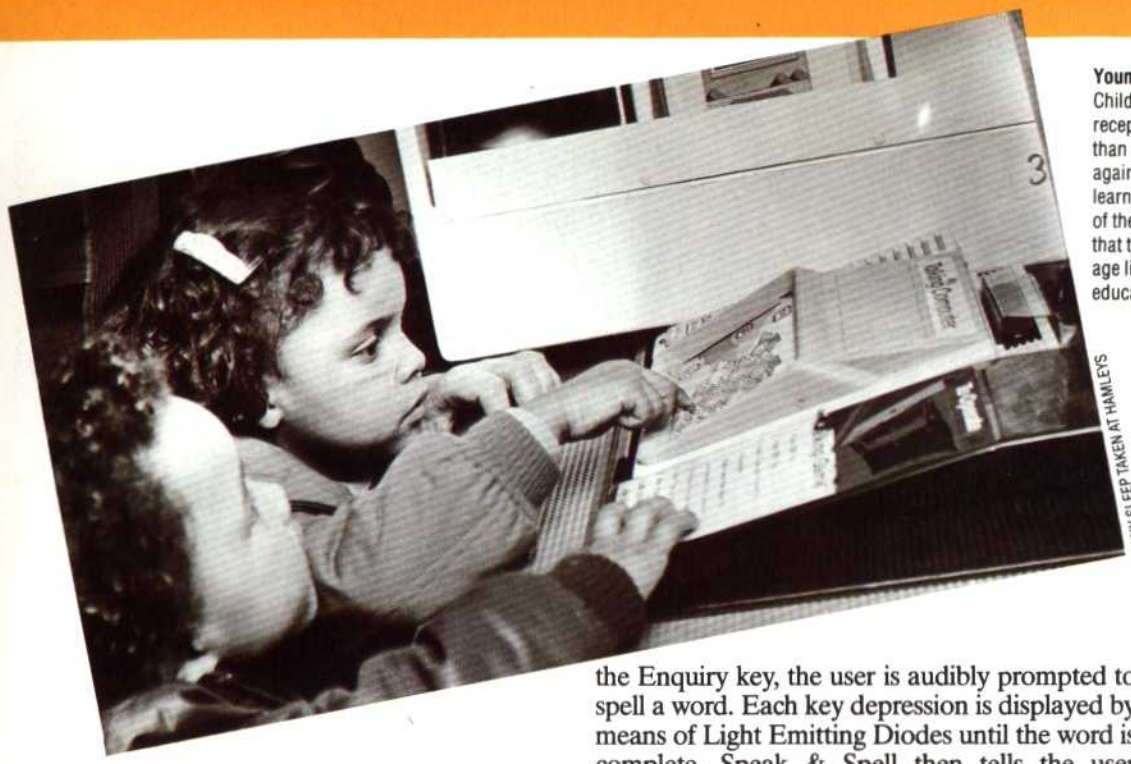

TONY SLEEP TAKEN AT HAMLEYS

Young Minds
Children, it seems, are more receptive to the new technology than many adults, who react against the idea of having to learn new ideas. The versatility of the microprocessor means that there is virtually no lower age limit for electronic toys and educational devices

Kids' Stuff

The latest educational 'toys' contain as much processing power as your home computer and use similar programming techniques

In addition to forming the heart of all microcomputers, microprocessors have become a standard feature of many domestic appliances, such as sewing machines, washing machines, and even door locks. Toy manufacturers have experimented with microprocessors as well, especially in the control of model cars and railway trains. However, at least one computer manufacturer — Texas Instruments — has found the production of microprocessor-based teaching toys to be very rewarding. TI's first venture into this market was a calculator-like unit that posed problems in simple arithmetic. The Little Professor proved to be consistently popular, and even when superseded by Speak & Maths, still sold in significant quantities.

Speak & Maths was the second Texas Instruments educational toy to make use of the TI speech synthesis chip. This was also used in the TI99/4A home computer, which was taken off the market in late 1983 when Texas Instruments decided to withdraw from low-cost domestic computing. Speak & Spell, launched in 1978, has a vocabulary of a few hundred words. The unit has a full alphabetic keyboard (as well as some additional keys) made up of a multi-layer membrane similar to Sinclair's ZX81. On pressing the Enquiry key, the user is audibly prompted to spell a word. Each key depression is displayed by means of Light Emitting Diodes until the word is complete. Speak & Spell then tells the user (audibly) whether or not the spelling is correct.

Speak & Maths works in a similar way, but poses arithmetic problems. These two highly innovative products have succeeded in gaining a large share of the market for educational toys, and have taken Texas Instruments into a field quite different from the standard consumer electronics in which it started.

A third TI speaking toy, Touch & Tell, is perhaps more recreational than educational. It makes use of a number of plastic overlays, each printed with a pattern or picture and uniquely identified by a magnetic encoding. When the child touches an area of the picture, Touch & Tell identifies the selected object audibly.

While synthesised speech is by far the most sophisticated computing technique used by toy and games makers, the most popular application is for small versions of some of the most popular arcade games. There are perhaps as many varieties of this sort of game as there are arcade games proper. Another area where the microcomputer has made an impact on the toy market is in self-guided cars and trucks. Perhaps the best known is the Big Trak, which is programmed by entering instructions on a keypad mounted on its upper surface. The toy resembles a turtle (see page 176), and can also be controlled from a microcomputer, by way of its parallel port.

Other microprocessor-based toys include: Simon, which asks the child to repeat a random sequence of musical notes and flashing lights; Playskool's Maximus, an arithmetic trainer similar to Little Professor; and a variety of robots. Toys for older children (and adults) include: Electroni-Kit, Mykit Systems and Radionics which, as their names suggest, are electronic construction kits that use encapsulated components that can be plugged into a baseboard to make up a variety of simple devices.

Electroni-Kit
As its name implies, Electroni-kit is a construction kit that is used to create a variety of electronic devices, such as transistor radios, amplifiers and so on. Its components are encapsulated in clear plastic, and are plugged into a baseboard (following schematic diagrams supplied with the kit) to build up the desired result. The most sophisticated kit in the range includes the components for a rudimentary microcomputer, which is designed to teach very simple machine code operations. But with only 96 bytes of memory it can hardly be called a home computer

IAN McKINNELL

COURTESY OF PERSONAL COMPUTER WORLD