

Eye Strain

Some adult workers staring at computer screens do suffer from eye-strain and fatigue, but children don't have long enough concentration spans for this to become a problem. The problem for adults seems to be 'accommodative lock', a phenomenon in which the eye gets fixed at one focal length and takes a time to re-adjust. If you think that your child might be so keen on computing that he or she will stare solidly at the screen for long periods, problems can be avoided by ensuring that a short break is taken every 15 minutes.

One technical problem about old domestic televisions needs to be mentioned. It has been found that a few colour televisions made before 1970 are capable of emitting a low radiation dose when used regularly for close-up work that could be dangerous. If you are considering using an old colour television set for computing purposes it is worth ensuring that it was made after 1970

enough, they may then be left to use it, although this depends on their reading skill and ability to provide answers to the program's questions. Hardware requirements are pretty simple. A microcomputer has to be robust: children *do* hit the keyboard with clenched fists, they pull at the electrical connections and they constantly touch and prod the screen. If a system is flimsy, poorly connected or hard to use, it will fail to interest a young child. Some experts consider that a computer keyboard for a very young child must have large, clearly defined keys. But as children's motor movements become fully developed (usually by the age of seven), they are capable of dealing with 'fiddly' keyboards that would seem difficult even to adults. The touch-sensitive keyboards found on the cheapest Sinclair microcomputers are not really suitable for children under nine or ten, although the larger versions of the printed keyboard, such as the one on the Philips Videopac 7000, are suitable for four-year-olds. It is a question of size and ease of use.

Young Programmers

Software choice is more difficult for young children. If you intend using a cassette-based system you will have to supervise all loading and storage. If your system is disk-based you will find that young children are able to handle floppy disks very well. One of the best forms of program storage for the very young, those under seven, is the ROM cartridge, a plastic case that contains a chip with an electrically-embedded program. The disadvantage of such a system is that it doesn't allow the user to store any work, but cartridges are virtually indestructible and allow young children to use computers without any supervision.

If you make the decision to buy a computer specifically for your children, do try to provide it with a permanent home. Moving a computer from room to room, with the connection and disconnection of leads that involves, won't do a computer

any harm (unless you drop it), but it is likely to be skipped by the child in favour of something less tedious — like watching television.

The Ideal Work Station

In an ideal world, the child's computer should be set up in his or her bedroom complete with its own television screen. If you are serious about your children developing a positive attitude to computers, consider setting up a work-station in one of their bedrooms and supplying a second-hand television exclusively for their use. (Put the computer centre in the oldest child's bedroom. He or she may want to use it after the others have gone to bed.) Old black-and-white televisions can be purchased very cheaply and, provided there is a facility for channel tuning, they are perfectly capable of displaying computer information. There is a great deal of argument about the value of colour in computing for young children; some experts say it is vital, others consider it a bonus, but unnecessary. It seems obvious that if the choice is between a permanent connection to a black-and-white television set in a bedroom, or a temporary connection to the family's colour television, the permanent set-up is infinitely more desirable.

If you are able to set up a permanent, or semi-permanent, computer work/play centre in one of the children's bedrooms, it is a good idea to arrange things so that the computer can be removed without disturbing the set-up. When organising the computer table or bench, tape down all the leads and connections so that the children won't accidentally pull out a lead. (Ensure that all mains connectors are safely protected and taped down in such a way that they cannot become unsafe. And don't supply an aerial connection to the television, otherwise the late film may 'accidentally' appear on the screen after bed time.) It is important that the microcomputer is stable and doesn't bounce around. Sinclair can supply a tray that holds its very light Spectrum computer steady and, if your children are boisterous, you might consider building a clamp or other means of holding the microcomputer down. Of course, the computer you buy for your children will also be of use to the whole family so, if the family is sharing one computer, it is worthwhile buying duplicate leads and (if necessary) a second mains supply pack for the computer. These are relatively inexpensive and they will allow you to say a firm good night to your kids, unplug the computer and cassette recorder (or disk drive) from their bedroom centre (leaving all leads taped in place) and scuttle downstairs to plug them into your own television using your duplicate leads. If a computer has to be set up and taken down in the living room whenever your children wish to use it, the fuss of lead connections and the possible disputes with members of the family who would prefer to watch an early-evening soap opera may, unless carefully controlled, kill the idea of computing as a leisure activity for children even before it begins.

The Big Trak

It looks like a toy tank, but in fact it's a powerful learning tool. The Big Trak is a computer-based programmable toy that allows a child to plan out precisely what moves he or she wants the tank to do. The tank can remember up to 16 steps and may be programmed to wander from room to room around the house before returning to base. The child has fun, but the computer is helping him or her to explore the physical world and work out the individual steps necessary in a simple computer program. Despite its aggressive looks, girls love Big Trak as much as boys do!

