PLANE 0

PLANE 1

PLANE 2

PLANE 3

PLANE 4

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because each one resides on what is known as a 'sprite plane'. A screenful of graphics is thus built up from a number of planes stacked behind each other, though the naked eye perceives them as one screen.

A three-dimensional effect can be achieved as sprites can pass behind or in front of one another. Sprites are numbered from zero to the maximum number available, which is, for example, 32 on the Sord M5. If two sprites overlap, the one with the lower number will be displayed. Therefore by careful ordering of your sprites, a three-dimensional effect can be easily obtained, such as a train passing a tree, obscuring it as it passes by. Alternatively, the train itself may be partially blocked out as it passes a house with a lower number.

Using the colour range that your computer offers, each sprite can be coloured individually. Sometimes a sprite can be expanded or shrunk, again by changing the contents of a memory location.

Obviously, sprites really show their worth in games programs, and a particularly useful feature

is known as 'collision detection'. When two or more sprites overlap (for example, when your missile connects with the enemy spaceship) the system can be programmed to jump to another part of the program to create the graphics for an explosion, and increase the player's score.

Before using sprites you have to create them in much the same way as you would design a new character. The letters of the alphabet, numbers, and special graphics symbols are stored inside the computer in a chip known as a 'character generator'.

Characters are, as we mentioned earlier in the course, generally built up on an eight by eight matrix of dots, or 'pixels'. The maximum size of a sprite varies from machine to machine, but will generally be several characters wide and deep. On the Commodore 64, for example, the maximum is 24 pixels wide by 21 pixels high.

The best way to construct a sprite is to draw up a

On Different Planes
Using sprite graphics, a complex image can be built up by placing component parts on different planes, which are stacked behind each other Though they are viewed or the computer's screen as just one plane, the tremendous advantage of this system is that objects on different planes can move completely independently of each other. Planes are assigned an order of priority by the programmer, so that when two sprites overlap on the screen, the one with the higher priority is shown in front of the other — resulting in a three-dimensional effect.

Most computers with sprite graphics can also arrange for the program to be interrupted, whenever two sprites come into contact, to create the necessary explosion, or increase the player's score