Memory Management

One of the major complaints about the original hp 38g was its memory - mainly the lack of it at only 23Kb, but also the inability to easily control or manage it. This problem has been addressed on the hp 39gs and hp 40gs in two ways. Both have a very ample amount, just short of 200Kb, and there are very few users who will come close to filling this. Depending on size, there is enough room for at least 40 aplets, 40 pages of notes, or nearly 10,000 data points although not, of course, all at once.

In addition to all this memory, the hp 39gs and hp 40gs supply an easy way to control it through the **MEMORY MANAGER** view. If you press the **MEMORY** key you will see the view shown right. Scrolling through it will show you exactly how the available memory is currently being used. The remaining memory, in Kb, is shown at the top right of the screen. This view gives an overview of the memory. For detailed management the **VIEW** key is provided.

Pressing **VIEW** on any entry will take you a relevent screen in which you can delete entries no longer needed.

For example, with the highlight on *Aplets*, pressing **VIEW** will take you to the **APLET** view (right), where you can choose to delete or reset any aplets no longer required.

As you can see in the screen snapshot above right, my calculator has a number of extra aplets. Two of them, *Statistics2* and *Statistics3* are simply copies of the normal Statistics aplet containing data that I did not want to lose. The top two aplets *Curve Area* and *Coin Tossing* are teaching aplets that I have downloaded from the internet.

If you use teaching aplets that you download from the internet via the Connectivity Kit, or which are supplied to you by your teacher via the infra-red link on an hp 39gs or the cable on an hp 40gs, then you need to bear in mind that most of them have 'helper' programs that aid them in performing their tasks.

```
░░░░PROGRAM CATALOG ░░102K░
.CURVE.SV          .21KB  ▲
.CURVE.GP          .34KB
.CURVE.S           .07KB
.CURVE.TR          .34KB
.CURVE.UR          .30KB  ▼
EDIT│NEW│    │SEND│RECV│RUN
```

In the screens shown right you can see some of the programs which are attached to the two aplets mentioned above. The convention which most programmers follow is to name these 'helper' programs in a way that associates them clearly with the parent aplet. The memory associated with these programs is not included in that shown for the aplet in the **APLET** view but will not usually be a very large amount, as you can see in the examples shown.

```
░░░░PROGRAM CATALOG ░░102K░
.CURVE.FN          .60KB  ▲
.COIN.SV           .17KB
.COIN.S            .23KB
.COIN.SH           .38KB
.COIN.TS           .69KB  ▼
EDIT│NEW│    │SEND│RECV│RUN
```

> **Calculator Tip**
> The reason for this naming convention for 'helper' programs is that when you delete the parent aplet in the **APLET** view the 'helper' programs are NOT automatically deleted with it because they may be shared by other aplets. You must change to the **Program Catalog** view and delete them manually after you have finished with the teaching aplet and deleted it in the **APLET** view. If you don't do this then they will continue to take up memory on the calculator. Even on the hp 39gs and hp 40gs this is not infinite and too many left over programs will eventually cause problems.

As mentioned on the earlier, pressing **VIEW** in the **MEMORY MANAGER** screen takes you to a relevent view showing greater detail. For example, the *Matrices* entry right shows 0.1 Kb in use. Pressing **VIEW** will take you to the **MATRIX CATALOG** view which shows exactly where the memory is being used and allows you to delete any or all of the matrices. Alternatively, you can enter the view in the normal way by pressing **SHIFT 4**.

```
░░░░MEMORY MANAGER ░░103K░
Aplets       9.7KB    4%
Programs    36.2KB   15%
Notes         0KB    <1%
Matrices     .1KB    <1%
Lists         0KB    <1%  ▼
         │    │    │    │VIEW
```
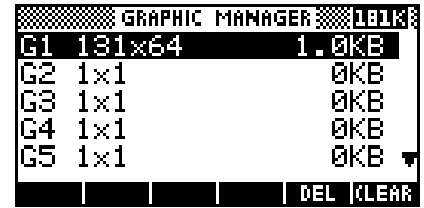
```
░░░░░MATRIX CATALOG ░░103K░
M1 4X4 REAL MATRIX     .13KB
M2 4X1 REAL MATRIX     .04KB
M3 4X1 REAL MATRIX     .04KB
M4 1X1 REAL MATRIX      0KB
M5 1X1 REAL MATRIX      0KB  ▼
EDIT│NEW│    │SEND│RECV│
```

The *History* entry will take you to the **HOME** view, where pressing **SHIFT CLEAR** will clear the History.

There are two views, shown right, for which the only access is via the **MEMORY MANAGER** screen. The first of these, the **GRAPHICS MANAGER**, shows some memory in use on my calculator due to the screen captures I am performing to show you these views. Yours will probably be empty. If you have loaded an aplet from the internet then it may have used a GROB (Graphics Object) to store an image as part of its working.

```
▒▒▒▒ GRAPHIC MANAGER ▒▒▒ 101K▒
G1 181x64          1.0KB
G2 1x1              0KB
G3 1x1              0KB
G4 1x1              0KB
G5 1x1              0KB ▾
            │    │    │ DEL │CLEAR
```

The second view is the **LIBRARY MANAGER**, and this will almost certainly be empty unless you have games loaded. Generally, the only aplets which use libraries are those such as games which are written by expert programmers in machine code in order to make them run as fast as possible. These games, available on the internet, are listed in the **APLET** view along with the normal aplets and when you delete them the associated library *is* automatically deleted with them, unlike the case of the 'helper' programs.

```
Memory: 186080 │ Select:      0
No Entries



VIEW │    │    │    │    │ OK
```

Calculator Tip

1. Because of the amount of memory available on the hp 39gs & hp 40gs, the Memory View is not one that you will normally need to worry about unless you store a truly amazing number of Notes. It is probably of more interest to programmers.

2. As discussed later, most games currently available for the hp 39gs and hp 40gs were originally written for the hp 39g. This can cause problems in two respects:

   • The hp 39g was a much slower calculator and the games may simply run too fast to be playable.

   • Some games were written using programming commands specifically aimed at the hp 39g chip. When these commands execute on an hp 39gs or hp 40gs they may cause the calculator to lock up and/or lose user memory. They should not, however, cause permanent damage.