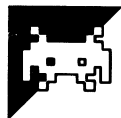


PROGRAMS



Missile Command

by Keith Whitwell

This is the first program we've received for the VZ-200 and it's from someone who's only in grade 8. It is a Basic version of the famous arcade game of the same name and uses the following keys for control of the "cross-hairs":

Y: UP
B: DOWN

G: LEFT
H: RIGHT
F: FIRE
U: ACCELERATE
N: STOP

Other instructions are included in the listing.

```
0 REM MISSILE COMMAND, KEITH WHITWELL, 8F, SPLC, 31/10/83
1 CLS:PRINT "      MISSILE COMMAND" :PRINT
2 PRINT "      BY KEITH WHITWELL, 8F, SPLC." :PRINTTAB(13)"1983"
3 PRINT:PRINT
4 PRINT:INPUT "INSTRUCTIONS":A$:IF LEFT$(A$,1)="Y"
   THEN GOSUB 3000
5 INPUT "LEVEL OF SKILL(1 (V.HARD)-4)":LS:IF LS>4 OR LS<1 THEN 5
6 FOR I=1 TO 4:C(I)=1:NEXT
8 GOSUB 2000
9 A=63:K=32:S=0
10 MODE(1):COLOR 4,1
11 MI=0
15 Y=50
16 Q=0
```

```

17 SC=SC+S:S=0
18 CN=0
20 FOR X=1 TO 127:SET(X,INT(Y)):Y=Y+.03:IF INT(Y)>0
    THEN GOSUB 1000
21 Q=INT(Y):NEXT
30 SN=RND(5)+5
31 COLOR 6:SET(SN,62):COLOR 7:SET(SC,62)
90 X=A:Y=K
100 A$=INKEY$
101 IF A$="Y" THEN N=-1:M=0
102 IF A$="B" THEN N=1:M=0
103 IF A$="H" THEN M=1:N=0
104 IF A$="G" THEN M=-1:N=0
105 IF A$="F" THEN COLOR 3:GOSUB 1100
106 IF A$="U" THEN GOSUB 1300
107 IF A$="N" THEN N=0:M=0
110 IF X+M>120 OR Y+N>48 OR Y+N<5 OR X+M<5 THEN N=0:M=0
120 COLOR 1:GOSUB 1050:X=X+M:Y=Y+N:COLOR 3:GOSUB 1050
130 COLOR 4:FOR I=1 TO 4:Y(I)=Y(I)+1:J=RND(2)-2:
    IF J=0 THEN J=1
131 IF X(I)+J<5 OR X(I)+J>120 THEN J=-J
132 X(I)=X(I)+J
140 P=POINT(X(I),Y(I)):IF P=4 THEN COLOR 4:GOSUB 1200
141 IF P=2 THEN COLOR 4:GOSUB 1500
150 COLOR 3:SET(X(I),Y(I)):COLOR 4
160 NEXT
300 GOTO 100
1000 DATA 1,18,1,1,13,2,15,17,2,1,13,3,16,16,3,1,7,4,9,
    12,4,4,7,5
1001 DATA 9,12,5,4,7,6,9,12,6,5,6,7,10,11,7,10,11,8
1010 CN=CN+1:IF C(CN)=0 THEN RETURN ELSE SC=SC+10
1011 COLOR 6:FOR I=1 TO 14:READ R,T,V
1020 FOR H=R TO T:SET(X+H,Y-V):NEXT:RESTORE:COLOR 4:RETURN
1050 FOR H=-1 TO 1:SET(X+H,Y+1):SET(X+H,Y-1):NEXT
1051 SET(X,Y-1):SET(X,Y+1)
1052 RETURN
1100 REM
1101 FOR I=1 TO 4:IF X(I)<X+LS AND X(I)>X-LS THEN 1103
1102 NEXT
1103 IF Y(I)<Y+LS AND Y(I)>Y-LS THEN S=S+1:SET(S,62):GOTO 1110
1104 RETURN
1110 IF S=SN THEN A=X:K=Y:GOTO 2200
1200 FOR E=1 TO 5:SET(X(I)-E,Y(I)):SET(X(I)+E,Y(I))
1201 SET(X(I),Y(I)-E):SET(X(I),Y(I)+E):NEXT
1210 X(I)=RND(110)+6:Y(I)=6
1300 IF M=-1 THEN M=4
1320 IF M=1 THEN M=-4
1350 IF N=-1 THEN N=4
1360 IF N=1 THEN N=-4
1390 RETURN
1500 IF X(I)<20 THEN C(1)=0
1501 IF X(I)>33 AND X(I)<53 THEN C(2)=0
1502 IF X(I)>66 AND X(I)<86 THEN C(3)=0
1503 IF X(I)>100 THEN C(4)=0
1510 FOR C=1 TO 4:IF C(C)=0 THEN F=F+1
1511 NEXT
1520 IF F=4 THEN GOSUB 1200:GOTO 2100
1530 F=0:GOTO 1200
2000 FOR I=1 TO 4:X(I)=RND(110)+5:Y(I)=RND(5)+6:NEXT
2001 RETURN
2100 FOR F=1 TO 30:X(I)=RND(100)+10:Y(I)=RND(40)+9:GOSUB
    1200:NEXT
2110 SC=SC+S
2111 FOR I=1 TO 1000:NEXT:CLS:PRINT#64,"SC=SC+S"
2112 IF SC>HS THEN PRINT"YOU ARE DEAD":HS=SC
2113 PRINT:PRINT"SC=SC+S"
2120 IF INKEY$="S" THEN 1
2121 GOTO 2120
2200 FOR Q=1 TO SL-1
2210 FOR I=1 TO 4:IF C(I)=0 THEN C(I)=1:I=9
2220 NEXT:GOTO 10
3000 CLS:PRINT"SC=SC+S"
3010 PRINT:PRINT"YOU COMMAND OUR ANTI-MISSILE
    MISSILES.YOUR"
3015 PRINT"JOB IS TO KEEP THE MISSILES FROM LANDING ON THE "
3020 PRINT"CITIES BY MOVING YOUR SIGHTS ONTO THE HEAD OF "
3025 PRINT"ONE OF THE FOUR MISSILES COMING DOWN AND PRESS "
3030 PRINT"'F', WHICH FIRES YOUR MISSILE.
    IF IT HITS, THEN "
3035 PRINT"THE MISSILE WILL EXPLODE."

```

```

3040 PRINT:INPUT"HIT RETURN";A$
3045 CLS:PRINT"          MISSILES DESTROYED":PRINT
3050 PRINT"    Y  100"
3051 PRINT"    B  100000"
3052 PRINT"    G  1000000"
3053 PRINT"    H  10000000"
3054 PRINT:PRINT"    F  100000000"
3055 PRINT"    U  1000000000000"
3056 PRINT"    N  10000000000000"
3060 PRINT:INPUT"HIT RETURN";A$
3065 CLS:PRINT"          MISSILES DESTROYED":PRINT
3070 PRINT"SCORING IS:"
3071 PRINT"    1 POINT PER MISSILE DESTROYED"
3072 PRINT"    10 POINTS PER CITY NOT BLOWN UP"
3075 PRINT:PRINT"YOU WILL GET EXTRA CITIES EVERY"
3076 PRINT"SCREEN, THE NUMBER DEPENDS ON  THE LEVEL OF SKILL."
3080 PRINT:PRINT"THE GAME ENDS WHEN ALL OF YOUR  CITIES ARE";
3081 PRINT" DESTROYED"
3090 PRINT:INPUT"HIT RETURN";A$
3091 RETURN

```



New 'Bee Screen

by David Morrison

This is a novel idea and probably best explained by the author, so we'll reprint the letter accompanying his program listing:

With many enquiries as to whether the standard MicroBee 16k can be converted to 24 lines x 80 characters, without hardware modifications, led me to write a program. I wanted to add a command to Basic 5.10 that would convert the screen format. Unfortunately you cannot get 80 character long lines but you can add 10 extra lines giving a 26 x 64 format.

After hours of decoding the Basic eproms, the following program emerged that uses the NET command from Basic to convert the screens format, just like HIRES, LORES etc. Basic will then use the full 26 lines in listings runs etc, all as if there were 16 lines. A few things could not be changed like the CLS command which will only clear the top 16 lines so CHR\$(12) needs to be PRINTed to clear the full screen. Also the CURS command cannot move the cursor to the bottom 10 lines so, if necessary, its position can be POKEd into location 10BH and 10CH, (the LSB and MSB of the cursor respectively).

The program can be broken into three main parts:

1. Video Driver — acts like the normal Basic 5.10 video driver that processes control codes, displays characters etc, except it can handle 16 or 26 lines in scrolling, clearing and so on.

2. Net Command — adjusts the 6545 registers for 26 lines, and creates smaller ASCII characters for the PCG from the Character ROMs.

3. Keyboard Driver — checks to see if the 26 lines have been "turned off" and if so resets the 6545 registers. The keyboard driver was modified because it was the only way to keep checking if HIRES, LORES, NORMAL etc had been executed (i.e. the keyboard is always scanned even if a program is running).

This program can run on 16k or 32k MicroBees with Basic 5.10. To run on other versions of Basic for the Microbee it may need modifications because it calls routines in the middle of the EPROMs from lines 710, 1060, 1410, 1650, 2640 and 2810 in the source listing.

Note that once the Basic program has been loaded and run it can be cleared by typing NEW. The 26 line option will still remain in the MicroBee even after a warm reset. To get rid of the NET function you need to cold start the Microbee by ESC and RESET.

```

00100 REM **** CHANGE SCREEN TO 26x16 FORMAT ****
00110 REM
00120 REM To change format use the NET command from BASIC.
00130 REM It may be used in the immediate mode or in a program,
00140 REM as long as no other commands follow it on the same
00150 REM program line. To return to 16x64 use the NORMAL
00160 REM command.
00170 REM
00180 C=0:PRINT"Storing program into memory."
00190 FOR A=12288 TO 12777:READ B:C=C+B:POKE A,B:NEXT A

```

```

00200 READ B:IF B<>C THEN PRINT"Checksum error.":END
00210 POKE 172,25:POKE 173,49
00220 POKE 178,0:POKE 179,48
00230 POKE 195,49:POKE 194,177
00240 CLS:PRINT:NET
00250 PRINT"Screen is now in 26x64 format."
00260 END
01000 DATA 245,197,213,229,71,42,11,1,124,254,240,218,201,48
01010 DATA 254,248,210,201,48,58,24,49,254,128,40,6,124,254
01020 DATA 244,210,201,48,58,13,1,183,194,232,48,120,254,127
01030 DATA 202,186,48,254,32,48,48,254,8,202,178,48,254,10,202
01040 DATA 172,48,254,13,202,195,48,254,12,202,201,48,254,14
01050 DATA 40,31,254,15,40,86,254,7,202,219,48,254,27,32,3,50
01060 DATA 13,1,205,142,167,225,209,193,241,201,58,229,0,230
01070 DATA 128,168,119,35,58,24,49,254,128,124,40,22,254,244
01080 DATA 194,121,166,229,33,64,240,17,0,240,1,192,3,237,176
01090 DATA 33,192,243,24,24,254,246,56,206,125,254,128,56,201
01100 DATA 229,33,64,240,17,0,240,1,64,6,237,176,33,64,246,205
01110 DATA 134,167,225,17,192,255,25,62,239,188,32,173,17,64
01120 DATA 0,25,24,183,43,203,100,32,162,35,24,159,43,203,100
01130 DATA 40,248,54,32,24,150,62,192,165,111,24,144,33,0,240
01140 DATA 229,17,1,240,1,127,6,54,32,237,176,225,195,89,48
01150 DATA 229,33,100,0,6,68,205,95,167,225,195,89,48,175,50
01160 DATA 13,1,229,33,217,0,120,203,175,254,90,40,19,254,87
01170 DATA 40,18,33,212,0,254,65,40,11,254,83,40,4,225,195,39
01180 DATA 48,53,24,1,52,33,225,0,205,167,133,225,195,89,48
01190 DATA 0,217,8,58,24,49,254,128,40,103,33,0,240,17,1,240
01200 DATA 1,127,6,54,32,237,176,33,0,248,17,1,248,1,0,8,54
01210 DATA 0,237,176,62,1,211,11,33,0,248,17,3,240,14,3,6,3
01220 DATA 26,119,19,35,16,250,19,13,32,244,26,119,19,19,19
01230 DATA 19,1,7,0,9,124,181,32,228,175,211,11,62,127,50,69
01240 DATA 251,6,5,33,51,255,17,148,49,26,119,19,35,16,250,1
01250 DATA 153,49,17,165,49,205,209,49,62,128,50,229,0,50,24
01260 DATA 49,217,26,254,13,40,3,19,24,248,8,201,62,64,62,1
01270 DATA 62,95,64,75,55,30,3,26,28,72,9,105,9,95,64,76,55
01280 DATA 18,9,16,18,72,15,111,15,217,58,24,49,254,128,32,20
01290 DATA 58,229,0,254,128,40,13,175,50,24,49,17,153,49,1,165
01300 DATA 49,205,209,49,217,195,233,163,33,210,0,62,12,245
01310 DATA 126,18,10,119,35,19,3,241,61,32,244,33,225,0,205
01320 DATA 167,133,201,201
01330 DATA -14283

```



Road Rally

by Martin Scragg

Although the idea of a racing car type program is not new, this version contains a machine code subroutine that scrolls down so as to make it more like the arcade version. The program also contains packed strings so that initialisation time is reduced after the program is first run and saved.

The strings are packed by the subroutine starting at line 10000. The string 'A' is the machine code subroutine to scroll the screen down, the rest are for graphics used in the title and in the program.

First type in the program as listed (REM statements can be removed as they only indicate what the various parts do) then save the program. Next run the program and wait for the title to appear, press shift-break to stop the program then delete lines 10010 to 10170 and alter the end of line 10000 to read 10000
 LS=PEEK (VARPTR(A) + 1)
 :MS=PEEK(VARPTR(A) + 2 : POKE 16526,LS:POKE16527,MS:RETURN then save the program.

Line 10 can be left out if you do not wish the break key to function as a shift-

break. Line 10000 is the only line that needs to be altered for disk users. People without joysticks can delete the reference to 'J' in lines 520, 530 and 540. The program with REM statements and data fits into approximately 5.5k, without REMs and with the strings packed and data deleted the program will fit into approximately 3.5k. Full instructions are included in the program.

The program is listed with 64 characters per column to make it easier to type in and correct mistakes. Note that the string 'T\$(0)' contains 40 spaces.

```

0 REM *****
1 REM *          ROAD RALLY          *
2 REM *  WRITTEN BY M.SCRAGG.  1983.  *
3 REM *   FOR A SYSTEM-80 / TRS-80.   *
4 REM *****
5 REM
6 REM SET UP VARIABLES AND CHANGE BREAK TO WORK AS SHIFT-BREAK.
7 REM NUMBERS IN QUOTES ARE THE NUMBER OF SPACES IN THEM.
8 REM
10 POKE16396,165
20 CLEAR300:DEFSTRA-F:DEFINTG-Z
30 A="      12      ":B="BONUS":C="      16      ":D="      13
   ":E="  4 ":F=" ROAD NARROWS "
40 T$(0)="
50 T$(1)="      23      "
60 T$(2)="
70 T$(3)="
80 T$(4)="
90 T$(5)="
100 T$(6)="
101 REM
102 REM SCROLL TITLES DOWN AND WAIT FOR INPUT
103 REM
110 CLS:GOSUB10000
120 PRINT@18,"WRITTEN BY M.SCRAGG.  1983.";:Z=USR(0)
130 PRINT@18,T$(0);:FORX=1TO3:Z=USR(0):NEXT
140 FORX=1TO3:PRINT@20,T$(X);:Z=USR(0):NEXT
150 PRINT@20,T$(0);:Z=USR(0)
160 FORX=4TO6:PRINT@20,T$(X);:Z=USR(0):NEXT
170 PRINT@20,T$(0);:FORX=1TO3:Z=USR(0):NEXT
180 FORLL=1TO50
190 PRINT@70,"PRESS < NEW LINE > TO PLAY, < I > FOR INSTRUCTIONS
   .";
200 I#=INKEY$:IFI#="I"THEN260ELSEIFI#=CHR$(13)THENSC=0:NC=5:GOTO
   380
210 PRINT@76,"      ";:PRINT@98,"      ";:FORTD=1TO70:NEXT
220 PRINT@76,"< NEW LINE >";:PRINT@98,"< I >";:FORTD=1TO70:NEXT
    
```

PROGRAMS

```
230 NEXTLL
231 REM
232 REM IF KEY NOT PRESSED IN TIME LIMIT THEN SCROLL TITLE.
233 REM
240 FORX=1TO2:Z=USR(0):FORTD=1TO30:NEXT:NEXT
250 GOTO120
251 REM
252 REM PRINT INSTRUCTIONS
253 REM
260 CLS:PRINT@21,"--< INSTRUCTIONS >--":PRINT
270 PRINT"  IN THIS GAME YOU CONTROL THE RACING CAR USING EITHE
R THE LEFTAND RIGHT ARROW KEYS TO MOVE LEFT AND RIGHT RESPECTIVE
LY OR THE JOYSTICK FOR LEFT AND RIGHT MOVEMENT.":PRINT
280 PRINT"  THE OBJECT OF THE GAME IS TO KEEP THE RACING CAR TR
AVELLING FOR AS LONG AS POSSIBLE WITHOUT RUNNING OFF THE ROAD O
R CRASHINGINTO ROAD BLOCKS THAT ARE PLACED AT RANDOM ALONG THE R
OAD.":PRINT
290 PRINT"  THE ROAD WINDS FROM SIDE TO SIDE AND WILL BECOME NA
RROWER AS YOU TRAVEL FURTHER ALONG IT UNTIL IT BECOMES SLIGHTLY
WIDER THAN THE RACING CAR.":PRINT
300 PRINT@914,"PRESS ANY KEY TO CONTINUE";:I$=INKEY$
310 IFINKEY$=""THEN310
320 CLS:PRINT@21,"--< INSTRUCTIONS >--":PRINT
330 PRINT"  POINTS ARE AWARDED FOR DISTANCE TRAVELED AND BONUS
POINTS FORCOMPLETING A COURSE.":PRINT
340 PRINT"  YOU START THE GAME WITH FIVE CARS. RUNNING INTO A
ROADBLOCK OR RUNNING OFF THE ROAD WILL COST YOU A CAR.":PRINT
350 PRINT"  AN EXTRA CAR WILL BE AWARDED AT THE SUCCESSFUL COMP
LETION OF EVERY COURSE.":I$=INKEY$
360 PRINT@912,"PRESS ANY KEY TO BEGIN PLAYING";
370 IFINKEY$=""THEN370ELSESC=0:NC=5
371 REM
372 REM START OF ACTUAL PROGRAM
373 REM
380 L1=20
390 FORT1=10TO100STEP10
400 CLS
410 P=909:L=74:R=L+I:S=15360
420 FORI=L1TO6STEP-2
430 FORT=1TOT1
431 REM
432 REM CHOOSE DIRECTION FOR ROAD TO WIND
433 REM
440 W=RND(3)-2:FORQW=1TORND(5)+5
450 L=L+W:IFL<67THENL=67
460 IFL+I>125THENL=L-1
470 R=L+I
471 REM
472 REM PICK WHICH SIDE OF THE ROAD FOR A ROADBLOCK AND IF ONE
473 REM CAN BE DRAWN YET
474 REM
480 Q=RND(2):IFQ=1THENQ=-5
490 IFRND(3)=3ANDI>12ANDRB<0THENPRINT@(L+I/2)+Q,E;:RB=8
500 RB=RB-1
501 REM
```

PROGRAMS

```
502 REM PRINT GRASS AND CENTRE STRIP
503 REM
510 PRINT@64,STRING$(L-64,153);:PRINT@L+I/2,"!";:PRINT@R,STRING$(
(127-R,166);:Z=USR(0):PRINT@P,C;

511 REM
512 REM TEST KEYBOARD AND JOYSTICK FOR INPUT
513 REM
520 K=PEEK(14400):J=255-INP(127)
530 IFKAND32ORJAND4THENP=P-1:IFP<900THENP=900
540 IFKAND64ORJAND8THENP=P+1:IFP>955THENP=955
550 IFPEEK(S+P-64)>128ORPEEK(S+P-61)>128THEN630
560 SC=SC+1:NEXTQW:NEXTT
570 IFR>110THENPRINT@134,F;ELSEPRINT@174,F;
580 SC=SC+10:NEXTI

581 REM
582 REM END OF COURSE
583 REM
590 FORO=1TO20:PRINT@25,B;:FORX=1TO70:NEXT:PRINT@25,"      ";;FOR
X=1TO70:NEXT:NEXT

600 SC=SC+100:NC=NC+1:L1=L1-2:IFL1<6THENL1=6
610 NEXTT1
620 GOTO380
621 REM
622 REM CAR CRASHED, PRINT SCORE AND CARS REMAINING
623 REM
630 PRINT@P,D;
640 FORX=1TO300:NEXT
650 P=L+I/2+832
660 NC=NC-1:IFNC=0THEN680

670 CLS:PRINT@400,"YOU HAVE"NC"CAR(S) REMAINING.";;PRINT@470,"YO
UR SCORE IS"SC;:FORX=1TO1200:NEXT:CLS:GOTO430
671 REM
672 REM GAME OVER MESSAGE
673 REM
680 G$="GAME OVER":PP=25:FORX=1TO9:PRINT@PP,X,MID$(G$,X,1);:FORT
D=1TO80:NEXT:NEXT
690 FORZ=1TO1000:NEXT

691 REM
692 REM TEST FOR HIGHEST SCORE AND GET NAME IF SO
693 REM

700 IFSC>HSTHENHS=SC:CLS:PRINT@395,;:INPUT"ENTER YOUR NAME FOR H
IGHTEST SCORE ";H$

710 IFH$=""THENH$="????"
711 REM
```

```

711 REM
712 REM PRINT SCORE, HIGHEST SCORE AND CHAMPIONS NAME
713 REM
720 CLS:PRINT@340,"YOUR SCORE WAS"SC:PRINT@446+((64-(LEN(H$)+25)
)/2),"HIGHEST SCORE IS"HS"BY "H$:FORTD=1TO2000:NEXT
730 GOTO110
801 REM
802 REM SUBROUTINE TO PACK STRINGS SO THAT LESS TIME IS SPENT
803 REM SETTING UP THE PROGRAM WHEN IT IS RUN.
804 REM
805 REM THE STRING 'A' CONTAINS THE SUBROUTINE THAT SCROLLS
806 REM THE SCREEN DOWN.
807 REM
901 REM AFTER RUNNING THIS PROGRAM PRESS SHIFT-BREAK TO STOP
902 REM IT, THEN ALTER LINE 10000 TO READ
903 REM '10000 LS=PEEK(VARPTR(A)+1):MS=PEEK(VARPTR(A)+2):POKE
904 REM 16526,LS:POKE16527,MS:RETURN'
905 REM
10000 LS=PEEK(VARPTR(A)+1):MS=PEEK(VARPTR(A)+2):POKE16526,LS:POK
E16527,MS:L=LS+256*MS

10010 FORI=0TO11:READN:POKEL+I,N:NEXT
10020 L=PEEK(VARPTR(C)+1)+256*PEEK(VARPTR(C)+2):FORI=0TO15:READN
:POKEL+I,N:NEXT
10030 L=PEEK(VARPTR(D)+1)+256*PEEK(VARPTR(D)+2):FORI=0TO12:READN
:POKEL+I,N:NEXT
10040 L=PEEK(VARPTR(E)+1)+256*PEEK(VARPTR(E)+2):FORI=0TO3:READN:
POKEL+I,N:NEXT
10050 FORX=1TO6
10060 L=PEEK(VARPTR(T$(X))+1)+256*PEEK(VARPTR(T$(X))+2):FORI=0TO
22:READN:POKEL+I,N:NEXT

10070 NEXT:RETURN
10080 DATA33,191,63,17,255,63,1,192,3,237,184,201
10090 DATA140,191,191,140,26,8,8,8,8,8,32,140,189,190,140,32
10100 DATA176,180,189,140,26,8,8,8,8,140,183,158,140
10110 DATA186,131,131,181
10120 DATA191,149,130,175,180,32,191,149,32,170,191,32,191,189,3
2,170,191,148,32,170,191,149,32
10130 DATA191,189,190,159,129,32,191,189,188,190,191,32,191,149,
32,170,191,32,32,170,191,149,32
10140 DATA191,159,143,191,180,32,160,190,143,189,144,32,191,149,
32,170,191,32,139,189,176,190,135
10150 DATA191,149,130,175,180,32,130,175,188,159,129,32,191,149,
32,170,191,32,191,189,188,159,129
10160 DATA191,189,190,159,129,32,191,149,32,170,191,32,191,189,1
88,190,191,32,191,149,32,170,191
10170 DATA191,159,143,191,180,32,160,190,143,189,144,32,160,190,
143,189,144,32,191,159,143,189,144

```

Microbee

GUESS3

The object of this game is to guess a three-letter word chosen at random by the computer. The game is over when you guess the word, or after 10 unsuccessful attempts. Guesses are checked by the computer and the following codes are displayed:

(Y) — A letter is in the correct position.
(N) — A letter is in the wrong position.
(-) — A letter is not correct.

The program's initial dictionary consists of 50 words, but many more could be added — the only restriction is the amount of memory available. Also note all words must contain three different letters. To enlarge the program's dictionary you simply add DATA statements containing the new words to the end of the program. You will also need to change the randomising number in line 210.

Lonnie Riley,
Banyo, QLD.

```
00100 REM ***** Guess a 3 letter word *****
00110 CLEAR : DIM W1(3), G1(3) : POKE 257,2
00120 CLS : LORES : C=0 : H=0 : T=0
00130 PLOT 0,0 TO 0,47 TO 64,47 TO 64,0 TO 0,0 : PLOT 47,0 TO 47,40
00140 CURS 72 : PRINT "G u e s s - 3" : PLOT 0,40 TO 64,40
00150 FOR X=257 TO 833 STEP 64 : CURS X : Y=X/64-3 : IF Y<10 THEN PRINT " ";Y;".
" ELSE PRINT Y;".
00160 NEXT X
00170 NORMAL
00180 CURS 38 : PRINT "(Y) Correct Place" : CURS 102 : PRINT "(N) Wrong Place"
: CURS 166 : PRINT "(-) No Match"
00190 REM ***** Computer chooses word *****
00200 RESTORE 590
00210 Y=INT(RND*50)+1
00220 FOR X=1 TO Y : READ W1$ : NEXT X
00230 REM ***** Input a guess *****
00240 CURS 290 : PRINT "What is your guess : "
00250 PLAY1 : CURS 354 : PRINT [A18 32]
00260 POKE 220,13 : CURS 354 : INPUT G1$
00270 REM ***** Check for 3 unique letters *****
00280 IF LEN(G1$) <> 3 THEN CURS 418 : PRINT "Please enter a 3 letter word!" : G
OTO 240
00290 IF G1$(;1,1) = G1$(;2,2) THEN 330
00300 IF G1$(;1,1) = G1$(;3,3) THEN 330
00310 IF G1$(;2,2) = G1$(;3,3) THEN 330
00320 GOTO 350
00330 CURS 418 : PRINT "No two letters are the same!" : GOTO 240
00340 REM ***** Compare guess with computers word *****
00350 C=0 : H=0 : T=T+1 : CURS 418 : PRINT [A29 32]
00360 FOR X=1 TO 3
00370 FOR Y=1 TO 3
00380 IF G1$(;X,X) <> W1$(;Y,Y) THEN 430
00390 IF X=Y THEN 420
00400 H=H+1
00410 GOTO 430
00420 C=C+1
00430 NEXT Y
00440 NEXT X
00450 X=201+T*64
00460 CURS 219+64*T : PRINT G1$
00470 IF C>0 THEN FOR Y=1 TO C : CURS X+(Y-1)*3 : PRINT "Y" : NEXT Y
00480 X=201+T*64+C*3
00490 IF H>0 THEN FOR Y=1 TO H : CURS X+(Y-1)*3 : PRINT "N" : NEXT Y
00500 X=201+T*64+(C+H)*3
00510 IF C+H<3 THEN FOR Y=1 TO (3-(C+H)) : CURS X+(Y-1)*3 : PRINT "-" : NEXT Y
00520 IF C=3 THEN CURS 610 : PLAY1;2;3;4 : PRINT "Congratulations!" : CURS 674 :
PRINT "You guessed it!" : GOTO 550
00530 IF T=10 THEN CURS 610 : PRINT "Sorry!" : PLAY4;3;1;3 : CURS 674 : PRINT "T
he word was ";W1$ : GOTO 550
00540 GOTO 240
00550 CURS 930 : PRINT "Play again (Y/N)? "
00560 Z1$=KEY$ : IF Z1$="" THEN 560
00570 IF Z1$<>"Y" AND Z1$<>"N" THEN 550
00580 PRINT Z1$ : IF Z1$="Y" THEN 110 ELSE PRINT "Thanks for playing!" : END
00590 DATA "POT", "PEG", "PAT", "PIN", "PET", "PEN", "PUN", "PUT", "PUB", "POD"
00600 DATA "TUG", "TIN", "TON", "TOP", "TEN", "THE", "THY", "TIC", "TOW", "TRY"
00610 DATA "RUN", "RIM", "RIG", "RAM", "RUT", "RAW", "RIT", "RED", "RAP", "RUB"
00620 DATA "SAT", "SEA", "SAW", "SET", "SAD", "SUN", "SUM", "SIN", "SON", "SOD"
00630 DATA "BET", "BEG", "BED", "BAD", "BAN", "BAT", "BUT", "BUN", "BUG", "BIT"
```

M. Bee Scissors, Rocks and Paper

In the traditional game, the players use their hands to symbolise either a rock, a pair of scissors or a piece of paper. A pair of scissors is dominant over paper because they can cut it, paper is dominant over a rock because it can wrap it and a rock is dominant over scissors because it can make them blunt. The player with the dominant object wins that round.

In this game you play against the computer. Your keys are ; @ and \ for a pair of scissors, a rock and paper respectively. When you press one of those keys your object will appear on the left-hand side of the screen. The computer will then randomly select and print its object.

Tim Cooper
Eastwood NSW

```

00100 POKE 220,39: F1$=CHR(10)+CHR(8)+CHR(
8)+CHR(8): F2$=F1$+CHR(8)+CHR(8)
00110 FOR J=-1520 TO -1425: READ A: POKE J
,A: NEXT J
00120 RESTORE: FOR J=-1377 TO -1424 STEP -
1: READ A: POKE J,A: NEXT J
00130 A1$=KEY: IF A1$("<"|" " AND A1$("<"|" AN
D A1$("<"|" " THEN 130
00140 CLS: PCG: B=INT(SGN(FLT(ASC(A1$)-64)
))+2: C=INT(RND*3)+1: CURS 28,8: ON B GOSUB
B 180,190,200
00150 CURS 33,8: ON C GOSUB 180,190,200
00160 NORMAL:PLAY 0,10
00170 IF C=B THEN 240 ELSE IF C=B+1 OR C=B
-2 THEN 220 ELSE 230
00180 PRINT"'"#" F1$ " )('": RETURN
00190 PRINT"%%&": RETURN
00200 PRINT" " F1$ " ": RETURN
00210 PRINT"\" : /" F2$ "- . -" F2$ "/ ! \"
F2$ [A3 15]; PLAY 0,3: PRINT" ! " F2$
CHR(10) " ! " F2$ [A3 15]; PLAY 0,3: PR
INT" " F1$ " . " F1$ " \\": RETURN
00220 CURS 28,7: GOSUB 210: PRINT"You lose
.": PLAY 16;16;12;9;24;12;9;24: GOTO 130
00230 CURS 33,7: GOSUB 210: PRINT"You win!
": PLAY 16;16;20;23;0;20;23;8: GOTO 130
00240 PRINT\\\\"Tie.": PLAY 8,10: GOTO 130
00250 DATA 0,0,0,0,0,0,0,0,0,0,56,70,129,128
,128,96,31
00260 DATA 0,0,0,0,0,0,0,0,0,0,1,134,152
,224,128
00270 DATA 0,0,0,0,0,0,0,0,7,24,96,128,0,0
,0,0
00280 DATA 0,3,15,15,63,127,127,127,255,25
5,255,255,127,63,31,15
00290 DATA 28,126,254,255,255,255,255,255,
255,255,255,255,255,255,191
00300 DATA 0,0,0,0,0,0,192,240,240,252,252
,254,252,252,240,0

```


Noughts and Crosses

M.Bee

Now you can play the old game of noughts and crosses (Tic Tac Toe) against the computer. It is very easy to play; you specify whether you want to start first or let the computer go first, and then press the keys from 1 to 9 to tell the computer on which square you wish to place your mark (the squares are numbered).

The computer always plays noughts, whether it starts first or not, and will play a near-perfect

game (the best you can hope for is a tie). After you have your turn, the computer waits for about two seconds before going into the 'artificial intelligence' subroutine to work out where it should go. If you press TAB during this time, you will be able to enter the computer's turn instead. This is probably the only way you will be able to beat it.

Artificial Intelligence

When working out where it

wants to go, the computer goes through a series of logical steps or rules:

0 - If it starts first, it will go into a corner.

1 - If it can win this turn, it will.

2 - If the other player can win next turn, it will block them.

3 - If the centre is free, it will go there.

4 - It checks for two special cases.

5 - If it can go anywhere to simultaneously make 2 potential

lines, where there are two noughts in line and the third square is free, it will go there. If the other player can do this, it will try to stop them by going there instead.

6 - It will try to make one potential line.

7 - It will try to go in a corner square.

8 - It will go in an edge square.

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```
00100 REM *** SUPERVISOR ***
00110 CLS: HIRES: PRINT TAB(20)"NOUGHTS &
CROSSES"\TAB(32)"by Tim Cooper"
00120 PLOT 205,202 TO 205,52: PLOT 305,202
TO 305,52: PLOT 105,152 TO 405,152: PLOT
105,102 TO 405,102
00130 FOR R=1 TO 3: FOR S=1 TO 3: CURS S*13
+1,R*3+2: PRINT CHR(R*3+S+45): NEXT S: NEX
T R
00140 DIM E(2,2)
00150 CURS 1,15:PRINT"Do you want to go fi
rst? (Y/N)"
00160 A1$=KEY: IF A1$="Y" OR A1$="y" THEN
170 ELSE IF A1$=CHR(9): U=1 ELSE IF A1$="N
" OR A1$="n" THEN 580 ELSE 160
00170 GOSUB 430: CURS 1,15: PRINT TAB(40):
GOSUB 470: GOSUB [1] 220: GOTO D
00180 FOR R=1 TO 20: A1$=KEY: IF A1$=CHR(9
): U=1 ELSE IF A1$="" THEN NEXT R
00190 ON U+1 GOSUB 600,430
00200 GOSUB 510: GOSUB [1] 220: GOTO D
00210 REM ** CHECK FOR WIN/LOSE/TIE **
00220 VAR (P)
00230 D=0: FOR R=0 TO 2
00240 IF E(0,R)=P AND E(1,R)=P AND E(2,R)=
P THEN NEXT *R 340
00250 IF E(R,0)=P AND E(R,1)=P AND E(R,2)=
P THEN NEXT *R 340
00260 NEXT R
00270 IF E(0,0)=P AND E(1,1)=P AND E(2,2)=
P THEN 340
00280 IF E(0,2)=P AND E(1,1)=P AND E(2,0)=
P THEN 340
00290 FOR R=0 TO 2: FOR S=0 TO 2
00300 IF E(R,S)=0: F=-1
00310 NEXT S: NEXT R
00320 IF F=0: D=410 ELSE LET F=0: IF P: D=
170 ELSE LET D=180
00330 RETURN
00340 IF P: D=380 ELSE LET D=360
00350 RETURN
00360 REM ** COMPUTER LOSES **
00370 CURS 1,15: PRINT"You win.": PLAY 16:
16:20;23;0;20;23;8;0,10: RUN
00380 REM ** COMPUTER WINS **
00390 CURS 1,15: PRINT"I win. ": PLAY 16:
16:12;9;24;12;9;12;0,10: RUN
00400 REM ** TIE **
00410 CURS 1,15: PRINT"Tie.": PLAY 16:16:1
4,2;14,2;0,10: RUN
00420 REM ** INPUT **
00430 CURS 1,15: IF U=1 THEN PRINT"Enter m
y move now": U=0 ELSE PRINT"E
```

```
nter your move now
00440 A1$=KEY: IF A1$="" THEN 440
00450 IF ASC(A1$)>48 AND ASC(A1$)<58: A=IN
T(VAL(A1$)) ELSE 440
00460 GOSUB 560: IF E(X,Y)<>0 THEN PLAY 23
: GOTO 440 ELSE RETURN
00470 REM ** PRINT X **
00480 GOSUB 560: E(X,Y)=1: X=X*100+125: Y=
(2-Y)*50+63
00490 PLOT X,Y TO X+60,Y+30: PLOT X+60,Y T
O X,Y+30
00500 RETURN
00510 REM ** PRINT O **
00520 GOSUB 560: E(X,Y)=-1: X=X*100+155: Y
=(2-Y)*50+77
00530 PLOT X-12,Y+15 TO X-30,Y+6 TO X-30,Y
-6 TO X-12,Y-15 TO X+12,Y-15 TO X+30,Y-6 T
O X+30,Y+6 TO X+12,Y+15 TO X-12,Y+15
00540 RETURN
00550 REM * CONVERT A TO X,Y *
00560 Y=(A-1)/3: X=A-Y*3-1: RETURN
00570 REM ** COMPUTER STARTS FIRST **
00580 A=INT(RND*5)*2+1: IF A=5 THEN 580 EL
SE 200
00590 REM ** COMPUTER'S TURN SUPERVISOR **
00600 A=0:K=0
00610 GOSUB 690: IF A>0 THEN RETURN
00620 GOSUB 710: IF A>0 THEN RETURN
00630 GOSUB 730: IF A>0 THEN RETURN
00640 GOSUB 750: IF A>0 THEN RETURN
00650 GOSUB 820: IF A>0 THEN RETURN
00660 GOSUB 850: IF A>0 THEN RETURN
00670 GOSUB 910: IF A>0 THEN RETURN
00680 GOSUB 940: RETURN
00690 REM * AI STEP 1 *
00700 GOSUB [-1] 960: RETURN
00710 REM * AI STEP 2 *
00720 GOSUB [1] 960: RETURN
00730 REM * AI STEP 3 *
00740 IF E(1,1)=0: A=5: RETURN ELSE RETURN
00750 REM * AI STEP 4 *
00760 IF E(1,1) THEN 790
00770 FOR A=1 TO 9 STEP 2: GOSUB 550: IF E
(X,Y) THEN NEXT *A 780 ELSE NEXT A: A=0: R
ETURN
00780 FOR A=1 TO 9: GOSUB 550: IF E(X,Y)=0
OR A=5 OR A=W*3+V: A=(2-W)*3+(2-V)+1: RET
URN ELSE LET A=0: RETURN
00790 IF E(0,0)=1 AND E(2,2)=1 AND E(0,1)=
0 AND E(1,0)=0 AND E(2,1)=0 AND E(1,2)=0 A
ND E(2,0)=0 AND E(0,2)=0: A=INT(RND*4)*2+2
: RETURN
00800 IF E(2,0)=1 AND E(0,2)=1 AND E(1,0)=
```

```
0 AND E(0,1)=0 AND E(1,2)=0 AND E(2,1)=0 A
ND E(0,0)=0 AND E(2,2)=0: A=INT(RND*4)*2+2
: RETURN
00810 A=0: RETURN
00820 REM * AI STEP 5 *
00830 GOSUB [-1] 1110: IF A>0 THEN RETURN
00840 GOSUB [1] 1110: RETURN
00850 REM * AI STEP 6 *
00860 Q=0: FOR A=2 TO 8 STEP 2: GOSUB 550:
IF E(X,Y)<>0 THEN NEXT A: A=0: GOTO 880
00870 E(X,Y)=-1: Q=A: GOSUB [-1] 960: A=Q:
GOSUB 550: E(X,Y)=0: IF K>0 THEN NEXT *A
900 ELSE NEXT A: A=Q: GOTO 880
00880 FOR A=1 TO 9 STEP 2: GOSUB 550: IF E
(X,Y)<>0 THEN NEXT A: A=0: RETURN
00890 E(X,Y)=-1: Q=A: GOSUB [-1] 960: A=Q:
GOSUB 550: E(X,Y)=0: IF K>0: NEXT *A 900
ELSE NEXT A: A=Q: RETURN
00900 A=Q: RETURN
00910 REM * AI STEP 7 *
00920 FOR R=1 TO 15: A=INT(RND*5)*2+1: GOS
UB 550: IF E(X,Y)=0 THEN NEXT *R 930 ELSE
NEXT R: A=0: RETURN
00930 RETURN
00940 REM * AI STEP 8 *
00950 A=INT(RND*4)*2+2: GOSUB 550: IF E(X,
Y)=0 THEN RETURN ELSE 950
00960 REM CAN SOMEONE WIN NEXT TURN?
00970 VAR(P): K=0: B=0: A=0
00980 FOR R=0 TO 7: GOSUB 1070: G=L: H=M:
I=N
00990 A=L: GOSUB 550: L=E(X,Y)
01000 A=M: GOSUB 550: M=E(X,Y)
01010 A=N: GOSUB 550: N=E(X,Y)
01020 IF L=P AND M=P AND N=0: B=I: K=K+1
01030 IF L=P AND N=P AND M=0: B=H: K=K+1
01040 IF M=P AND N=P AND L=0: B=G: K=K+1
01050 NEXT R: A=B: RETURN
01060 REM FIND L,M & N
01070 IF R=7: L=1: M=5: N=9: RETURN
01080 IF R=6: L=3: M=5: N=7: RETURN
01090 IF R=3: L=R*3+1: M=R*3+2: N=R*3+3: R
ETURN
01100 L=R-2: M=R+1: N=R+4: RETURN
01110 REM CAN SOMEONE MAKE 2 POTENTIAL LIN
ES IN NEXT TURN?
01120 VAR (P): C=0
01130 FOR J=1 TO 9: A=J: GOSUB 550: IF E(X
,Y)<>0 THEN NEXT J: A=0: RETURN
01140 E(X,Y)=P: GOSUB [P] 960: IF K>1: C=J
01150 A=J: GOSUB 550: E(X,Y)=0: NEXT J: A=
C: RETURN
```

Microbee SURROUND

In a recent Pocket Program a contributor made the comment that too many POKEs confuse the Microbee. I thought the same, but I now realise it's the programmer's fault. You need to write correct code, especially when testing screen locations to see if they contain a certain character. An efficient way to do this uses an array to keep tabs on the contents of each location.

Surround is a game in which you move around the screen while the Microbee attempts to surround you. If you press the wrong key or attempt to move into a used position the Microbee has another go.

The best way to get a high score is to stay in one area of the screen as long as possible. The game ends when the Microbee surrounds you on eight sides.

The game could be adapted by adding mazes of increasing difficulty, PCG characters and sound.

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```
00100 REM SURROUND for the MICROBEE
00110 GOSUB 640 :REM instructions start
00120 REM Main Program Begins Here
00130 F#F : F0#E F,7
00140 CURS 960 : PRINT " Score "S;
00150 CURS 980 : PRINT " High Score ";H;" SURROUND";
00160 REM wait for key press
00170 A1#=#KEY : IF A1#="" THEN 170 ELSE F0#E F,32
00180 REM "AND" asc value to obtain upper case
00190 A = ( ASC ( A1# ) AND 95 )
00200 REM get players new position
00210 IF A=72 : P = P - 64
00220 IF A=77 : P = P + 64
00230 IF A=75 : P = P + 1
00240 IF A=74 : P = P - 1
00250 IF A=79 : P = P - 63
00260 IF A=85 : P = P - 65
00270 IF A=78 : P = P + 63
00280 IF A=12 : P = P + 65
00290 REM if position filled, move back & reduce score.
00300 IF PEEK(P)=191 THEN F0#E K,7 : P#K : PLAY 1 : S= S-10: GOTO 340
00310 REM increment score & move to new position
00320 S=S+10 : F0#E F,7 : CURS 960:PRINT " Score "S;
00330 REM computers move
00340 A = INT ( RND * B ) + 1
00350 FOR X = 1 TO A
00360 OUT2,184
00370 FOR G = 1 TO A
00380 OUT2,248
00390 NEXT G
00400 NEXT X
00410 IF Z(A) = 1 THEN 340
00420 IF A=1 :C#P-64 ELSE IF PEEK (P-64) = 191 :Z(1) =1 ELSE LET Z(1)=0
00430 IF A=2 :C#P+64 ELSE IF PEEK (P+64) = 191 :Z(2) =1 ELSE LET Z(2)=0
00440 IF A=3 :C#P-65 ELSE IF PEEK (P-65) = 191 :Z(3) =1 ELSE LET Z(3)=0
00450 IF A=4 :C#P+65 ELSE IF PEEK (P+65) = 191 :Z(4) =1 ELSE LET Z(4)=0
00460 IF A=5 :C#P+1 ELSE IF PEEK (P+1) = 191 :Z(5) =1 ELSE LET Z(5)=0
00470 IF A=6 :C#P-1 ELSE IF PEEK (P-1) = 191 :Z(6) =1 ELSE LET Z(6)=0
00480 IF A=7 :C#P-63 ELSE IF PEEK (P-63) = 191 :Z(7) =1 ELSE LET Z(7)=0
00490 IF A=8 :C#P+63 ELSE IF PEEK (P+63) = 191 :Z(8) =1 ELSE LET Z(8)=0
00500 Z(A)=1
00510 REM surrounded yet?
00520 U = Z(1)+Z(2)+Z(3)+Z(4)+Z(5)+Z(6)+Z(7)+Z(8)
00530 IF U=8 THEN F0#E C,191 : PLAY 20,20 : GOTO 550
00540 IF PEEK(C) =191 THEN 540 ELSE F0#E C,191 :GOTO130
00550 CURS0 : PRINT "GAME OVER "
00560 PLAY 0,20 : PRINT,," press Z to play again ",,
00570 REM new high score?
00580 IF H < S THEN CURS 460 :PRINT " NEW HIGH SCORE "
00590 IF H < S : H=S
00600 A1#=#KEY: X=(ASC (A1#) AND 95 ): IF X <> 90 THEN 600
00610 GOSUB 650
00620 GOTO 130
00630 REM INSTRUCTIONS / SET UP
00640 DIM Z(8) : A2#="" : H=2
00650 CLS: PRINT \ \ TAB(24) "SURROUND" \ \ : A2#=""
00660 FOR X= 1 TO 7 : Z(X)=0 : NEXT X : S=0
00670 REM instructions
00680 PRINT,"I - Move Up"
00690 PRINT,"M - Move Down"
00700 PRINT,"J - Move Left"
00710 PRINT,"R - Move Right"
00720 PRINT,"D - Move Up & Right"
00730 PRINT,"- - Move Down & Right"
00740 PRINT,"N - Move Down & Left"
00750 PRINT,"U - Move Up & Left"
00760 CURS960 : PRINT"Level of Difficulty 1-100 "
00770 REM get correct value
00780 A1#=#KEY:IF A1#="" THEN 780 ELSE IF A1#=#CHR(13) THEN 800
00790 A2# = A2# + A1#
00800 IF LEN (A2#) > 4 THEN 800
00810 PRINT A1#;
00820 GOTO 780
00830 D = INT (VAL (A2#))
00840 IF D < 0 AND D > -101 THEN 880
00850 REM incorrect value, clear bottom line try again
00860 PRINT " error " : A2#="" :PLAY 11,3
00870 CURS 960 :PRINT [A60] 32J :CURS 0 : PRINT: GOTO 780
00880 A2#="" : CLS : LORES
00890 FOR X = 61440 TO 61500
00900 F0#E X,191 : REM top line
00910 F0#E X+896 , 191 : REM bottom line
00920 NEXT X
00930 FOR X = 61440 TO 62395 STEP 64
00940 F0#E X,191 : REM left side line
00950 F0#E X+63,191 : REM right side line
00960 NEXT X
00970 REM fill in screen to level of difficulty
00980 FOR X = 1 TO D STEP 3
00990 A = INT (RND * 920) +1 : REM random position
01000 F0#E A+ 61440,191 :F0#E A+ 61441,191 :F0#E A+ 61442,191
01010 NEXT X
01020 P = 61660 + INT (RND * 500) + 1 : REM players starting position
01030 IF PEEK (P) = 191 THEN 1020 : REM position taken
01040 REM flash start position
01050 FOR X = 1 TO 4
01060 F0#E F,7
01070 PLAY 0,4
01080 F0#E F,124
01090 PLAY 0,4
01100 NEXT X
01110 RETURN
```



EARTH

Earth is one of my favourite programs. What you've got to do is fly the spacecraft up over the mountain, dock with the mothership to get food, then land (not too heavily). Easy, huh? Well, the mountain gets higher the better you get, a killer diamond shape appears' and shoots at you (the nearer you are the more accurate it is), and if you survive that you'll find your landing ramp is situated in a canyon. The ship moves as a real one would if there were no air resistance. There is no down key, only gravity, so easy on the 'A' key.

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```
00100REM EARTH 4/7/83 RICHARD LARKIN.
00110POKE257,2:CLS:PRINT"Welcome to Earth!" Dock with mother." Land on ramp.
"\To control ship use ',' '.' and 'A' Any key to start..." I=USR(32774)
00120CLEAR:P2$="":Q1=.3:Z=3:O=0:S=0:POKE162,30:POKE163,120
00130F=100:V1=0:O=0+30:K=0:CLS:HIRES:FORN=-16T0-1:POKEN,0:NEXTN:A1=0:A2=-9.8:X1=
470:Y1=6:FORN=0T05:PLOT 0,NT0511,N:NEXTN:IFO>90THENLETP2$="SHIP":Q1=Q1*.9:IFO>15
0THENLETO=150:Z=Z+1
00140FORN=1TOZ*3:X=INT(RND*53+9)*8:Y=INT(RND*12+4)*16:PLOT X+1,Y+3TOX+4,Y+3:PLOT
X,Y+4TOX+5,Y+4:PLOT X,Y+5TOX+5,Y+5:PLOT X+1,Y+6TOX+4,Y+6:NEXTN
00150Q=INT(RND*FLT(0/2)+180-FLT(0/4)):W=INT(RND*FLT(0)+205-FLT(0/2)):E=INT(RND*F
LT(0/3)+310-FLT(0/6)):V2=1.5:R=INT(RND*FLT(0/2)+362.5-FLT(0/4))
00160T=INT(RND*FLT(0/2)+420-FLT(0/4)):FORN=0T08STEP2:PLOT 180+N,5T00+N,0/4-N/4T0
W+N,0/2+0/5-N/2TOE,0-NTOR-N,0/2+0/3-N/2TOT-N,0/3-N/4T0440-N,5:NEXTN
00170PLOT 0,190T056,190T056,255:IFP2$="SHIP" THENPLOT E,0TOE+4,0+4TOE,0+8TOE-4,0+
4TOE,0:PLOT E,0+3TOE+1,0+4TOE,0+5TOE-1,0+4TOE,0+3:E1=FLT(E):O1=FLT(O)
00180R=INT(RND*300+150):T=0+INT(RND*20+20):FORN=3T08:PLOT R+N,T+N-3TOR-N,T+N-3:N
EXTN:W=INT(RND*75+50):X=INT(RND*7+2):Q=INT(RND*6+8):FORN=WTOW+6+X:PLOT N,5TON,Q:
NEXTN
00190IFZ>10THENFORX=20T024:PLOT W+X+Q*2,5TOW-10,X+14+Q:NEXTX
00200V3=FLT(INT(V2*10))/10:CURS1,2:PRINT" F=" " X=" V1 " :IFV3>.09ORV3<-.09THEN
PRINT"Y=" V3 "
00210X2=X1:Y2=Y1:V2=V2+.5*-9.8*.01:X1=X1+V1+V1:Y1=Y1+V2:X=INT(Y2):Y=INT(Y2)
00220PLOT RX,YTOX+4,Y+4TOX,Y+4TOX+4,Y:X=INT(X1):Y=INT(Y1):N=(NOT(POINT(X,Y+5)ORP
OINT(X+4,Y+5))):IFPOINT(X,Y-1)ORPOINT(X+4,Y-1) THEN330ELSEIFX>502ORY>240ORX<50R(X<
61ANDY>134) THEN370
00230PLOT X,YTOX+4,Y+4TOX,Y+4TOX+4,Y:IFNTHEN240ELSEIFINT(V2)>20RX<R-20ORX>R+20OR
Y>T+40RY<T-5THEN350ELSEPLAY6;5;4;3;7:K=1:S=S+F:FORN=0T03STEP-1:PLOT RR+N,T+N-3TOR
-N,T+N-3:NEXTN
00240IFP2$<>"SHIP" THEN280ELSEIFX<E+120ANDX>E-120ANDY>0-30THENINVERTE,0+4ELSE280
00250IFINT(RND*100)<100-Z THEN280ELSELETW1=SQR(((X1-E1)*(X1-E1))+((Y1-O1)*(Y1-O1)
))
00260W1=W1*Q1:A=X+2+INT(RND*W1-W1/2):B=Y+2+INT(RND*W1-W1/2):IFB>250 THEN280ELSEIF
POINT(A,B) THENLETF=F-INT(RND*3+1):IFF<1 THENLETF=-100
00270PLOT IE,0+4TOA,B:PLOT IA-2,B-2TOA+2,B+2:PLOT IA-2,B+2TOA+2,B+2TOA+2,B-2
THEN340ELSEPLOT IE,0+4TOA,B:PLOT IA-2,B-2TOA+2,B+2:PLOT IA-2,B+2TOA+2,B+2
00280K1$=KEY:IFF<1 THENLETF=0:GOTO200ELSEIFK1$=" " THEN200
00290IFK1$=" ", THENLETV1=V1+.5:F=F-1:FORJ=0T01:FORN=2T03:PLOT IX,YTOX-N,Y+1TOX,Y+2
:NEXTN:NEXTJ
00300IFK1$=" " THENLETV1=V1-.5:F=F-1:FORJ=0T01:FORN=6T07:PLOT IX+4,YTOX+N,Y+1TOX+4
,Y+2:NEXTN:NEXTJ
00310IFK1$="A" THENLETF=F-2:V2=V2+.5:FORN=2T03:PLOT IX+1,YTOX+2,Y-NTOX+3,Y:PLOT IX+
1,YTOX+2,Y-NTOX+3,Y:NEXTN
00320GOTO200
00330IFK=0ANDY>7ANDY<15ANDV2>-1.69ANDPOINT(X+4,Y-1)ANDPOINT(X,Y-1) THEN380
00340IFPOINT(X,Y-1)ANDPOINT(X+4,Y-1)ANDV2>-1.69ANDY>7ANDY<15 THENPLAY1;2;3;5;8;11
:PRINT"LANDED":W=1:GOTO360
00350PLAY5;6:PRINT"CRASH!!":FORN=0T010:PLOT IX,Y+2TOX+4,Y+2:PLOT IX+2,YTOX+2,Y+4:P
LOT IX+2,Y-2TOX+6,Y+2TOX+2,Y+6TOX-2,Y+2TOX+2,Y-2:NEXTN:F=0:Q=20
00360K=0:S=S+O/2+F/2:FORN=1T0500:NEXTN:CLS:PRINT"SCORE ="S" Any key to cont'i
nue..." :I=USR(32774):IFQ=20 THENRUNELSE130
00370PRINT" TAB(24) LEAVING SO SOON!!!" :Q=20:F=0:GOTO360
00380CURS2,9:PRINT"NO FOOD":FORN=1T0500:NEXTN:CURS2,9:PRINT"GET IT":FORN=0T05
00:NEXTN:CURS1,9:FORN=1T012:PRINTCHR(255);:NEXTN:V2=3:F=F+20:GOTO200
```

K9 – DR WHO'S DOG

I was reading your *Bumper Book of Programs*, and thought I'd send in one of my own efforts.

This program draws the very famous Dr Who's robot dog, 'K9'. I hope you like it.

Jason Costa
Footscray, Vic

```
00010 CLS:HIRE$
00100 POKE 220,-4
00110 PLOT 0,0T050,100T0350,100T0400,0T00,0
00120 PLOT 50,100T080,120T0100,150T0325,150T0350,100
00130 PLOT 65,110T00,160
00150 PLOT 130,150T0130,155T0180,155T0200,160T0200,150
00160 PLOT 330,140T0356,145
00170 PLOT 345,110T0365,115T0356,145
00180 PLOT 20,20T0380,20T0350,80T050,80T020,20
00190 PLOT 20,20T060,50T050,80
00200 PLOT 380,20T0340,50T0350,80
00210 PLOT 60,50T0340,50
00220 PLOT 356,144T0370,160:PLOT 365,116T0400,160
00225 CURS 22,9:PRINT" K.9"
00230 PLOT 340,160T0430,160T0430,175T0400,175T0390,185T0340,185T0340,160
00235 FOR T= 1 TO 2000:NEXT T
00237 PLOT 430,172T0435,172T0435,167T0430,167
00239 FOR T= 1 TO 2000:NEXT T
00240 PLOT 435,170T0511,130
00241 PLOT 435,170T0511,129T0511,128T0435,170T0511,127T0511,126T0435,170T0511,12
5T0511,124T0511,123T0435,170T0511,122T0511,121T0511,120T0435,170
00242 PLOT 435,170T0511,110T0511,111T0435,170T0511,112T0511,113T0435,170T0511,11
4T0511,115T0435,170T0511,116T0511,117T0435,170T0511,118T0511,119T0435,170T0511,1
20
00245 PLAY 24,20
00260 CURS 55,6:PRINT" "
00270 CURS 55,5:PRINT" "
00280 CURS 55,8:PRINT" "
00290 CURS 55,7:PRINT" "
00300 CURS 55,9:PRINT" "
00310 CURS 60,10:PRINT" "
00400 FOR T= 1 TO 3000:NEXT T
00410 PLOT 395,180T0396,181T0397,182T0398,183T0399,184T0400,185T0401,186T0402,18
7T0403,188T0404,189T0405,190T0406,191T0407,192T0408,193T0409,194T0410,195:PLOT 4
08,197T0412,193
00420 PLAY 5
00430 FOR T=1T02000:NEXT T
00440 PLOTR 396,180T0396,181T0397,182T0398,183T0399,184T0400,185T0401,186T0402,1
87T0403,188T0404,189T0405,190T0406,191T0407,192T0408,193T0409,194T0410,195:PLOTR
408,197T0412,193
00450 PLAY 5
00460 GOTO 460
```



ELONGATED CHARACTERS

This routine re-programs the Programmable Character Generator (PCG) for a more decorative font. As the sample printout shows, it stretches the characters to make them longer than they normally are. Due to the gauge of the dot-spacing on my printer, the letters are shorter here than they are on the screen.

John Quinn
Casino, NSW

```
00010 REM * Elongated Chars *
00020 REM * by John Quinn. *

00100 UNDERLINE:INVERSE:NORMAL
00110 FOR A=63488 TO 63488+128*16-1 STEP 16
00120 FOR B=1 TO 7:POKE A+B,PEEK(A+B+3):NEXT B
00130 FOR C=1 TO 3:POKE A+C+7,PEEK(A+11):NEXT C
00140 FOR N=0 TO 15:POKE A+N,255-PEEK(A+N):NEXT N
00150 NEXT A
00155 POKE 128,8:POKE 129,182:OUTL#1:POKE 63467,1
00160 CLS:FOR N=128 TO 129+126:PRINT CHR(N) " ";NEXT N:END
00170 USR(15200)
```

```
┌┐┘┙┚┛├┝┞┟┠┡┢┣┤┥┦┧┨┩┪┫┬┭┮┯┰┱┲┳┴┵┶┷┸┹┺┻┼┽┾┿
! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ \ ] ^ _ `
a b c d e f g h i j k l m n o p q r s t u v w x y z { | } ~ ¯
```

POCKET PROGRAMS

Microbee

PIG

Pig is a game of dice, in which the idea is to throw a higher overall score than the computer. You and the computer can throw as much as you like, but if you throw 10 — that is 5 and 5, 4 and 6, or 6 and 4, you score zero for that round.

Richard Larken
Dee Why, NSW

```
00100REM PIG 10/12/84 RICHARD LARKIN.
00110 CLS : PRINT\\\\"Welcome to P I G." : T=0 : C=0
00120 FOR X=1 TO 5 : PRINT "ME"C,,"YOU"T
00130 PRINT "ROUND"X\\"YOUR THROW" : U=0
00140 PRINT U" so far."\\ "Do you wish to throw?"
00150 K1$=KEY : IF K1$="Y" THEN 160 ELSE IF K1$="N" THEN 200 ELSE 150
00160 R=INT(RND*6+1) : E=INT(RND*6+1)
00170 PRINT "O.K. you throw a"R" and a"E
00180 IF R+E=10 THEN PRINT "Piggy you bust !" : U=0 : GOTO 200
00190 U=U+R+E : GOTO 140
00200 T=T+U : U=0 : PRINT "MY THROW..."
00210 PRINT U" so far." : R=INT(RND*6+1) : E=INT(RND*6+1)
00220 PLAY 0,10 : PRINT "I've thrown a"R" and a"E
00230 IF R+E=10 THEN PRINT"OOOPS!! Never mind." : U=0 : GOTO 260
00240 U=U+R+E : IF X=5 AND C+U<T THEN 210 ELSE IF FLT(U)>RND*20+20 AND FLT(C+U)>
FLT(T)*.9 THEN PRINT "I'll quit while I'm ahead." : GOTO 260
00250 GOTO 210
00260 C=C+U : NEXT X : PRINT\\ "Well that's our five rounds."\\ "and the winner i
s"; : FOR X=0 TO 10 : PRINT ". "; : PLAY 0,2 : NEXT X
00270 IF C<T THEN PRINT "YOU" ELSE IF C=T THEN PRINT "BOTH OF US!" ELSE PRINT "M
E"
00280 I=USR(32774) : RUN
```

POCKET PROGRAMS



PROJECTILE MOTION

Projectile Motion is a physics simulation very useful for testing students in Years 11 and 12. It plots the trajectory, component vectors and instantaneous velocity for an object, and asks for maximum height, distance travelled and hit velocity. One dot on the screen is equal to one metre.

Richard Larkin
Dee Why, NSW

```
00100 REM PROJECTILE MOTION 7/3/84 RICHARD LARKIN.
00110 POKE 162,30 : POKE 163,128 : POKE 257,2 : CLS
00120 UNDERLINE : CURS 20,2 : PRINT "< Projectile Motion >" : CURS 23,3 : PRINT "By Richard Larkin" : CURS 22,15 : PRINT "Hit any key to start" : NORMAL : CURS 192
00130 PRINT "\"This program will ask you to input an angle, velocity, height\" and gravity. It may then ask you the maximum height,\"
00140 PRINT "distance travelled along the x-axis or hit velocity.\" \"It will then show you the trajectory of the falling object.\"
00150 PRINT "As the graph proceeds you may type 'I' to see the component\" vectors and instantaneous velocity. 'W' will wipe the vectors\"
00160 PRINT "or 'C' will continue leaving vectors on screen.\" \"Answers to questions must be within 2% of correct value.\"
00170 REM V0=Input Velocity      A0=Input Angle/57.29578
00180 REM Y0=Initial Velocity Up  X0=Initial Velocity Right
00190 REM H0=Input Height        G0=Input Gravity
00200 REM M0=Maximum Height      M1=Maximum X-value
00210 REM V1=Represent Y-velocity V7=Hit velocity
00220 REM P0,T0,T1,T2,T3 used to hold various times
00230 REM X1,Y1 hold position on x,y axes of projectile
00240 I=USR(32774)
00250 POKE 220,64 : ZONE 16 : CLS : PRINT "\"Please input:-\" \"Angle (0-89)\" \"Velocity\" \"Height (Default 0)\" \"Gravity (Default 9.8)\"
00260 CURS 32,4 : GOSUB 610 : A0=I1 : IF A0<0 OR A0>89 OR I0#="" THEN PLAY 24,2 : GOTO 260
00270 CURS 32,5 : GOSUB 610 : V0=I1 : IF V0<0 OR I0#="" THEN PLAY 24,2 : GOTO 270
00280 CURS 32,6 : GOSUB 610 : H0=I1 : IF H0<0 THEN PLAY 24,2 : GOTO 280 ELSE IF I0#="" THEN CURS 34,6 : PRINT "0"
00290 CURS 32,7 : GOSUB 610 : G0=I1 : IF G0<=0 AND I0#<>"" THEN PLAY 24,2 : GOTO 290 ELSE IF I0#="" THEN CURS 34,7 : PRINT "9.8" : G0=9.8
00300 G0=-G0 : A0=A0/57.29578 : Y0=V0*SIN(A0) : X0=V0*ICOS(A0)
00310 T1=-Y0/G0 : M0=H0+Y0*T1+.5*G0*T1*T1 : T2=SQR(ABS(2*M0/G0))
00320 T3=T1+T2 : M1=X0*T3 : V7=G0*T2
00330 PRINT "\"Do you want the questions?";
00340 O7#="KEY" : IF O7#="Y" THEN 350 ELSE IF O7#="" THEN 340 ELSE 420
00350 PRINT "\"What is the maximum height reached by projectile?\" \"What is the distance travelled along the x-axis?\" \"What velocity does it have on landing?\"
00360 CURS 1,11 : GOSUB 610 : CURS 16,11 : I2=M0/50
00370 IF I1<M0+I2 AND I1>M0-I2 OR (I1<M0+.2 AND I1>M0-.2) THEN PLAY 8;5;3;8 : PRINT "Very good!!",M0 ELSE PLAY 3,3 : PRINT "The answer is ...\"M0
00380 CURS 1,13 : GOSUB 610 : CURS 16,13 : I2=M1/50
00390 IF I1<M1+I2 AND I1>M1-I2 OR (I1<M1+.2 AND I1>M1-.2) THEN PLAY 8;5;3;8 : PRINT "Good going!!",M1 ELSE PLAY 3,3 : PRINT "The answer is ...\"M1
00400 CURS 1,15 : GOSUB 610 : CURS 16,15 : I2=ABS(V7/50)
00410 IF I1<V7+I2 AND I1>V7-I2 OR (I1<V7+.2 AND I1>V7-.2) THEN PLAY 8;5;3;8 : PRINT "Well done!!",V7 ELSE PLAY 3,3 : PRINT "The answer is ...\"V7
00420 PRINT "\"Hit 'G' for graph, 'M' for motion picture or 'S' to start again";
00430 O6#="KEY" : IF O6#="S" THEN 250 ELSE IF O6#="G" OR O6#="M" THEN 440 ELSE 430
00440 POKE 220,63 : CLS : HIRES : PRINT "Y-velocity      Time      X value
Y value"
00450 T0=0 : P0=T3/64 : REM Scale time periods so there is 64 points
00460 X7=X6 : Y7=Y6 : X1=T0*X0 : Y1=(Y0*T0+.5*G0*T0*T0+H0)*.62
00470 IF X1>511 OR Y1>223 THEN 490
00480 SET INT(X1),INT(Y1) : X6=X1 : Y6=Y1
00490 IF O6#="M" THEN RESET INT(X7),INT(Y7)
00500 V1=Y0+G0*T0 : CURS 1,2 : PRINT V1,T0,X1,Y1
00510 IF KEY="I" THEN 530
00520 T0=T0+P0 : IF T0<T3 THEN 460 ELSE 240
00530 ON ERROR GOTO 540 : PLOT INT(X1),INT(Y1) TO INT(X1+X0),INT(Y1)
00540 ON ERROR GOTO 550 : PLOT INT(X1),INT(Y1) TO INT(X1),INT(Y1+V1)
00550 ON ERROR GOTO 560 : PLOT INT(X1),INT(Y1) TO INT(X1+X0),INT(Y1+V1)
00560 O7#="KEY" : IF O7#="C" THEN 520 ELSE IF O7#="W" THEN 570 ELSE 560
00570 ON ERROR GOTO 580 : PLOT INT(X1),INT(Y1) TO INT(X1+X0),INT(Y1)
00580 ON ERROR GOTO 590 : PLOT INT(X1),INT(Y1) TO INT(X1),INT(Y1+V1)
00590 ON ERROR GOTO 600 : PLOT INT(X1),INT(Y1) TO INT(X1+X0),INT(Y1+V1)
00600 GOTO 470
00610 PRINT [A32 321[A32 81; : INPUT I0# : I1=VAL(I0#) : RETURN
```

Sharp MZ700

MATHS EXERCISER

This program covers the four basic mathematical operations: addition, subtraction, multiplication and division. It is useful for primary schoolchildren and is complete with easy-to-follow instructions.

Tony Calciano
Bankstown, NSW

```
1 CLS:PRINT"Math EXERCISER by Tony Calciano"
2 PRINT"1=MULTIPLICATION"
3 PRINT"2=DIVISION"
4 PRINT"3=ADDITION"
5 PRINT"4=SUBTRACTION"
6 PRINT"WHICH WOULD YOU LIKE TO PRACTICE FIRST"
7 INPUT X
8 IF X=1 THEN 10
9 IF X=2 THEN 170
10 IF X=3 THEN 330
15 IF X=4 THEN 480
20 PRINT"TYPE 2 NUMBERS BETWEEN 1-15 SEPERATED BY A COMMA"
30 INPUT A,B
40 PRINT"WHAT IS ";A;" * ";B;
50 INPUT X
60 IF X=A*B THEN 90
70 PRINT"NO,NO,NO-----THE ANSWER IS ";A*B
80 GOTO 100
90 PRINT"FANTSTIC"
100 PRINT"WANT ANOTHER ONE (YES=1)";
110 INPUT Y
120 IF Y=1 THEN 20
130 PRINT"WOULD YOU LIKE TO PRACTICE YOUR DIVISIONS (YES=1) (NO=0)"
140 INPUT Y,N
150 IF Y=1 THEN GOTO 170
160 IF N=0 THEN 290
170 PRINT"TYPE 2 NUMBERS SEPERATED BY A COMMA"
190 INPUT A,B
200 PRINT"WHAT IS ";A;" / ";B;
210 INPUT X
220 IF X=A/B THEN 250
230 PRINT"NO.....NO.....NO.....THE ANSWER IS ";A/B
240 GOTO 260
250 PRINT"FANTASTIC"
260 PRINT"WANT ANOTHER (YES=1)";
270 INPUT Y
280 IF Y=1 THEN 170
290 PRINT"WOULD YOU LIKE TO PRACTICE YOUR ADDITION (YES=1) (NO=0)"
300 INPUT Y,N
310 IF Y=1 THEN 330
320 IF N=0 THEN 440
330 PRINT"TYPE 2 NUMBERS SEPERATED BY A COMMA"
340 INPUT A,B
350 PRINT"WHAT IS ";A;" + ";B;
360 INPUT X
370 IF X=A+B THEN 400
380 PRINT"NO....NO....NO....THE ANSWER IS ";A+B
390 GOTO 410
400 PRINT"TERREFIC"
410 PRINT"WANT ANOTHER (YES=1) (NO=0)"
415 INPUT Y,N
420 IF Y=1 THEN GOTO 330
430 IF N=0 THEN 440
440 PRINT"WOULD YOU LIKE TO PRACTICE YOUR SUBTRACTION (YES=1) (NO=0)"
450 INPUT Y,N
460 IF Y=1 THEN 480
470 IF N=0 THEN 600
480 PRINT"TYPE 2 NUMBERS SEPERATED BY A COMMA"
490 INPUT A,B
500 PRINT"WHAT IS ";A;" - ";B;
510 INPUT X
520 IF X=A-B THEN 550
530 PRINT"NO....NO....NO....THE ANSWER IS ";A - B
540 GOTO 560
550 PRINT"MARVELOUS"
560 PRINT"WANT ANOTHER (YES=1) (NO=0)"
570 INPUT Y,N
580 IF Y=1 THEN GOTO 480
590 IF N=0 THEN GOTO 600
600 PRINT"OK..SO LONG....."
610 END
```

Sharp MZ700

Continued from page 162

```
330 PRINT"NUMBER WHICH IS BETWEEN 1 & 10  
00."
```

```
340 C=INT (1000*RND(1))+1
```

```
350 PRINT"WHAT IS YOUR GUESS"
```

```
355 INPUT G
```

```
360 Z=Z+1
```

```
370 IF G=C THEN 400
```

```
380 IF G<C THEN 410
```

```
385 IF G>C THEN 390
```

```
390 PRINT"TOO BIG...TRY AGAIN"
```

```
395 GOTO 350
```

```
400 PRINT"YOU HAVE GUESSED THE 3rd NUMBE  
R AND FINAL NUMBER "
```

```
405 GOTO 420
```

```
410 PRINT"TOO SMALL...TRY AGAIN"
```

```
415 GOTO 350
```

```
420 PRINT"THE COMBINATION OF THE LOCK IS  
";A;B;C
```

```
422 PRINT
```

```
424 PRINT
```

```
426 PRINT
```

```
428 PRINT
```

```
432 PRINT
```

```
434 PRINT
```

```
436 PRINT
```

```
438 PRINT
```

```
440 PRINT"THE SAFE IS NOW OPEN AND IN FR
```

```
ONT OF YOU THERE ARE 3 DOORS LABELLED 1,  
2 & 3"
```

```
450 PRINT"ONE OF THEM WILL BLOW UP THE E  
ARTH BUT THE OTHER 2 WILL SAVE THE EART  
H AND MAKE YOU THE HERO OF THE EARTH....
```

```
460 PRINT"*****GOOD LUCK*****  
*****"
```

```
480 D=INT (3*RND(1))+1
```

```
490 PRINT"WHAT IS YOUR GUESS"
```

```
495 INPUT G
```

```
500 IF G=0 THEN 520
```

```
505 IF G<0 THEN 515
```

```
510 IF G>0 THEN 515
```

```
515 PRINT"CONGRATULATIONS.....YOU HAVE  
SAVED THE EARTH FROM ITS DOOM"
```

```
517 GOTO 530
```

```
520 PRINT"YOU SILLY PERSON THE EARTH IS  
DOOMED...THAT WAS THE WRONG DOOR"
```

```
525 GOTO 530
```

```
530 PRINT"DO YOU WANT ANOTHER GO (YES=1)  
(NO=0)"
```

```
540 INPUT Y,N
```

```
550 IF Y=1 THEN 1
```

```
560 IF N=0 THEN 570
```

```
570 PRINT"OK SO LONG.....  
....."
```

```
580 END
```

CUPPIN

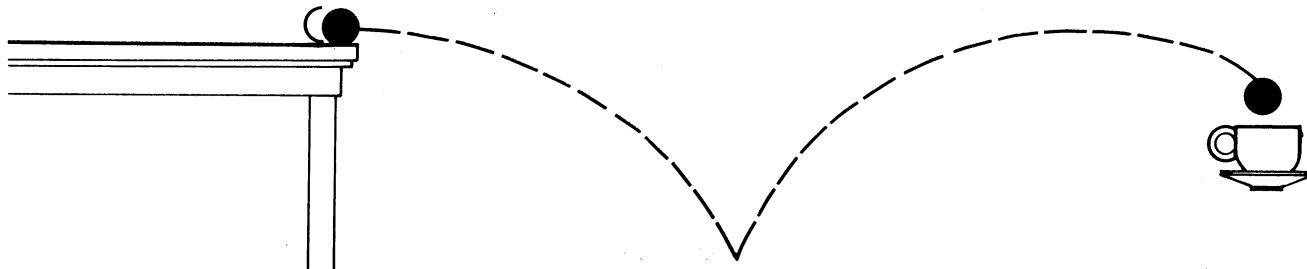
Cuppin simulates the fall of a bouncing ball from a table. The idea is to choose the right strength to push the ball to get it into the cup on the right-hand side of the screen. Gravity and table height vary.

Richard Larkin
Dee Why, NSW

```

00100 REM CUPPIN 11/12/84 RICHARD LARKIN.
00110 G1=-(RND+RND+RND+RND+RND+7.3) : H1=RND*20+24
00120 G=0 : CLS : PRINT "\"CUPPIN\" \"Gravity \"G1\" \"Height \"H1 : INPUT \"Push m/s\" V1
      : IF V1<1 THEN 120
00130 X1=0 : V2=0 : Y1=H1 : T1=1/V1 : A=INT(X1) : B=INT(Y1)
00140 CLS : LORES : PLOT 120,3 TO 120,0 TO 124,0 TO 124,3
00150 V2=V2+G1*T1 : X1=X1+V1*T1 : Y1=Y1+V2*T1
00160 IF Y1<1 AND V2<0 THEN LET G=G+1 : V2=-V2*.7 : Y1=0 : PLAY 3 : IF G=8 THEN
CURS 5,5 : PRINT \"To many bounces!\" : GOTO 200
00170 C=INT(X1) : D=INT(Y1)
00180 IF POINT(C,D) THEN CURS 5,5 : PRINT \"Missed!!\" : GOTO 200
00190 RESET A,B : SET C,D : A=C : B=D : IF X1<124 AND X1>120 AND Y1<4 THEN CURS
5,5 : PRINT \"Well done!!\" ELSE 150
00200 I=USR(32774) : CLS : PRINT\\\"A) SAME\" \"B) NEW\"
00210 K1$=KEY : IF K1$=\"A\" THEN 120 ELSE IF K1$=\"B\" THEN 110 ELSE 210

```



MICROBEE

Hangman for the Microbee

By Mark Giandomenico, Quirindi, QLD

IT'S THE OLD 'guess the word the computer's thinking of' game.

```
00060 REM ***** HANGMAN *****
00070 REM ## WRITTEN 13/2/83 ##
00080 REM ## BY MARK GIANDOMENICO ##
00090 REM *****
00095 REM
00100 CLS:PRINT
00110 PRINT "Hello and welcome to ";UNDERLINE:PRINT"HANGMAN";NORMAL:PRINT"."
00120 PRINT "Do you require instructions (Y/N)?"
00130 A0$=KEY:IF A0$="" THEN 130
00140 IF A0$="y" THEN 180
00150 IF A0$="n" THEN 230
00160 IF ASC(A0$)>64 AND ASC(A0$)<91 THEN PRINT"Press ";UNDERLINE:PRINT"LOCK";
NORMAL:PRINT" Key.":GOTO 130
00170 GOTO 130
00180 PRINT:PRINT "The object of HANGMAN is to guess the word I am thinking of "
;
00190 PRINT "before the little stick man is hung! ";UNDERLINE:PRINT" N.B. Lower
case only";NORMAL
00200 CURS 17,8:PRINT "HIT ANY KEY TO CONTINUE"
00210 A0$=KEY:IF A0$="" THEN 210
00220 DIM Y1(50)
00230 A=INT(RND*5)+1:REM Change "5" to the number of words
00240 ON A GOSUB 440,450,460,470,480:REM Add line numbers for new words here.
00250 B=LEN(Z1$)
00260 C=B
00270 CLS:CURS11,2:PRINT "MY WORD HAS "B" LETTERS"
00280 FOR X=1 TO B:POKE 61900+X,95:NEXT X
00290 CURS 10,15:PRINT "** ENTER A WORD OR LETTER **";
00300 INPUT Y1$
00310 IF Y1$=Z1$ THEN 410
00320 K=SEARCH(Z1$,Y1$):IF K=0 THEN 500
00330 FOR I=1 TO 10
00340 K=SEARCH(Z1$,Y1$,I)
00350 IF K=0 THEN NEXT+I 380
00360 CURS 13+K,8:PRINTY1$
00370 NEXT I
00380 FOR J=1TO B
00390 IF PEEK(61900+J)=95 THEN NEXT*J 290
00400 NEXT J
00410 PRINT:PRINT "*** You got it! The word I was thinking of was "Z1$"."
00420 GOTO 730
00430 REM *** VOCABULARY ***
00440 Z1$="auditorium":RETURN
00450 Z1$="claustrophobia":RETURN
00460 Z1$="discriminate":RETURN
00470 Z1$="gauntlet":RETURN
00480 Z1$="genealogy":RETURN
00490 REM *** ADD NEW WORDS HERE ***
00500 Q=Q+1
00510 LORES
00520 PLOT 105,7 TO 115,7:REM BASE
00530 PLOT 110,7 TO 110,35:REM POST
00540 IF Q=1 THEN 290
00550 PLOT 110,35 TO 85,35:REM ARM
00560 IF Q=2 THEN 290
00570 PLOT 86,35 TO 86,30:REM ROPE
00580 IF Q=3 THEN 290
00590 FOR I=1 TO 13
00600 PLOT 79+I,7 TO 79+I,15
00610 NEXT I
00620 IF Q=4 THEN 290
00630 PLOT 83,29 TO 89,29 TO 89,25 TO 83,25 TO 83,29
00640 PLOT 86,25 TO 86,20:PLOT 80,23 TO 92,23
00650 PLOT 84,15 TO 84,20 TO 88,20 TO 88,15
00660 CURS 10,10:PRINT"This is your last chance !!!!!!"
00670 IF Q=5 THEN 290
00680 FOR I=1TO13:PLOT179+I,7TO79+I,15:NEXTI
00690 PLAY 4,2:4,2:4:4,2:7,2:6:6:4:4:3:4,2
00700 CURS 10,10:PRINT"You've been HUNG !!!!!"
00710 PRINT"The word was ";Z1$"."
00720 Q=0
00730 PRINT"Would you care for another try (Y/N)?"
00740 A0$=KEY:IF A0$="" THEN 740
00750 IF A0$="y" THEN 230 ELSE END
```

MICROBEE

Graphic Painter for Microbee

By Tony Lock, Mitcham, VIC

'Graphic Painter' is a program I designed simply because I was frustrated by the length of time it took to draw simple graphical designs on the VDU screen. If using the PLAY 0,1 function, you will not lose track of where the dot is as it will appear for 1/4 of a second before disappearing.

If you want more detailed designs, change line 3150 to read "CLS:HIRES" and change the maximum X and Y values, stated in lines 3170, 3190, 3330 and 3350, to 512 and 256 respectively. With a few simple alterations, you could even make painting diagonally possible.

```
03000 REM "GRAPHIC PAINTER" by Anthony William Lock
03010 CLS:CURS 17,1:UNDERLINE:PRINT"*** GRAPHIC PAINTER ***":NORMAL
03020 CURS 17,3:PRINT"PAINTING INSTRUCTIONS:"
03030 CURS 19,4:PRINT"To move up Press U"
03040 CURS 18,5:PRINT"To move down Press N"
03050 CURS 17,6:PRINT"To move to left Press H"
03060 CURS 16,7:PRINT"To move to right Press J"
03070 CURS 17,9:PRINT"ERASING INSTRUCTIONS:"
03080 CURS 19,10:PRINT"To move up Press E"
03090 CURS 18,11:PRINT"To move down Press X"
03100 CURS 17,12:PRINT"To move to left Press S"
03110 CURS 16,13:PRINT"To move to right Press D"
03120 CURS 20,15:PRINT"PRESS G TO START"
03130 K1#=KEY#:IF K1#="G" THEN 3150
03140 GOTO 3130
03150 CLS:LORES
03160 X=64:Y=24
03170 IF X>127 THEN LET X=127
03180 IF X<0 THEN LET X=0
03190 IF Y>47 THEN LET Y=47
03200 IF Y<0 THEN LET Y=0
03210 SET X,Y
03220 A1#=KEY#
03230 IF A1#="U" THEN LET Y=Y+1:GOTO 3170
03240 IF A1#="N" THEN LET Y=Y-1:GOTO 3170
03250 IF A1#="J" THEN LET X=X+1:GOTO 3170
03260 IF A1#="H" THEN LET X=X-1:GOTO 3170
03270 IF A1#="E" THEN LET Y=Y+1:GOTO 3320
03280 IF A1#="X" THEN LET Y=Y-1:GOTO 3320
03290 IF A1#="D" THEN LET X=X+1:GOTO 3320
03300 IF A1#="S" THEN LET X=X-1:GOTO 3320
03310 GOTO 3220
03320 IF Y<0 THEN LET Y=0
03330 IF Y>47 THEN LET Y=47
03340 IF X<0 THEN LET X=0
03350 IF X>127 THEN LET X=127
03360 SET X,Y:PLAY 0,1:RESET X,Y:GOTO 3220
```

Memory Dump for Microbee

By David Morrison, East Ringwood, VIC

Often it is necessary to incorporate a machine language program or lengthy data into a BASIC program. This can become a very tedious process so I have developed a procedure that PEEKs data out of memory and creates a program of BASIC DATA statements and stores it to tape. The created program can then be merged into another program by the IN #3 command.

Two subroutines are used: 320-340 A useful hexadecimal to decimal converter. 350. Peeks data out of memory.

This program can also be used to create files for PCG data if the characters are already in the PCG memory beforehand. The program will run in either the Microbee 16K or 32K standard computer.

```
00100 CLS:PRINT"BASIC MEMORY DUMPING PROGRAM":PRINT
00110 INPUT"Starting address (hex)?:";A1$:GOSUB 320:A=Z
00120 IF W=-1 THEN 110
00130 INPUT"Ending address (hex)?:";A1$:GOSUB 320:B=Z
00140 IF W=-1 THEN 130
00150 IF B<A THEN PRINT"ERROR":GOTO 110
00160 INPUT"Start of line numbering (dec)?:";C
00170 INPUT"Increment of line numbering (dec)?:";D
00180 PRINT:INPUT"Press RETURN when tape is ready?";A1$
00190 PRINT"Outputting to tape":OUT #3 ON:W=-1
00200 A1$=STR$(C):PRINT A1$(;2);:C=C+D
00210 PRINT" FOR A=";A; " TO";B;":READ B:POKE A,B:NEXT A";
00220 FOR Y=0 TO 500:NEXT Y
00230 FOR Z=A TO B:IF W=0 AND POS<59 THEN 260
00240 PRINT:A1$=STR$(C):PRINT A1$(;2); " DATA ";
00250 GOSUB 350:C=C+D:GOTO 270
00260 PRINT", ";:GOSUB 350
00270 W=0:NEXT Z:PRINT CHR$(26):OUT #0:PRINT
00280 PRINT"Rewind tape, press RETURN to merge program,"
00290 INPUT"or type NEW to clear memory before merge.";A1$
00300 PRINT"Inputting from tape":IN #3
00310 IF A1$="NEW" THEN NEW ELSE END
00320 V=1:W=0:Z=0:FOR X=LEN(A1$) TO 1 STEP -1:Y=ASC(A1$(;X,X))
00330 IF Y<48OR Y>70OR(Y>57AND Y<65) THEN PRINT"ERROR":W=-1:RETURN
00340 Z=Z+V*(Y-48+(Y>57)*7):V=V*16:NEXT X:RETURN
00350 A1$=STR$(PEEK(Z)):PRINT A1$(;2);:RETURN
```

MICROBEE

Asteroids for Microbee

By Denis Crowdy, Darlington, WA

This program simulates piloting in an asteroid belt followed by a trip through the space lanes. If your Microbee runs at more than 2 MHz (the colour and 64K versions) then you will have to add a delay at line 425 to bring

the program to a more playable speed.

425 FOR L=1 TO 30:NEXT L is sufficient, though you can alter the speed by changing the loop value.

```
00100 REM ASTEROIDS
00110 REM By Denis Crowdy
00120 REM May 1983
00130 CLS
00140 POKE 220,16:POKE 257,1
00150 CURS 27,7:UNDERLINE:PRINT "ASTEROIDS":NORMAL
00160 PLAY 0,8
00170 CLS
00180 REM      Introduction
00190 PRINT "  You are the spaceship at the top of the screen and it is your";
00200 PRINT "  Job to safely guide it through the dreaded asteroid belt...";
00210 PRINT "  Once you are through however, you will find yourself to be";
00220 PRINT "  stuck in the space-lanes (unfortunately heading in the wrong";
00230 PRINT "  direction!!!) due to navigational malfunctions...";
00240 CURS 29,7:PRINT "<=LEFT"
00250 CURS 29,8:PRINT ">=RIGHT"
00260 CURS 21,10:PRINT "GOOD LUCK COMMANDER!!!"
00270 CURS 20,16:PRINT "HIT ANY KEY TO START...";
00280 A1$=KEY:IF A1$="" THEN 280
00290 CLS
00300 RESTORE:GOSUB 450      REM Data for PCG
00310 PCG
00320 X=32:S=61568:C=0:B=0
00330 REM      Main Section
00340 A1$=KEY:IF A1$="" THEN 380

00350 IF A1$="," THEN LET N=-1
00360 IF A1$="." THEN LET N=1
00370 X=X+N:G=1
00380 CURS INT(RND*64)+1,16:IF C>2000 THEN PRINT "HI" ELSE PRINT "G"
00390 CURS X,1:PRINT " ABC "
00400 CURS X,2:PRINT " DEF ";
00410 IF G=1 THEN LET X=X+N
00420 IF PEEK(S+X)>32 OR PEEK(S+X+1)>32 OR PEEK(S+X+2)>32 THEN 650
00430 C=C+10:GOTO 340
00440 REM      Read Data for PCG
00450 FOR I= 64528 TO 64528+(16*9)-1
00460 READ D
00470 POKE I,D
00480 NEXT I
00490 FOR I=64000 TO 64015
00500 POKE I,0
00510 NEXT I
00520 RETURN
00530 REM      Data Section for PCG
00540 DATA 0,0,24,52,110,82,86,44,126,60,24,24,24,27,30,24
00550 DATA 24,24,24,52,74,110,86,44,126,60,24,36,231,0,0,0
00560 DATA 16,16,24,44,82,106,82,44,126,60,24,24,24,216,120,24
00570 DATA 24,24,30,27,24,24,16,16,16,0,0,0,0,0,0

00580 DATA 0,0,60,36,165,90,66,36,36,24,24,24,24,24,24
00590 DATA 24,24,120,216,24,24,8,8,8,0,0,0,0,0,0
00600 DATA 24,102,110,197,145,133,118,102,60,36,60,24,26,24,24,8
00610 DATA 1,1,1,1,2,66,68,68,72,73,81,225,224,255,224,224
00620 DATA 128,128,128,128,64,66,34,34,18,146,138,135,7,255,7,7
00630 RETURN
00640 REM      CRASH!
00650 CURS X,1:PRINT "A B C"
00660 CURS X,3:PRINT "D E F"
00670 FOR L=1 TO 100:OUT 2,59:OUT 2,65:NEXT L
00680 PLAY 0,2;16,2;11;10;11;13,2;11,4;15,2;16,4
00690 LORES
00700 FOR L=1 TO 50
00710 SET INT(RND*127),INT(RND*47)
00720 NEXT L
00730 CLS:NORMAL
00740 IF C>H THEN LET H=C
00750 CURS 1,1:PRINT "SCORE="C;TAB 45;"HIGH SCORE="H
00760 CURS 10,8:PRINT "Hit 'Q' to quit, any other key to continue..."
00770 A1$=KEY:IF A1$="" THEN 770
00780 IF A1$="Q" THEN CLS:POKE 220,111:END
00790 CLS
00800 GOTO 300      REM Start all over again...
```

TANDY TRS/80 SYSTEM 80

Obesity for TRS-80 & Sharp 1211

By Claude Colle, Ingham, QLD

Given your weight (in kg), your height (in cm), your sex (M/F) and a code number (1 or 2) for a medium or large frame respectively, it will tell you if you are obese and will calculate:

- the body fat percentage
- the body surface area in square metres
- the total body water in litres.

To run it, press SHIFT S and answer the questions.

```
10:"$"PAUSE "OBESITY "  
20: CLEAR :BEEP  
  1: INPUT "YOU  
    R WEIGHT ";W  
    ;"YOUR HEIGH  
    T (IN CM) ";  
    H;"YOUR SEX  
    (M/F) ";S$  
30: INPUT "CODE  
    (1 OR 2) ";C  
40: L=H/100: I=W/LL  
50: IF S$="M"  
    THEN 110  
60: IF C=1 THEN 90  
70: IF I>29.5  
    THEN 160  
80: BEEP 3: PRINT  
    "YOU ARE NOT  
    OBESE": GOTO 170  
90: IF I>27 THEN  
    160  
100: GOTO 80  
110: IF C=1 THEN 140  
120: IF I>29.9  
    THEN 160  
130: GOTO 80  
140: IF I>27.5  
    THEN 160  
150: GOTO 80  
160: BEEP 3: PRINT  
    "YOU ARE OBE  
    SE"  
170: IF S$="M" LET  
    F=1.281I-10.  
    13: GOTO 190  
180: F=1.481-7  
190: BEEP 3: PRINT  
    "BODY FAT: "  
    ; USING "###.  
    ##"; F; " %"  
200: A=.007185*W^  
    .425*H^.725  
210: BEEP 3: PRINT  
    "SURF. AREA:  
    "; USING "##.  
    ####"; A; " SQ  
    .M."  
220: IF S$="M" LET  
    B=.296785W+1  
    9.4786L-14.0  
    12934: GOTO 2  
    40  
230: B=.183809W+3  
    4.4547L-35.2  
    70121  
240: BEEP 3: PRINT  
    "BODY WATER:  
    "; USING "##  
    #.##"; B; " L.  
    ": GOTO 20
```

(552 BYTES)



Slalom

by A Pearce

Microbee

The player is given a time limit in which to glide down a slope dotted with trees, attempting to go through gates which frequently appear on the screen. In addition to these obstacles the course itself moves from side to side. On crashing into the trees or the fencing or even the side of the gate, the player loses a great deal of the remaining time allowed.

The main loop of the game is a simple

routine which shows the MicroBee's excellent implementation of programmable characters in scrolling the trees (which are printed at the bottom of the screen) and the other objects up the screen.

If the user would prefer not to have a click of the speaker every time a tree goes past, remove the OUT commands in line 340 but leaving the other statements intact. If you own an older

model 'Bee it might be wise to run the program without these commands anyway as it may well make the game faster.

The game is written totally in HIRES PCG graphics so that more experienced programmers can vary the DATA at lines 590 to 680 to create their own variations of the game as it suits them

```
100 REM *****
110 REM ** SLALOM! By Andrew Pearce 1984 **
120 REM *****
130 REM Do intro ...
140 POKE 220,1111:CLS:LORES:PLOT 0,0TO127,0TO63,20TO0,0:PLOT
    62,19TO64,19:PLOT 59,18TO67,18:PLOT 55,17TO71,17:PLOT 52,16
    TO74,16:PLOT 49,15TO77,15
150 PLOT 63,20TO63,0:PLOT 63,20TO27,0:PLOT 63,20TO99,0:PLOT
    63,20TO43,0:PLOT 63,20TO83,0:CURS1,3:PRINT[A64 45]:CURS1,5
    :PRINT[A64 45]
```

```

160 RESTORE700:FORA=1TO7:U=1:READA1$,A2$:IFA1$=" "THENNEXTA
ELSEFORB=62TO32+ASTEP-1:U=U+1:CURSB,4:PRINTA2$;" ":CURSU,4
:PRINT" "A1$:FORC=1to10:NEXTC:NEXTB:NEXTA
170 FORA=1TO1250:NEXTA
180 INVERSE:NORMAL:RESTORE:P=63488+65*16:FORA=PTOP+16*10-1:
READB:POKEA,B:NEXTA:CLS:PRINT[A25 45];" Instructions ";
[A25 45]
190 PRINT"Hi all you ski fans! In this game you must glide down
a heavily":PRINT"wooded ski slope while going through as
many gates as you can."
200 PRINT"There is,however, a time limit which is kept and colliding
with a tree shortens this considerably.Also try to stay on the
course";
210 PRINT"- if you crash into the fencing you lose more time":
PRINT[A64 45]:CURS32,10:PRINT"< Left direction":CURS32,11
:PRINT"> Right direction"
220 PCG:CURS1,10:PRINT"ABCDE";:NORMAL:PRINT" You":PCG:
PRINT"FGGGGGGGGH";:NORMAL:PRINT" Gate":PCG:PRINT"IJ";:NORMAL:
PRINT" Tree"
230 CURS1,15:PRINT[A20 45];" Press any key to start ";[A19 45]
240 IFKEY$=""THEN240
250 CLS:S1=0:Z=0:J=0:PCG:L=32:T=12:M=2000
260 FORA=1TO15:CURS12,A:PRINTCHR$(130):CURS52,a:PRINTCHR$(130)
:NEXTA
270 IFP>0THEN300ELSELETP=INT(RND*10):IFP<4THENLETP=INT(RND*10)
:D=INT(RND*10):IFD>5THENLETD=-1ELSELETD=1
280 IFP=0THEND=0
290 IF M<=0THEN510
300 U=U+1:IFU>10THENCURSINT(RND*21)+T+2,16:PRINT"FGGGGGGGGGGGH"
:U=0
310 IFU>0THENCURSINT(RND*34)+T+2,16:PRINT"IJ"
320 CURSL-2,1:PRINT"ABCDE"
330 IFR=0THENGOSUB580
340 OUT2,0:OUT2,255:M=M-1:S1=S1+1
350 IFP>0ANDD=1THENLETT=T-1ELSEIFP>0ANDD=-1THENLETT=T+1
360 IFT<3THENLETT=T+1:P=0
370 IFT>2THENLETT=T-1:P=0
380 CURST,15:PRINTCHR$(130):CURST+40,15:PRINTCHR$(130)
390 IFPEEK(61440+L-5)=2ORPEEK(61440+L-6)=2ORPEEK(61440+L-4)=2
THENLETE=1:GOTO480
400 IFPEEK(61440+L+4)=2ORPEEK(61440+L+5)=2ORPEEK(61440+L+3)=2
THENLETE=2:GOTO480
410 IFPEEK(61504+L)=199THENLETJ=J+1:W1=FLT(INT(RND*20))*50:
CURSL-2,2:NORMAL:PRINTINT(W1):FORA=1TO50:NEXTA:CURSL-2,3:
PLAY8;9;4:PRINT" ":PCG:S1=S1+W1
420 IFPEEK(61504+L-1)<>32ANDPEEK(61504+L-1)<>199ORPEEK(61504+L-2)
<>32ANDPEEK(61504+L-2)<>199ORPEEK(61504+L)<>32ANDPEEK(61504+L)
<>199THEN470
430 POKE258,0:Q1$=KEY$
440 IFQ1$=","THENLETL=L-1
450 IFQ1$="."THENLETL=L+1
460 GOTO 270
470 PLAY1:Z=Z+1:FORA=1TO7:FORB=1TO25:NEXTB:OUT2,0:OUT2,255:NEXTA
M=M-100:GOTO 270
480 IFE=1THENLETL=L+3
490 IFE=2THENLETL=L-3
500 PLAY10:FORA=1TO7:FORB=1TO25:NEXTB:OUT2,0:OUT2,255:NEXTA:GOTO 270
510 R=0:PLAY5;6;5;6;4;5;6;5;4;5;6;4;5;10:NORMAL:CLS:PRINT[A27 45];
" Game Over "; A25 45 :IFS1>H1THENLETH1=S1
520 PRINT:PRINT:PRINTTAB(12);"No. of gates completed -"J:PRINTTAB(18)
;"No. of trees hit -"Z:PRINTTAB(29);"Score -"S1:PRINT[A64 45]
:PRINTTAB(27);"Hi Score -"H1
530 CURS20,15:PRINT"Would you like another go?"
540 Q1$=KEY$:IFQ1$=""THEN540

```

PROGRAMS

```
550 IFQ1$="Y"ORQ1$="y"THEN250
560 IFQ1$="N"ORQ1$="n"THENCLS:END
570 GOTO 540
580 PLAY 10,2;12;13;10;10;17;15;13;10:R=1:RETURN
590 DATA 0,0,0,192,48,12,3,0,0,0,0,0,0,0,0,0,0,0,0,0
600 DATA 252,48,48,48,48,50,50,50,50,60,51,51,48,48,48,48
610 DATA 0,0,0,60,195,0,0,0,60,255,255,255,255,60,0,0
620 DATA 63,12,12,12,12,204,204,204,204,60,204,204,12,12,12,12
630 DATA 0,0,0,3,12,48,192,0,0,0,0,0,0,0,0,0
640 DATA 192,192,192,192,192,192,240,252,192,252,240,192,192,192,192,
192,192
650 DATA 0,0,0,0,0,0,0,255,255,0,0,0,0,0,0,0,0
660 DATA 3,3,3,3,3,15,63,3,63,15,3,3,3,3,3,3
670 DATA 0,1,2,4,9,2,4,9,18,4,9,18,36,8,0,1
680 DATA 128,192,160,144,200,160,144,200,164,208,200,164,140,136
128,192
690 DATA "a","l","l","o","S","m"," "," ","*","*","*","*","*","*"
700 REM ***** This Program Takes up 3422 Bytes *****
```

Five W 'Bee

by Carole Sutton

Five W is a murder game and being a detective, you are asked to find five things, these being: Where in the house did the murder take place, Why did it take place, Who was murdered by Whom and what Weapon was used.

The program provides for each W a selection of choices for you, the player, to choose from. Your five choices are then automatically displayed, with correct ones highlighted at the end of the attempt. The program ends with an

epilogue if all five Ws are correct, otherwise after eleven unsuccessful attempts to solve the crime, the solution is highlighted.

```
00100 CLS
00110 CURS 7,6:PRINT "*** The Five W's - Where, Why, Who, Whom, Weapon ***"
00120 CURS 20,8:PRINT"By Carole Sutton, 1983."
00130 N=1:T=1
00140 N=N+1:PLAY N,1
00150 IF N<>22 THEN GOTO 140
00160 N=N-1:PLAY N,1
00170 IF N<>1 THEN GOTO 160
00180 PRINT:PRINT:PRINT"A murder has just been committed, but no corpse can be f
ound anywhere."
00190 PRINT"You have been asked to find the scene, reason, victim, murderer and
the weapon."
00200 PRINT:PRINT"*Press any key to continue.*"
00210 A6$=KEY$
00220 IF A6$="" THEN 210
00230 REM SCENE
00240 DATA"Study",1,"Laundry",2,"Family R'm",3,"Dining R'm",4,"Kitchen",5,"Bathr
oom",6,"Main Bedr'm",7,"Guest R'm",8,"Bedroom",9,"Billiard R'm",10
00250 REM REASON
00260 DATA"Argument",1,"Accidental",2,"Blackmail",3,"Jealousy",4,"Inheritance",5
,"Gaming Debt",6,"Cover-Up",7,"Insanity",8
00270 REM VICTIM
```

PROGRAMS

```
00280 DATA"Capt. Smith",1,"Maj. Walker",2,"Mr. Kelly",3,"Sir Turner",4,"Miss Gli
tter",5,"Mr. Edwards",6,"Miss Baxter",7,"Mrs Carroll",8
00290 REM MURDERER
00300 DATA"Mr. Keogh",1,"Capt. Sanders",2,"Sir. Albert",3,"Dr. Courtney",4,"Uncl
e Dan",5,"Miss Thomas",6,"Mrs Webster",7,"Prof. Bright",8
00310 REM WEAPON
00320 DATA"Knife",1,"Spanner",2,"Arsenic",3,"Axe",4,"Gas",5,"Rope",6,"Hands",7,"
Gun",8,"Syringe",9,"Dart",10
00330 CLEAR:RESTORE 240:CLS:Z1=9:DIM J(12),L(12),M(12),N(12),O(12):Q=1
00340 K=INT(RND*Z1):IF K<2 THEN GOTO 340
00350 FOR G=1 TO K
00360 READ A0$,B
00370 NEXT G
00380 RESTORE 260:Z1=7
00390 K=INT(RND*Z1):IF K<2 THEN GOTO 390
00400 FOR G=1 TO K
00410 READ A1$,C
00420 NEXT G
00430 RESTORE 280:Z1=7
00440 K=INT(RND*Z1):IF K<2 THEN GOTO 440
00450 FOR G=1 TO K
00460 READ A2$,Y
00470 NEXT G
00480 RESTORE 300:Z1=7
00490 K=INT(RND*Z1):IF K<2 THEN GOTO 490

00500 FOR G=1 TO K
00510 READ A3$,E
00520 NEXT G
00530 RESTORE 320:Z1=9
00540 K=INT(RND*Z1):IF K<2 THEN GOTO 540
00550 FOR G=1 TO K
00560 READ A4$,F
00570 NEXT G
00580 RESTORE 240:CLS
00590 PRINT"Where do you think the murder took place? (Type 1-10)"
00600 FOR G=1 TO 10
00610 READ A6$,H
00620 PRINT H,A6$
00630 NEXT G
00640 CURS (56):INPUT J(Q)
00650 IF J(Q)>10 THEN CURS(234):PRINT"Try Again";:GOTO 640
00660 RESTORE 260:CLS
00670 PRINT"Why do you think the murder was committed? (Type 1-8)"
00680 FOR G=1 TO 8
00690 READ A6$,H
00700 PRINT H,A6$
00710 NEXT G
00720 CURS (56):INPUT L(Q)
00730 IF L(Q)>8 THEN CURS(234):PRINT"Try Again";:GOTO 720
00740 RESTORE 280:CLS
00750 PRINT"Who do you think was murdered? (Type 1-8)"
00760 FOR G=1 TO 8
00770 READ A6$,H
00780 PRINT H,A6$
00790 NEXT G
00800 CURS (43):INPUT M(Q)
00810 IF M(Q)>8 THEN CURS(234):PRINT"Try Again";:GOTO 800
00820 RESTORE 300:CLS
00830 PRINT"By whom do you think the murder was committed? (Type 1-8)"
00840 FOR G=1 TO 8
00850 READ A6$,H
00860 PRINT H,A6$
```

PROGRAMS

READY

```
00870 NEXT G
00880 CURS (59):INPUT N(Q)
00890 IF N(Q)>8 THEN CURS (234):PRINT"Try Again";:GOTO 880
00900 RESTORE 320:CLS
00910 PRINT"Which weapon was used to commit the crime? (Type 1-10)"
00920 FOR G=1 TO 10
00930 READ A6$,H
00940 PRINT H,A6$
00950 NEXT G
00960 CURS (56):INPUT O(Q)
00970 IF O(Q)>10 THEN CURS(234):PRINT"Try Again";:GOTO 960
00980 CLS:PRINT"Your deductions are as follows with correct ones highlighted."
00990 INVERSE:PRINT TAB(3);"Scene";SPC(8);"Reason";SPC(7);"Victim";SPC(7);"Murde
rer";SPC(5);"Weapon":NORMAL
01000 FOR D=1 TO Q
01010 P=0
01020 RESTORE 240
01030 FOR G=1 TO J(D)
01040 READ A6$,H
01050 NEXT G
01060 IF J(D)=B THEN INVERSE:P=P+1
01070 PRINT A6$;TAB(13);:NORMAL:RESTORE 260
01080 FOR G=1 TO L(D)
01090 READ A6$,H
01100 NEXT G
01110 IF L(D)=C THEN INVERSE:P=P+1
01120 PRINT A6$;TAB(25);:NORMAL:RESTORE 280
01130 FOR G=1 TO M(D)
01140 READ A6$,H
01150 NEXT G

01160 IF M(D)=Y THEN INVERSE:P=P+1
01170 PRINT A6$;TAB(39);:NORMAL:RESTORE 300
01180 FOR G=1 TO N(D)
01190 READ A6$,H
01200 NEXT G
01210 IF N(D)=E THEN INVERSE:P=P+1
01220 PRINT A6$;TAB(55);:NORMAL:RESTORE 320
01230 FOR G=1 TO O(D)
01240 READ A6$,H
01250 NEXT G
01260 IF O(D)=F THEN INVERSE:P=P+1
01270 PRINT A6$;:NORMAL:PRINT
01280 NEXT D

01290 PLAY 0,11
01300 IF P=5 THEN 1340
01310 Q=Q+1:IF Q<12 THEN 580
01320 PRINT"ANOTHER unsolved case.!!! ** Solution:**"
01330 INVERSE:PRINT A0$;TAB (13);:PRINT A1$;TAB(25);:PRINT A2$;TAB(39);:PRINT A3
$;TAB(55);:PRINT A4$;:NORMAL:END
01340 PLAY 4,6;6,2;7,2;4,4;10,8
01350PRINT"Come along ";A3$;" you are going to be charged with":PRINT"the murder
of ";A2$;" in the ";A0$;". " The weapon":PRINT"used was ";
01360 IF A4$="Knife"OR"Spanner"OR"Gun"OR"Syringe"OR"Dart"THEN PRINT"a ";:GOTO 13
80
01370 IF A4$="Axe" THEN PRINT "an ";
01380 PRINT A4$;" and your reason being ";A1$;".":END
```



3-D 'Bee

by D Morrison

This program shows how simple it is to use the HIRES graphics of the MicroBee to give a good three dimensional image with just Basic commands.

The idea of the game is to proceed

down the ski slope, dodging the poles in the direction that their flags are pointing. If you go too near to a pole it will be knocked over. If you go on the wrong side it will turn around.

The program is fairly self explanatory with the several remark statements and shouldn't be too hard to follow. It will run on any 16k or 32k MicroBee with or without a joystick.

```
00100 REM
00110 REM ***** SLALOME SKIING *****
00120 REM
00130 REM **** initialize values
00140 DIM H(20),Q(20,2),U(20):OUT 0,255
00150 CLS:CURS 26,3:UNDERLINE:PRINT"Slalome Skiing":NORMAL
00160 CURS 35,16:PRINT"By David. Morrison. 1983.";
00170 CURS 1,7:IF Z<>0 THEN 210
00180 INPUT"Joystick control (YES or NO)? ";A1$
00190 S=2:IF A1$(;1,1)="Y" OR A1$(;1,1)="y" THEN LET S=1 ELSE
PRINT"Use '<' and '>' repeatatively for left and right."
00200 INPUT"Number of players (1 - 5)? ";Z
00210 INPUT"Slope of mountain (0 steep - 100 flat)? ";E
00220 INPUT"Pickup speed (0 fast - 8 slow)? ";D1:D1=(9-D1)/10
00230 REM **** clear pole data
00240 FOR I=0 TO 20:FOR J=0 TO 2:Q(I,J)=0:NEXT J:NEXT I
00250 REM **** create positions for poles (alternating)
00260 P=0:F=-1:FOR Y=240 TO 32 STEP -INT(RND*15+35)
00270 IF F=-1 THEN LET X=300+INT(RND*70):F=1 ELSE LET
X=INT(RND*70)+160:F=-1
00280 Q(P,0)=X:Q(P,1)=Y:Q(P,2)=F:P=P+1:NEXT Y:R=1
00290 REM **** set up screen for hillside
00300 HIRES:P=0:CURS 1,15:PRINT [A64 45];
00310 REM **** set error for disqualification
00320 ON ERROR GOTO 790
00330 REM **** draw in all poles
00340 GOSUB [Q(P,0),Q(P,1),Q(P,2)] 610:P=P+1
00350 IF Q(P,0)<>0 THEN 340
00360 REM **** wait for player to be ready
00370 CURS 1,16:PRINT"Player"R", press any key to start.";
00380 IF KEY$="" THEN 380
00390 REM **** initialize variables
00400 T=0:K=1:A=5:B1=-1:V=255:W=255:X=255:Y=255:P=0
00410 REM **** main game loop
00420 ON S GOSUB 510,550:V=X:W=Y:X=X-A*INT(B1):Y=Y+INT(B1)
00430 FOR I=0 TO E:NEXT I:T=T+1+E/50
00440 G=-USED:CURS1,16:PRINT"Player"R": ";
00450 CURS 15,16:G=-USED:PRINT"Time "T" ";
```

PROGRAMS

```
00460 CURS 28,16:PRINT"Time Limit "G+128" ";
00470 IF K=-1 THEN CURS 50,16:PRINT"Disqualified!";
00480 IF Y<Q(P,1) THEN GOSUB [Q(P,0),Q(P,1),Q(P,2)] 680:P=P+1
00490 PLOT V,W TO X,Y:GOTO 420
00500 REM **** input from joystick
00510 L=IN(0):L=12-(LAND12):IF L<>4 AND L<>8 THEN 560
00520 IF L=4 THEN LET A=A-1 ELSE LET A=A+1
00530 GOTO 580
00540 REM **** input from keyboard
00550 A1$=KEY$:IF A1$="," OR A1$="." THEN 570
00560 B1=B1-D1:RETURN
00570 IF A1$="," THEN LET A=A-1 ELSE LET A=A+1
00580 IF B1<-1 THEN LET B1=B1+D1
00590 RETURN
00600 REM **** draw in a pole
00610 VAR(M,N,G):O1=FLT(N+1)/80+1:PLOT M,N TO M,N+INT(40/O1)
    TO M+G*INT(20/O1),N+INT(36/O1) TO M,N+INT(32/O1):RETURN

00620 REM **** draw in a turned around pole
00630 O1=FLT(N+1)/80+1:PLOT M,N+INT(40/O1) TO M+G*INT(20/O1),
    N+INT(36/O1) TO M,N+INT(32/O1):PLOT M,N+INT(40/O1) TO
    M-G*INT(20/O1),N+INT(36/O1) TO M,N+INT(32/O1):RETURN
00640 REM **** draw in a knocked over pole
00650 O1=FLT(N+1)/80+1:PLOT M,N TO M,N+INT(40/O1) TO
    M+G*INT(20/O1),N+INT(36/O1) TO M,N+INT(32/O1)
00660 PLOT M,N TO M+INT(80/O1)*G,N TO M+INT(72/O1)*G,
    N-INT(8/O1) TO M+INT(64/O1)*G,N:RETURN
00670 REM **** check position as we go past pole
00680 VAR(M,N,G)
00690 IF G=-1 THEN 750
00700 REM **** right facing pole
00710 IF X>M THEN 730
00720 K=-1:IF X>M-20 THEN GOSUB 650 ELSE GOSUB 630
00730 RETURN
00740 REM **** left facing pole
00750 IF X<M THEN 770
00760 K=-1:IF X<M+20 THEN GOSUB 650 ELSE GOSUB 630
00770 RETURN
00780 REM **** check whether end or off screen
00790 IF X<1 OR X>510 OR Y>33 THEN CURS 1009:PRINT"Disqualified"
    ;:K=-1
00800 H(R)=T*K:R=R+1:FOR I=0 TO 1500:NEXT I:A1$=KEY$:IF R<=Z
    THEN 300
00810 REM **** add up scores
00820 FOR I=1 TO Z:IF H(I)>0 THEN LET U(I)=U(I)+10000/H(I)
00830 NEXT I
00840 REM **** display scores
00850 CLS:CURS 28,2:UNDERLINE:PRINT"Scores":NORMAL:PRINT
00860 FOR I=1 TO Z:PRINT TAB(15)"Player";I[A20 46]U(I):NEXTI
00870 REM **** input for another go
00880 CURS 1,16
00890 PRINT"Press any key to continue, <RETURN> to restart";
00900 A1$=KEY$:IF A1$="" THEN 900
00910 IF A1$=CHR$(13) THEN 150 ELSE 240
```