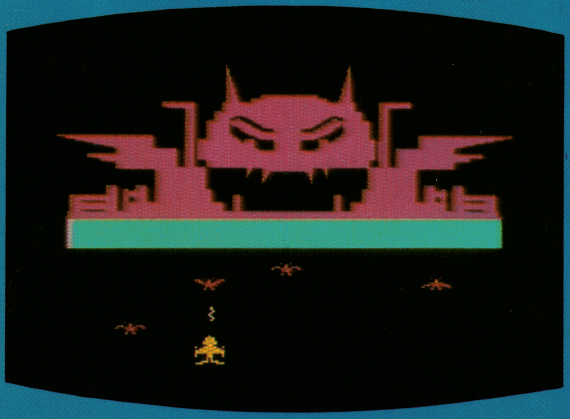
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SIXTY PROGRAMS for the COMMODORE 64



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Sixty Programs for the

Commodore 64

Robert Erskine, Humphrey Walwyn
with **Paul Stanley, Michael Bews**

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Introduction

This book was born of the conviction that it was high time a listings collection offered real value for money. You have in your hands as complete a software library as can be crammed into close on four hundred pages. We have pulled out all the stops to offer you as varied, innovative and exciting a selection of programs as possible. There are arcade action games for those of you whose fingers naturally twitch around the cursor control keys, tactical games for the more cerebrally inclined, genuinely novel games as well as classics of the genre, quizzes, tests of your mental agility, party games and a leavening of utility and educational programs. In short, for the price of a single cassette we've put together a collection of sixty fully-developed programs which have been exhaustively tested before being dumped straight to the printer. This ensures the accuracy of the listings, so all you have to do is to get your eager fingers flashing across the keyboard and faithfully reproduce the programs on your screen.

We thought we should include a brief programmers note regarding the listings in this book. The programs are listed to 40 columns width, the same number of columns as the Commodore screen display, but the line number is indented and does not align with the first column, as a listing does on the Commodore screen. This helps differentiate line numbers. Every effort has been made to clarify the graphics characters but, occasionally, when blocks of graphics are used individual characters may be hard, to discern. The following examples of these characters will enable you to identify the most difficult of them. 

Finally, we would like to extend our thanks to the team of converters and checkers without whom this project would not have been possible. Their selfless devotion to accuracy inspired us to slave over hot keyboards into the midnight hour.

So now it's up to you. A quick glance through the contents pages reveals that the Earth is being threatened by anything from an alien invasion fleet to a vampire cat! As usual, you are our only hope, so get to the keyboard and go get'em!

Soccer Supremo

You've been headhunted, and accepted the position of manager of a first division club. It's down to you to ensure that the team is run like the business football is these days. Whether or not you manage to survive to start the following season is determined by the way in which you handle the team's finances, who you buy and sell, and, of course, the position your team holds at the end of the season coupled with the kind of gate-average you have managed to achieve throughout the year. This is not a game for the softhearted. If your stars are not paying their way, it's up to you to make the tough decision to swop them up on the open market. Whether or not you've made the correct decision is reflected in the results of the individual games which are simulated throughout the season. The points system, as listed, awards 3 points for a win.

```
10 REM ********************************
11 REM *                              *
12 REM *     SOCCER SUPREMO           *
13 REM *                              *
14 REM *    CONVERTED ONTO CBM-64     *
15 REM *      BY DAVE PONTING         *
16 REM *         29-8-83              *
17 REM *                              *
18 REM ********************************
20 GOSUB10000
30 G=0:I=0:L=0:O=0:P=0:W=0
70 AT$="[redacted]":REM
<CURSOR HOME> + 25*<CURSOR DOWN>
80 REM   E$="[redacted]
[redacted]"
90 S$="
      "
100 E$="[redacted]
        [redacted]"
120 K=100000
160 GOTO4200
200 REM ***** GAME COMMENTARY *****
201 PRINT"[redacted]"E$:PRINT"[redacted]":FORX=1TO16:PRIN
TTAB(19)"|":NEXTX:PRINT" [redacted]"E$
```

```
220 PRINT"PLEASE SELECT PLAYING FORMAT:-
"
222 PRINT"1) 4-3-3(FLEXIBLE)  2) 4-2-4 (
ATTACK)
224 PRINT"3) 4-4-2(DEFENSIVE) 4) 2-3-5 (
CLASSICAL)
270 X$="":GETX$:IFX$=""THEN270
275 D=ASC(X$)-49:IFD<0ORD>3THEN270
300 PRINTLEFT$(AT$,21)S$S$S$
305 PRINTLEFT$(AT$,21)"SELECT 1) LEFT WI
NG ";
306 PRINT"2) RIGHT WING              OR 3)
 CENTRE FIELD ATTACK"
307 Y$="":GETY$:IFY$=""THEN307
310 IFASC(Y$)<49ORASC(Y$)>51THEN307
315 E=2*(ASC(Y$)-48)-2
330 PRINTLEFT$(AT$,21)S$S$S$
332 PRINTLEFT$(AT$,21)"    CALL (H)HEADS
 OR (T)TAILS "
335 X$="":GETX$:IFX$<>"H"ANDX$<>"T"THEN3
35
350 REM
395 A=J:IFINT(RND(1)*10)<6THENA=Q
410 F=10-20*SGN(ABS(A-R))
420 D=D*2
430 IFD<>2THEND=4
450 PRINTMID$(M$(A),9)" TO KICK OFF"
470 Y$="01"+CHR$(48+INT(RND(1)*2))+"000"
+CHR$(48+A)+CHR$(48+E)
471 IFG<>WTHEN Y$="00"+CHR$(48+INT(RND(1
)*2))+"000"+CHR$(48+A)+CHR$(48+E)
476 GOTO840
480 E=9
500 PRINTTAB(10+F)"■KICK OFF"
510 B=Q+J-A
520 X=5*(ASC(MID$(V$,(A-1)*12+E))-64)
540 Y$=CHR$(ASC(Y$)+1)+MID$(Y$,2)
541 Y$=LEFT$(Y$,5)+CHR$(ASC(MID$(Y$,6))+
1)+MID$(Y$,7)
542 KY$="":GETKY$:IFKY$<>""THEN5400
543 IFASC(MID$(Y$,6))=78ORASC(MID$(Y$,6)
)>107THEN920
545 N=INT(RND(1)*8)+1
547 FORC=1TO100:NEXTC
```

```
550 C=N+E+D
560 IFE=1ORASC(Y$)<50THEN570
565 IFC<EOR(C>16ANDASC(MID$(Y$,3))=49)TH
EN650
570 IFC<1THENC=1
575 IFE>3ANDASC(Y$)>51ANDRND(1)>.75THEN7
30
580 IFN>6THENC=N+ASC(MID$(Y$,8))-49
581 IFC>11THENC=11-INT(RND(1)*4)
582 IFC=EANDASC(Y$)<50THEN545
583 IFC=ETHEN680
585 PRINTTAB(10+F)"■"E"PASSES TO "C
590 IFASC(Y$)<50OR((X)50ORRND(1)<.7)ANDR
ND(1)<.9)THEN610
595 E=12-INT((C+E)/2)
596 IFE<5THENE=E+INT(RND(1)*3)
600 PRINTTAB(10-F)"■INTERCEPTED BY "E
603 Y$="1"+MID$(Y$,2)
605 GOTO710
610 E=C
620 GOTO520
650 IFE=1THEN680
655 PRINTTAB(10+F)"■"E"TACKLED BY "13-E
657 FORY=1TO50:NEXTY
660 Y=5*(ASC(MID$(V$,((B-1)*12+(12-E))))
-64)
670 IFY>(2.5+(ASC(MID$(Y$,2))-49)*SGN(F)
)*XORRND(1)>.65THEN700
680 PRINTTAB(10+F)"■"E"RETAINS BALL "
690 GOTO540
700 E=13-E
705 PRINTTAB(10-F)"■"E"GAINS THE BALL"
710 F=-F
712 FORY=1TO90:NEXTY
715 A=B
720 GOTO510
730 PRINTTAB(10+F)"■"E"** SHOOTS **"
740 FORY=1TO250:NEXTY
745 IFRND(1)>.95ORRND(1)*5+SGN(F)*(ASC(M
ID$(Y$,2))-49)>3.5THEN800
750 Y=5*(ASC(MID$(V$,((B-1)*12+1)))-64)
760 IFY*RND(1)>8THEN800
765 IFRND(1)>.6THEN780
770 PRINTTAB(10-F)"■ ** SAVED **"
```

```
772 FORE=1TO20:NEXTE
773 Y$="0"+MID$(Y$,2)
775 E=1
777 GOTO710
780 PRINTTAB(10+F)" ** CORNER **"
782 FORX=1TO7:NEXTX
785 FORE=1TO250:NEXTE
790 E=5+INT(RND(1)*7)
795 PRINTTAB(10+F)" TAKEN BY "E
797 Y$="0"+MID$(Y$,2)
798 GOTO540
800 PRINTTAB(10+F)"■"E"■ SCORES GOAL "
810 PRINT: PRINTE$
815 FORE=1TO10:NEXTE
820 E=4+SGN(ABS(A-H))
830 Y$=LEFT$(Y$,E-1)+CHR$(ASC(MID$(Y$,E)
)+1)+MID$(Y$,E+1)
835 F=-F
836 A=B
837 Y$="0"+MID$(Y$,2)
840 PRINT"■                S C O R E "
860 PRINT:PRINTMID$(M$(H),9)" "ASC(MID$(
Y$,4))-48;
870 PRINTTAB(19)MID$(M$(R),9)" "ASC(MID$
(Y$,5))-48
880 PRINTE$
910 GOTO480
920 X$="H A L F  T I M E "
925 IFASC(MID$(Y$,6))>107THENX$=" F U L
L  T I M E"
930 PRINTE$:PRINTTAB(12)"■"X$
935 FORY=1TO1000:NEXTY
940 PRINTE$
955 Y$="0"+MID$(Y$,2)
960 IFASC(MID$(Y$,6))>107THEN970
966 Y=J+Q+48-ASC(MID$(Y$,7))
967 IFA<>YTHENF=-F
968 A=Y
969 GOTO840
970 PRINT"F I N A L  S C O R E"
972 PRINTMID$(M$(H),9)" "ASC(MID$(Y$,4))
-48;
973 PRINTTAB(19)MID$(M$(R),9)" "ASC(MID$
(Y$,5))-48
```

```
975 FORX=1TO200:NEXT
980 GOTO5535
1000 REM ***** MAIN MENU (DIARY) ******
1002 PRINT"■";
1003 FORX=1TO4
1007 H=VAL(MID$(F$,(W-1)*8+2*X-1,1))
1010 R=VAL(MID$(F$,(W-1)*8+2*X,1))
1012 IFH=QORR=QTHEN1016
1014 NEXTX
1016 J=H
1018 IFH=QTHENJ=R
1020 T=0
1022 U=0
1024 FORX=1TO12
1026 T=T+50000*(ASC(RIGHT$(V$,(Q-1)*12+X
))-64)
1028 U=U+50000*(ASC(RIGHT$(V$,(J-1)*12+X
))-64)
1030 NEXTX
1032 IFS>6THENS=6
1035 IFQ=0ORP>.9THEN1050
1040 PRINT"■■■■■■■■■■■■■■OVERDRAFT CALLED
IN BY THE BANK"
1043 K=K-(INT(O*.06))
1046 O=0:FORTT=1TO3000:NEXTTT
1047 PRINT"■■";
1050 IF(K<O*-1 OR (ASC(LEFT$(M$(Q),1))=8
 ANDW>4)) AND L<>W THEN6500
1082 X$="AWAY"
1085 IFH=QTHENX$="HOME"
1087 POKE53280,6:POKE53281,6
1090 PRINTTAB(8)"■CLUB:"MID$(M$(Q),9)
1092 PRINTTAB(8)"■■SUPREMOS DESK DIARY":
PRINT"■  DAY "STAB(30)"WEEK "W:PRINTE$
1094 PRINT"■■ 1. CLUB ACCOUNTS":PRINT"■
2. LEAGUE TABLE"
1095 PRINT"■ 3. WEEKLY LEAGUE FIXTURES"
1096 PRINT"■ 4. WEEK "W"BUSINESS MATTERS
":PRINT"■ 5. ANALYSE WEEK "W
1098 PRINT"■    OPPONENTS:-"MID$(M$(J),9
)" ("X$")"
1099 PRINT"■    PLUS:- PLAYER TRANSFER M
ARKET"
1100 PRINT"■    ■*** PRESS CHOSEN KEYCOD
E ***■"
```

```
1105 IFS>=6THENPRINTTAB(10)"■*** MATCH D
AY ***":PRINTTAB(12)"■PRESS ANY KEY";
1110 X$="":GETX$:IFX$=""THEN1110
1120 IFS>=6THENPOKE53280,4:POKE53281,5:P
RINT"■";:GOTO200
1130 IFX$<"1"ORX$>"5"THEN1110
1135 POKE53281,2:PRINT"■";
1140 ONVAL(X$)GOTO1200,1400,1600,1800,20
00
1200 REM******* CLUB ACCOUNTS *******
1210 PRINT"■":PRINT"      CLUB ACCOUNTS:
 WEEK "W:PRINTE$;S$;S$:PRINT" BANK BALAN
CE ";TAB(20)"£"K
1220 PRINT" PERMITTED OVERDRAFT £"O:PRIN
T:PRINTE$:PRINT"  TEAM VALUE:  £"T
1230 PRINT"■■ PRESS ■O■ TO DISCUSS OVERD
RAFT OR
1235 PRINT"■  ■RETURN■ TO RETURN TO DIAR
Y"
1240 X$="":GETX$:IFX$<>""THEN1240
1250 GETX$:IFX$=""THEN1250
1260 IFX$<>"0"ANDX$<>"O"THEN1000
1270 PRINT"■■■ ENTER 1 TO 4 ( £  00,000.
00 )
1280 INPUTX$:IFASC(X$)<49 OR ASC(X$)>52T
HEN1280
1290 X=100000*VAL(X$)
1300 IFRND(1)<.350RX+O>400000THENGOTO135
0
1310 O=O+X
1320 P=INT(RND(1)*3)+2
1330 PRINT"■■"S$;S$;"■■■ £";X" EXTENDED
FOR "P"WEEKS"
1340 GOTO1360
1350 PRINT"■    ******  REFUSED ******"
1360 S=S+1
1370 FORX=1TO3000:NEXTX
1380 GOTO1000
1400 REM ***** LEAGUE TABLE *****
1410 PRINTTAB(5)"SUPER LEAGUE - WEEK "W-
1:PRINTE$
1420 PRINTTAB(29)"GOALS":PRINTTAB(19)"W
 D  L  FR AG PT"
1430 FORX=1TO8
```

```
1440 FORY=1TO8
1450 IFASC(M$(Y))<>XTHEN1560
1460 A=ASC(MID$(M$(Y),3))-65
1470 B=ASC(MID$(M$(Y),4))-65
1480 C=ASC(MID$(M$(Y),5))-65
1485 D=ASC(MID$(M$(Y),6))-65
1490 E=ASC(MID$(M$(Y),7))-65
1495 F=ASC(MID$(M$(Y),8))-65
1500 PRINTMID$(M$(Y),9);
1510 PRINTTAB(20-LEN(STR$(A)))A;TAB(23-L
EN(STR$(B)))B;
1520 PRINTTAB(26-LEN(STR$(C)))C;TAB(30-L
EN(STR$(D)))D;
1530 PRINTTAB(33-LEN(STR$(E)))E;TAB(36-L
EN(STR$(F)))F
1560 NEXTY,X
1585 PRINT"■■■■■■ PRESS ■RETURN■ TO RETU
RN TO DIARY";
1590 INPUTX$
1595 IFW=15THEN6500
1597 GOTO1000
1600 REM ****** LEAGUE FIXTURES ******
1610 Y=W
1630 PRINT"■";
1640 PRINT"   LEAGUE FIXTURES FOR WEEK "
Y:PRINT:PRINT
1650 FORX=1TO4
1655 F1=8*(Y-1)+X*2-1:H=VAL(MID$(F$,F1,1
))
1658 F2=8*(Y-1)+X*2:R=VAL(MID$(F$,F2,1))
1659 PRINT"■"MID$(M$(H),9)TAB(15)" V "TA
B(20)MID$(M$(R),9)
1675 NEXTX
1680 PRINT"■■■■■ENTER ANOTHER WEEK NUMBER
 (1 TO 14) OR"
1682 PRINT"■ PRESS ■RETURN■ TO RETURN TO
 DIARY"
1685 X$="":INPUTX$:IFX$=""THEN1000
1690 Y=INT(VAL(X$))
1692 IFY<1ORY>14THEN1685
1695 GOTO1630
1800 REM ****** ACTION FILE ******
1805 PRINT"  ACTION FILE - WEEK "W:PRINT
"■"E$"■"
```

```
1807 PRINT" 1. SPONSOR / ADVERTISER"
1808 PRINT"■ 2. TRAVEL / TICKET SALES /
SUPPORTERS"
1809 PRINT"■ 3. TRAINING / PRESS RELATIO
NS":PRINT"■ 4. GROUND IMPROVEMENT"
1815 PRINT"■ 5. ESCAPE FOR GOLF AND LEAV
E IT ALL TO"
1817 PRINT"       BEN AND JO, YOUR ASSIST
ANT AND            SECRETARY"
1820 PRINTE$
1830 PRINT"        *** SELECT ACTIVITY **
*■"
1840 GETX$:IFX$<>""THEN1840
1845 GETX$:IFX$=""THEN1845
1850 IFX$<"1"ORX$>"5"THEN1840
1855 X=ASC(X$)-48
1857 N=INT(RND(1)*4)+1
1860 ONXGOTO1865,1880,1890,1900,1910:GOT
O1840
1865 IFFL=1ANDN=1THEN1857
1866 X(1)=100000:X$(1)="YOU MADE IT..1 Y
EAR SPONSORSHIP DEAL":FL=1
1867 X(2)=10000:X$(2)="SINGLE GAME SPONS
ORSHIP"
1868 X(3)=40000:X$(3)="PITCH ADVERTISEME
NT RENTED FOR"
1869 X(4)=-15000:X$(4)="ADVERTISER CANCE
LLED CONTRACT"
1875 GOTO1887
1880 X(1)=100000:X$(1)="TRAVEL AGENT GIV
ES YOU REBATE"
1882 X(2)=100000:X$(2)="SUPPORTERS CLUB
GIVES YOU DONATION"
1884 X(3)=-40000:X$(3)="JO (SEC) LOSES 4
00 SEASON TICKETS"
1886 X(4)=-40000:X$(4)="BEN (ASS.) FIXED
 A BAD FOREIGN TOUR DEAL"
1887 PRINT"■"X$(N):PRINTTAB(18)"£"X(N):K
=K+X(N)
1888 GOTO1910
1890 G=W:PRINTTAB(9)"TEAM MORALE IS HIGH
"
1895 PRINTTAB(8)"■(GOOD PRESS COVERAGE)"
:GOTO1910
```

```
1900 I=I+1:K=K-100000:PRINT" STAND CAPAC
ITY UP BY 10,000 SEATS":PRINT" COST £100
,000"
1910 FORX=1TO3000:NEXTX:S=S+2:GOTO1000
2000 REM ***** TEAM DETAILS NEXT GAME **
****
2010 PRINT"■";
2070 X=14*SGN(ABS(H-Q))
2080 PRINTTAB(5)"HOME TEAM "TAB(25)"AWAY
 TEAM":PRINT
2085 PRINTMID$(M$(H),9)TAB(23)MID$(M$(R)
,9):PRINTTAB(X)"MANAGER:SUPREMO"
2090 PRINTE$:PRINTTAB(5)"£ ,000"TAB(25)"
£ ,000"
2096 F=0:C=0
2100 FORX=1TO12
2105 IFX<10THENPRINT" ";
2110 Y=50*(ASC(MID$(V$,((H-1)*12+X)))-64
)
2115 D=50*(ASC(MID$(V$,((R-1)*12+X)))-64
)
2117 F=F+Y/1000:C=C+D/1000
2120 PRINTX")"TAB(11-LEN(STR$(Y)))YTAB(3
1-LEN(STR$(D)))D
2125 FORY=1TO7
2126 E=ASC(MID$(B$(Y),2))-64
2127 IFE<>XTHEN2150
2130 D=ASC(MID$(B$(Y),1))-64
2135 IFD<>HANDD<>RTHEN2150
2140 PRINTLEFT$(AT$,E+7)SPC(15+17*SGN(AB
S(H-D)))MID$(B$(Y),3)
2150 NEXTY
2200 NEXTX
2300 PRINT"TOTAL "F" M."TAB(16)"TOTAL "C
"M.":PRINTE$
2310 PRINT"ENTER NUMBER OF PLAYER TO SWA
P "
2320 PRINT"        OR ■RETURN■  TO RETURN
 TO DIARY";
2340 X$="":INPUTX$:IFX$=""THEN1000
2350 IFS>=6ORVAL(X$)<1ORVAL(X$)>11THEN10
00
2357 X=VAL(X$)
2360 N=INT(RND(1)*7)+1
```

```
2370 IFN=QTHEN2360
2372 A=(N-1)*12+X
2374 B=(Q-1)*12+X
2375 D=75*(ASC(MID$(V$,A))-64)
2377 E=D-(D/15)*INT(RND(1)*5)
2378 S=S+1
2380 PRINT"□□□"S$S$S$"□□□A NO."X" IS OFF
ERED AT £"D
2381 Y$="":INPUT" YOUR OFFER ( OR RETURN
 ) ";Y$:IFY$=""THEN2000
2395 IFVAL(Y$)>=ETHEN2420
2405 PRINT"□      ■■SORRY■ - YOUR OFFER I
S TOO LOW■"
2410 FORXX=1TO1000:NEXTXX
2415 GOTO2380
2420 PRINT"□■      ■*** ACCEPTED - THANK
YOU ***■■"
2425 C=1000*(50*(ASC(MID$(V$,B))-64)-VAL
(Y$))
2430 K=K+C
2460 X$=MID$(V$,A,1):XX$=MID$(V$,B,1)
2470 V$=LEFT$(V$,(A-1))+XX$+MID$(V$,(A+1
))
2475 V$=LEFT$(V$,(B-1))+X$+MID$(V$,(B+1)
)
2480 FORY=1TO7
2485 IF(ASC(MID$(B$(Y),1))=Q+64 OR ASC(M
ID$(B$(Y),1))=N+64)THEN2487
2486 GOTO2490
2487 IFASC(MID$(B$(Y),2))=X+64THENB$(Y)=
CHR$(Q+N+128-(ASC(B$(Y))))+MID$(B$(Y),2)
2490 NEXTY
2495 S=S+2:FORXX=1TO1000:NEXTXX
2500 GOTO2000
4200 REM ***** INITIALIZATION *****
4210 B$(1)="BASHILTON":B$(2)="AFWHELAN "
:B$(3)="DGKEEGAN ":B$(4)="GEFRANCIS"
4220 B$(5)="CJREGIS   ":B$(6)="EGWILKINS"
:B$(7)="HHHODDLE"
4290 V$="DADADTBDCABATBDDCBABACDABCBBADC
ACTBADABACBTADDBADDACBDTCSCBADAABBCBBDA"
4295 V$=V$+"BADBAATABCADDABABCAABTBCBA":
REM TYPE V$ & F$ EXACTLY
4300 F$="123456783142758614235867516273 8
```

```
4162538475364718218273645214365871324 5"
4350 F$=F$+"76832417685152637485261748 31
728354654637281"
4400 M$(1)=" AAAAAAA LIVERPOOL"
4410 M$(2)=" AAAAAAA NOTTINGHAM"
4420 M$(3)=" AAAAAAA WEST BROMWICH"
4430 M$(4)=" AAAAAAA SOUTHAMPTON"
4440 M$(5)=" AAAAAAA MANCHESTER U."
4450 M$(6)=" AAAAAAA LEEDS"
4460 M$(7)=" AAAAAAA MANCHESTER C."
4470 M$(8)=" AAAAAAA TOTTENHAM"
4480 FORX=1TO8
4490 IFW<2THENM$(X)=CHR$(X)+MID$(M$(X),2
)
4495 NEXTX:POKE53280,6:POKE53281,6
4680 PRINT"■";
4700 PRINT"■     S O C C E R  S U P R E
M O":PRINT
4710 PRINT"     I N I T I A L I Z A T I O
 N":PRINTE$
4715 PRINTTAB(12)"■SUPER LEAGUE":PRINT
4720 PRINTTAB(2)"■STAR PLAYERS"TAB(25)"■
TEAMS":PRINTE$:PRINT
4740 A=0
4750 FORX=1TO7
4760 PRINT"■"CHR$(X+64)")  "MID$(B$(X),3
);
4770 PRINTTAB(20)"■"CHR$(X+A+79)") "MID$
(M$(X+A),9)
4775 IFX=1THENPRINTTAB(9)"■GOALKEEPER■ Q
) "MID$(M$(2),9)
4780 IFX=1THENA=1
4790 NEXT
4800 PRINT"■■ IF YOU WISH TO CHANGE A ST
AR PLAYER OR   TEAM PRESS APPROPRIATE";
4805 PRINT" LETTER AND         ENTER NEW
NAME"
4807 PRINT"■    PRESS ■RETURN■ IF LIST I
S O.K."
4810 REM**********— BEEP *****
4820 GETA$:IFA$<>""THEN4820
4825 GETA$:IFA$=""THEN4825
4827 IFA$=CHR$(13)THEN4900
4840 IFA$<"A"ORA$>"W"THEN4820
```

```
4850 REM*****BEEP*****
4852 A=0
4855 IFA$>"G"THENA=1
4860 PRINT"■ENTER NEW NAME ("A$")■";:INP
UTY$
4870 IFY$=""THEN4680
4880 X=ASC(A$):IFA=0THENB$(X-64)=LEFT$(B
$(X-64),2)+Y$
4885 IFA=1THENM$(X-73)=LEFT$(M$(X-73),9)
+Y$
4890 GOTO4680
4900 PRINTLEFT$(AT$,20)S$;S$;S$;S$;S$;
4910 PRINTLEFT$(AT$,20)" SUPREMO,":PRINT
"   THESE CLUBS WANT YOU  AS MANAGER"
4915 PRINT"  ■ PRESS LETTER OF YOUR CHOS
EN CLUB ■"
4920 GETA$:IFA$<>""THEN4920
4925 GETA$:IFA$=""THEN4925
4930 IFA$<"P"ORA$>"W"THEN4920
4990 Q=ASC(A$)-79:S=1:M=0:W=1:GOTO1000
5400 REM ***  END OF GAME  ***
5415 YY$=LEFT$(Y$,3)+CHR$(ASC(MID$(Y$,4)
)+INT(RND(1)*3))
5420 Y$=YY$+CHR$(ASC(MID$(Y$,5))+INT(RND
(1)*3))+MID$(Y$,6)
5530 REM *** END OF NORMAL GAME ***
5535 POKE53281,3:PRINT"■";
5537 X$="":D=0
5540 A=INT(((RND(1)+0.3)*(T+U)/120)+2500
*(18-ASC(M$(H))-ASC(M$(R))))
5542 IFA>50000+I*10000THEND=A-(50000+I*1
0000)
5545 IFD>0THENX$=" CAPICITY "
5547 B=INT((1.1+I+RND(1))*(A-D)*(1+SGN(A
BS(R-Q)))/2)
5548 C=9700+INT((9-ASC(M$(Q)))*2800)
5550 PRINT" CLUB: "MID$(M$(Q),9):PRINT"
■  MATCH ATTENDANCE: "(A-D)X$
5555 PRINT" ( ESTIMATED LOCK-OUT ="D" )"
:
5557 PRINT"■  GATE SHARE"TAB(30)"£"TAB(3
8-LEN(STR$(B)))B
5560 PRINT"  RUNNING COSTS WEEK "W;TAB(3
0)"£"TAB(38-LEN(STR$(C)))C:PRINTE$
```

```
5565 PRINT"■LEAGUE RESULTS WEEK "W
5566 K=K+B-C
5580 X$="012345012344012334012234011234011223001123001122
2"
5600 FORX=1TO4
5610 H=VAL(MID$(F$,(8*(W-1)+(X*2)-1),1))
5620 R=VAL(MID$(F$,(8*(W-1)+(X*2)),1))
5630 PRINTMID$(M$(H),9);TAB(20)MID$(M$(R
),9)
5646 IFH<>QANDR<>QTHEN5720
5680 A=ASC(MID$(Y$,4))-48
5690 B=ASC(MID$(Y$,5))-48
5700 GOTO5750
5720 REM
5730 A=ASC(MID$(X$,((ASC(M$(H))-1)*6+INT
(RND(1)*6)+1)))-48
5740 B=ASC(MID$(X$,((ASC(M$(R))-1)*5+INT
(RND(1)*6)+1)))-48
5750 MM$=LEFT$(M$(H),5)+CHR$(ASC(MID$(M$
(H),6))+A)
5760 M$(H)=MM$+CHR$(ASC(MID$(M$(H),7))+B
)+MID$(M$(H),8)
5770 MM$=LEFT$(M$(R),5)+CHR$(ASC(MID$(M$
(R),6))+B)
5780 M$(R)=MM$+CHR$(ASC(MID$(M$(R),7))+A
)+MID$(M$(R),8)
6120 IFA<>B THENGOTO6140
6122 MM$=LEFT$(M$(H),3)+CHR$(ASC(MID$(M$
(H),4))+1)+MID$(M$(H),5,3)
6125 M$(H)=MM$+CHR$(ASC(MID$(M$(H),8))+1
)+MID$(M$(H),9)
6127 MM$=LEFT$(M$(R),3)+CHR$(ASC(MID$(M$
(R),4))+1)+MID$(M$(R),5,3)
6130 M$(R)=MM$+CHR$(ASC(MID$(M$(R),8))+1
)+MID$(M$(R),9)
6135 GOTO6200
6140 IFA<BTHEN6170
6150 MM$=LEFT$(M$(H),2)+CHR$(ASC(MID$(M$
(H),3))+1)+MID$(M$(H),4,4)
6155 M$(H)=MM$+CHR$(ASC(MID$(M$(H),8))+3
)+MID$(M$(H),9)
6160 M$(R)=LEFT$(M$(R),4)+CHR$(ASC(MID$(
M$(R),5))+1)+MID$(M$(R),6)
6165 GOTO6200
```

```
6170 MM$=LEFT$(M$(R),2)+CHR$(ASC(MID$(M$
(R),3))+1)+MID$(M$(R),4,4)
6180 M$(R)=MM$+CHR$(ASC(MID$(M$(R),8))+3
)+MID$(M$(R),9)
6190 M$(H)=LEFT$(M$(H),4)+CHR$(ASC(MID$(
M$(H),5))+1)+MID$(M$(H),6)
6200 PRINT"□"TAB(15)A;TAB(35)B
6220 NEXTX
6290 PRINT"■PRESS ■RETURN■ TO CONTINUE"
6300 X$="":INPUTX$
6310 PRINT"■   ■PLEASE WAIT A FEW MOMENT
S"
6320 C=200
6325 X$="           "
6330 FORX=1TO8
6340 A=-100
6350 FORY=1TO8
6360 D=ASC(MID$(M$(Y),8))+ASC(MID$(M$(Y)
,7))/20
6370 IFD>CORMID$(X$,Y,1)<>" "ORD<=ATHEN6
400
6380 B=Y
6390 A=D
6400 NEXTY
6410 M$(B)=CHR$(X)+MID$(M$(B),2)
6420 X$=LEFT$(X$,(B-1))+"1"+MID$(X$,(B+1
))
6430 C=A
6440 NEXTX
6445 S=1
6450 W=W+1
6455 P=P-1
6460 PRINT"■";
6470 GOTO1400
6500 REM ****** CHAIRMAN'S ―、ICE ******
6501 PRINT"■"
6502 IFW=15THEN6510
6503 REM
6505 IFL<>WTHENM=M+1
6510 PRINTE$:PRINTTAB(10)"■CHAIRMANS OFF
ICE":PRINTE$:PRINTE$S$S$
6512 PRINT"■ PERMITTED OVERDRAFT £"O:PRI
NT"■ BANK BALANCE £"K
6514 PRINT"■ LEAGUE POSITION "ASC(M$(Q))
" OUT OF 8"
```

```
6516 PRINT"■ ■MISDEMEANOR WARNING NUMBER
 "M
6540 IFM>4THENPRINT"■■ SUPREMO - YOU ARE
 SACKED":PRINTE$E$E$:END
6560 IFW>14THEN6570
6565 L=W
6566 INPUT"■■ PRESS ■RETURN■ TO RETURN T
O DIARY";X$
6568 GOTO1000
6570 PRINT"■■■   CONGRATULATIONS - YOU W
IN "
6575 INPUT"   ■ PRESS <RETURN> FOR NEXT
SEASON ";X$
6580 GOTO4400
10000 REM *** LOAD M/CODE ***
10005 S=0:FORT=0TO78:READX:POKE(49152+T)
,X:S=S+X:NEXTT
10007 IFS<>8956THENPRINT"DATA ERROR IN L
INES 10030-10060":END
10010 POKE54277,120:POKE54278,230
10015 POKE54296,15:POKE49182,20:POKE5428
7,80
10020 SYS49152:RETURN
10030 DATA120,173,20,3,141,26,192,173,21
,3,141,27,192,169,48,141,20,3,169,192
10040 DATA141,21,3,88,96,234,49,234,234,
234,16,234,120,173,26,192,141,20,3,173
10050 DATA27,192,141,21,3,88,96,234,165,
197,201,64,240,14,141,1,212,173,30,192
10060 DATA105,1,141,4,212,76,75,192,173,
30,192,141,4,212,234,108,26,192,0
```

Nightfighter

You have lost the rest of your bomber squadron and are flying back to base all on your own. In the distance is an enemy plane. You're the tail-end Charlie, and as the first of your foes closes in you've got to get him in your cross-hairs and blast him out of the skies. You can fire a second burst only after the first has run its course, and the enemy will weave about more on their run-ins as your score rises.

```
0 REM NIGHTFIGHTER.......WALWYN
1 GOSUB63900
3 GOSUB 1000
5 W2=256:PT=0:H=0:S=.02
6 DIM PK(255):DIM F(8,2),FD(8,2):DIM GK(
255):GOSUB2000
7 K=0:FORI=0TO1:SS(I)=INT(RND(1)*1000):N
EXTI
8 A5=0:M=9:MM=9:AL=0:AK=0:AA=0:FG=0:GOSU
B1300:R=0:RR=0
9 POKEUG,U0:PRINT"■"
10 PRINT"■":PP=P:P=PEEK(197)
15 ON PK(P) GOTO 105,20,30,40,50,60
20 K=K+1:AK=AK+1
22 IF P=62THEN50
24 IF P=12THEN40
28 GOTO100
30 K=K-1:AK=AK-1
32 IF P=14THEN50
34 IF P=20THEN40
38 GOTO100
40 K=K-40:AL=AL-1
48 GOTO100
50 K=K+40:AL=AL+1
58 GOTO100
60 IFFG=0THENFG=1:KW=K
100 IFPP=PTHENPP=0:GOTO15
105 IF AA=0 THEN GOSUB50000
140 IFAA=0ORAK<0ORAK>39ORAL<1ORAL>23THEN
152
150 PRINTLEFT$(D$,AL);TAB(AK)D$(M)
```

```
152 IFFG=0THEN160
153 IFR>MTHENFG=0:R=0:RR=0:GOTO160
154 FOR I=1TO2
155 IF R<>M THEN157
156 GK=PEEK(F(R,I)+K-KW):ON GK(GK)GOTO30
0,157
157 IFR<5ORI=2THENPOKE F(R,I)+K-KW,FD(R,
I)
158 IFR<5ORI=2THENPOKE 54272+F(R,I)+K-KW
,U2
159 NEXTI:RR=RR+.11*(10-RR):R=INT(RR):IF
 R=9THEN R=100
160 IFAATHENFORI=Q1TOQ4:POKEGG(I),GD:POK
E54272+GG(I),U3:NEXTI
162 IFAATHEN164
163 GOTO180
164 A8=0:IF RND(1)*(.03+S)>.055THENA8=1
175 MM=MM-S*(10-MM):M=INT(MM):IF M<0THEN
GOSUB51000:M=9:MM=9
178 IF A8THENAK=AK+K5:AL=AL+L5:A5=A5+1:I
FA5=10THENA5=-10:L5=-L5:K5=-K5
180 REM DISPLAY TWINKLING STARS
182 FORI=0TO1:IF(SS(I)+K)<00R(SS(I)+K)>1
000THEN184
183 POKEUS+SS(I)+K,42:POKEUC+SS(I)+K,UE
184 NEXTI
200 GOTO10
300 REM AIRCRAFT HIT
310 POKEUG,UR
350 FOR I=1TO600:NEXTI
360 FG=0:A5=0
370 S=S+.005
379 PT=PT+INT(S*MM*100)
380 POKEUG,U0:H=H+1:PRINT"■"
382 FOR I=1TO5:PRINTTAB(I*4)"■W E L L
D O N E":NEXT I
386 PRINT"■■YOU'VE HIT"H"ENEMY PLANES
387 PRINT"■AND SCORED"INT(S*MM*100)"POIN
TS THAT GO.
388 PRINT"■THAT BRINGS YOUR POINTS TOTAL
 TO"PT"
389 PRINT"■■THE RECORD IS 10 PLANES."
390 PRINT"■THE NEXT PLANE WILL COME AT Y
OU FASTER
```

```
391 PRINT"AND MORE AWKWARDLY..."
395 FOR I=1TO2000:NEXT I
399 GOTO8
1000 REM INSTRUCTIONS
1005 PRINT"■NIGHTFIGHTER
1007 PRINT"■SHOOT DOWN THE ENEMY PLANES
OUT OF A"
1009 PRINT"STARLIT NIGHT SKY......
        "
1010 PRINT"...BEFORE THEY SHOOT YOU DOWN
."
1011 PRINT"■■PRESS DOWN KEYS TO MOVE ARO
UND THE SKY.
1012 PRINT"■                  Q W E"
1013 PRINT"                   \|/ "
1014 PRINT"                  A-S-D"
1015 PRINT"                   /|\ "
1016 PRINT"                  Z X C"
1020 PRINT"■KEEP DEPRESSED FOR A LARGER
MOVE."
1022 PRINT"HOLD DOWN   S   TO OPEN FIRE.
"
1023 PRINT"■THE GUN SIGHTS SWITCH ON AUT
OMATICALLY
1024 PRINT"AS SOON AS A NEW PLANE IS MOV
ING IN TO  ATTACK YOU.
1025 PRINT"■THIS IS A 3 DIMENSIONAL SIMU
LATION SO
1026 PRINT"WATCH OUT FOR RANGE....  ■HAV
E FUN.■"
1030 PRINT"■PRESS ANY KEY WHEN READY■"
1035 GETA$:IFA$=""THEN1035
1040 PRINTU7$;"■■■■■■■■■■■■■■■■■■■■OK. WAIT
 A MOMENT"
1045 PRINTU9$;
1090 RETURN
1300 D$(8)=".":D$(7)="-":D$(6)="┴":D$(5)
="┴":D$(4)="▌▌─O─O─▌▌▌┬"
1310 D$(3)="▌▌─()─O─▌▌▌▌┬┬":D$(2)="▌▌▌▌──(O)
──O▌▌▌▌▌/▀▀\O▌▌▌▌┬┬"
1320 D$(1)="▌▌▌▌▌
```

```
1400 D$="■":FOR I=0TO100:D$=D$+"■":NEXTI
1500 Q1=1:Q4=4:GG=500+US:GG(1)=496+US
1505 GG(2)=504+US:GG(3)=380+US:GG(4)=620
+US:GD=91
1510 QW=480+US
1999 RETURN
2000 FOR I=0TO255:PK(I)=1:NEXT I
2010 PK(10)=2:PK(18)=3:PK(23)=4:PK(9)=5
2020 PK(62)=2:PK(14)=3:PK(12)=2:PK(20)=3
:PK(13)=6
2040 FORI=0TO255:GK(I)=1:NEXTI
2050 GK(42)=2:GK(46)=2:GK(32)=2:GK(160)=
2:GK(233)=2
2100 F(0,1)=US+490:F(0,2)=US+510:F(1,1)=
US+497:F(1,2)=US+503
2110 F(2,1)=US+498:F(2,2)=US+502:F(3,1)=
US+499:F(3,2)=US+501
2120 FOR J=1TO2:F(4,J)=F(3,J):NEXTJ
2130 FOR I=5TO6:FORJ=1TO2:F(I,J)=US+500:
NEXT J,I
2140 FOR I=7TO8:FORJ=1TO2:F(I,J)=US+540:
NEXT J,I
2200 FD(0,1)=102:FD(1,1)=227:FD(2,1)=248
:FD(3,1)=98:FD(4,1)=108
2210 FD(5,1)=111:FD(6,1)=100:FD(7,1)=69:
FD(8,1)=45
2220 FOR I=0TO8:FD(I,2)=FD(I,1):NEXTI
2230 FD(4,2)=123
2999 RETURN
50000 IF RND(1)<.9THEN RETURN
50010 AA=1:AK=INT(RND(1)*24+8)
50030 AL=INT(RND(1)*8+7)
50040 K5=INT(RND(1)*3-1):L5=INT(RND(1)*3
-1)
50099 RETURN
51000 REM FLASH SCREEN FIVE TIMES
51002 FORK=1TO5:POKEUG,U1:FORN=1TO30:NEX
TN:POKEUG,U0
51004 FORN=1TO20:NEXTN:NEXTK
51010 AA=0:FG=0:R=0:RR=0:AK=0:AL=0:S=.02
:A5=0
51050 PRINT"■■■■OH DEAR OH DEAR..
51060 PRINT"■■YOU'VE BEEN SHOT DOWN AND
THAT'S YOUR
```

```
51070 PRINT"■LOT FOR THE MOMENT!
51080 PRINT"■■YOU SHOT DOWN"H"PLANES.
51082 PRINT"■WITH A TOTAL OF"PT"POINTS.
51085 PRINT"■■THE RECORD IS 10 PLANES...
51090 PRINT"■■ANOTHER GO?  (Y/N)
51091 GET A$:IF A$<>"" THEN 51091
51092 GET A$:IFA$=""THEN 51092
51094 IF A$="N" THEN PRINT"■■OK. THANKYO
U.":END
51096 PT=0:H=0
51099 RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
="":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Bridges

You are a civil engineer who must build the bridge across a dangerous ravine before the train steams across. Watch out, there isn't much time, and you must place each of your limited supply of bricks in the correct sequence to support subsequent ones.

```
5 REM BRIDGES...WALWYN
7 GOSUB7000
10 REM NB=NO. OF BRICKS
12 REM P=SCREEN POSITION OF BUILDER
14 REM G=BASE SCREEN POSITION FOR SCREEN
 POKE
16 REM GC=BASE SCREEN POSITION FOR SCREE
N COLOUR
18 REM D(0) AND D(1) ARE SCREEN CHARACTE
RS FOR A BRICK
19 REM BK(0 AND 1) ARE THE CHARACTERS UN
DER THE BUILDER
20 REM BT(0 AND 1) ARE THE CHARACTERS DI
SPLAYED NOW
21 REM BC(0 AND 1) ARE THE BRICK COLOURS
22 REM RX IS HORIZONTAL POSITION OF TRAI
N
23 REM RY IS VERTICAL POSITION OF TRAIN
24 REM R$ IS THE TRAIN DESIGN
26 REM S$(0) IS THE SIGNAL DESIGN
28 REM S$(1) IS THE SIGNAL DESIGN (GREEN
)
30 REM DF=DEGREE OF DIFFICULTY (1-9)
31 REM IF H=0 THEN HALF-A-BRICK
42 REM BN=NUMBER OF BRICKS TO DO THE JOB
43 DIM BK(1),BT(1),D(1),BC(1),S$(1)
45 G=US:GC=UC:D(0)=204:D(1)=239
50 Y$="[redacted]"
55 X$="[redacted]"
60 B$="
        "
```

```
65 R$="      ■■■
```

```
231 IFA$<>"*"THEN298
232 H=H+1:IFH=2THENH=0
233 IFH=1THENPOKEG+P,BK(0):POKEGC+P,BC(0
):GOTO160
234 FORJ=0TO1:POKEG+P+J,BK(J):POKEGC+P+J
,BC(J):NEXTJ
235 GOTO160
298 GOTO150
300 REM BRICK BUILD
305 IFBN<H*2THEN150
310 FORJ=0TOH:IFBK(J)<>32THEN150
320 NEXTJ
330 FORJ=0TOH:BK(J)=D(J):BT(J)=D(J):BC(J
)=U0:NEXTJ
350 BN=BN-H*2
355 FORJ=0TOH:IFPEEK(G+P+40+J)<>32THEN36
5
360 NEXTJ:GOTO370
365 GOTO390
370 REM BRICK UNSUPPORTED
372 GOSUB2000
390 GOTO150
400 REM REMOVE BRICK
405 IFH=0ANDPEEK(G+P+1)=D(1)THEN150
410 FORJ=0TOH:IFBK(J)<>D(J)THEN150
420 NEXTJ
425 REM CHECK IF BRICK SUPPORTS ANOTHER
430 FORJ=0TOH:IFPEEK(G+P+J-40)<>32THEN15
0
440 NEXTJ
460 REM OK TO REMOVE BRICK
470 FORM=0TO4:FORJ=0TOH:POKEGC+P+J,1:NEX
TJ
480 FORJ=0TOH:POKEGC+P+J,2:NEXTJ:NEXTM
492 FORJ=0TOH:BK(J)=32:BT(J)=102:BC(J)=U
4:NEXTJ
494 BN=BN+H*2
496 GOTO150
500 REM FINISH
505 IFRR=1THENRR=2:PRINTUF$;"[redacted]"S$
(1):GOSUB9000
510 RX=RX-1:IFRX<4THENGOSUB9000:GOTO1000
520 IFPEEK(G+322+RX)<128THENRZ=1
525 IFRZ>0THENRY=RY+1:RZ=RZ+1
```

```
530 PRINTU2$;LEFT$(Y$,RY);LEFT$(X$,RX);R
$:GOSUB9100
532 IFRZ>1ANDRZ<5THEN525
535 IFRZ=0THENRETURN
537 GOSUB9200
540 PRINTU2$;"■BRIDGE NOT COMPLETE! YOU'
VE FAILED...    "
550 PRINTU0$;"■■ANOTHER GO? (Y/N)"
          "
560 GETA$:IFA$<>""THEN560
570 GETA$:IFA$=""THEN570
580 IFA$="Y"THENRUN
590 PRINT"■■■■THANKYOU FOR PLAYING 'BRID
GES'          "
595 END
999 GOTO200
1000 REM SUCCESS!
1010 PRINTU4$;"■■WELL DONE......ANOTHER
GO? (Y/N)          "
1020 GETA$:IFA$<>""THEN1020
1030 GETA$:IFA$=""THEN1030
1035 GOSUB9500
1040 IFA$="N"THEN590
1050 GOTO100
2000 REM BRICK UNSUPPORTED
2010 FORJ=0TOH:POKEG+P+J,BK(J):POKEGC+P+
J,BC(J):NEXTJ
2040 FORJ=0TOH:IFPEEK(G+P+40+J)<>32THEN2
060
2050 NEXTJ:BF=1:GOTO2070
2060 BF=0:FORJ=0TOH:POKEG+P+J,BT(J):POKE
GC+P+J,U2:NEXTJ
2070 FORJ=0TOH:POKEG+P+J,32:NEXTJ
2071 IFBF=0THENRETURN
2072 P=P+40
2073 IFP>960THENP=960:BF=0
2075 GOTO2010
2080 RETURN
4000 REM INSTRUCTIONS
4010 PRINT"■":POKEUG,U9:POKEUB,UF
4020 PRINTU2$"■          B R I D G E S
      "
4030 PRINTU4$;"■YOUR TASK IS TO BUILD A
BRIDGE FOR THE
```

```
4040 PRINT"TRAIN ACROSS A DANGEROUS RAVI
NE.
4050 PRINT"YOU HAVE TWO MINUTES BEFORE T
HE TRAIN
4060 PRINT"STARTS TO MOVE AND A LIMITED
NUMBER OF
4070 PRINT"BRICKS TO BUILD THE BRIDGE. T
HESE ARE
4080 PRINT"DISPLAYED AT THE TOP OF THE S
CREEN."
4100 PRINT"■THE KEY CONTROLS ARE:"U2$
4110 PRINT"■A : MOVES THE BUILDER TO THE
 LEFT
4120 PRINT"S : MOVES THE BUILDER TO THE
RIGHT
4130 PRINT"W : MOVES THE BUILDER UP THE
SCREEN
4140 PRINT"Z : MOVES THE BUILDER DOWN TH
E SCREEN
4160 PRINT"+ : LAYS A BRICK IN PLACE
4170 PRINT"- : REMOVES A BRICK
4180 PRINT"* : CHANGES TO 'HALF-A-BRICK'
 AND BACK
4190 PRINT"    TO FULL BRICK SIZE AGAIN
4195 PRINT"↑ : IF YOU FINISH BEFORE TIME
 IS UP!"
4200 PRINT"■■PRESS ANY KEY WHEN READY"
4210 GETA$:IFA$<>""THEN4210
4220 GETA$:K=RND(1):IFA$=""THEN4220
4300 PRINT"■YOU MAY ONLY PLACE A BRICK W
HICH IS
4310 PRINT"SUPPORTED - EITHER UPON ANOTH
ER BRICK
4320 PRINT"OR UPON PART OF THE RAVINE WA
LL.
4330 PRINT"AN UNSUPPORTED BRICK WILL TUM
BLE DOWN!"
4340 PRINT"■TO REMOVE A BRICK, YOU MUST
PLACE
4350 PRINT"THE 'BUILDER' EXACTLY OVER TH
E BRICK TO
4360 PRINT"BE TAKEN AWAY. THIS ALSO APPL
IES TO
4370 PRINT"'HALF-BRICKS'. YOU WILL NOT B
E ALLOWED"
```

```
4380 PRINT"TO REMOVE A BRICK IF IT SUPPO
RTS
4390 PRINT"ANOTHER BRICK, SO YOU WILL HA
VE TO
4400 PRINT"BUILD FROM THE BOTTOM AND REM
OVE FROM
4410 PRINT"THE TOP. (PRETTY OBVIOUS REAL
LY!)
4420 PRINTU4$"■WHEN THE TRAIN STARTS TO
MOVE, YOU
4430 PRINT"CAN STILL BUILD BRICKS BUT YO
U WON'T
4440 PRINT"HAVE MUCH TIME TO FINISH THE
BRIDGE..."
4450 PRINT"THE 'BUILDER BRICK' STARTS OF
F 'UNDER'
4460 PRINT"THE TRAIN. KEEP AN EYE OUT FO
R THE TIME"
4470 PRINT"AS WELL AS THE NUMBER OF BRIC
KS LEFT."
4480 PRINT"WHOLE BRICKS COUNT:2 AND HALF
-BRICKS:1.
4490 PRINT"REMOVING THEM WILL ADD TO YOU
R STORE."
4500 PRINT"■GOOD LUCK. IT GETS MORE DIFF
ICULT AS
4510 PRINT"YOU GO ALONG. ■PRESS ANY KEY
TO START■■"
4980 GETA$:IFA$<>""THEN4980
4990 GETA$:IFA$=""THEN4990
4999 RETURN
5000 REM SET UP SCREEN AND RAVINES
5010 PRINT"■■■■■■■■■■":POKEUG,U9:POKEUB,U3
5020 FORJ=0TO15
5030 PRINT"■"U6$;B$;
5040 NEXTJ
5050 FOR J=0TO39:POKEG+960+J,160:POKEGC+
960+J,U6
5060 NEXTJ
5100 PRINTUF$;"■■■■■■■■■"S$(0)
5110 PRINTU2$;LEFT$(Y$,RY);LEFT$(X$,RX);
R$
5200 FOR J=1TOINT(DF/2)
5210 N=INT(RND(1)*(1+DF*2)+8):IFN/2=INT(
N/2)THEN5210
```

```
5220 S=INT(RND(1)*30+5)
5230 IFN+S>32THEN5210
5240 FORL=0TON-INT(RND(1)*4):A=INT(RND(1
)*2):FORK=0TON
5245 P1=G+320+S+K+A+L+L*40:IFP1-US>960TH
EN5290
5247 IFA=1THENP1=P1-1
5248 IFPEEK(P1)<>32THENBN=BN+1
5250 POKEP1,32
5260 NEXTK:IFPEEK(P1+1)=32THEN5275
5270 POKEP1+1,244
5275 N=N-1:IFA=0THENS=S-1
5280 NEXTL
5290 NEXTJ
5999 RETURN
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
```

```
7400 RETURN
7500 REM ******************************
9000 REM TRAIN WHISTLE
9005 GOSUB9500
9010 POKEUV,15:POKEUA,31:POKEUD,32:POKEU
W,17
9015 POKEUH,60:POKEUL,255
9020 FORL=1TO100:NEXTL
9030 FORL=0TO200STEP2:POKEUL,L:NEXTL
9035 GOSUB9500
9040 RETURN
9100 REM STEAM TRAIN 'CHUFF'
9105 GOSUB9500
9110 POKEUV,15:POKEUA,9:POKEUD,24:POKEUW
,129
9115 POKEUH,INT(RND(1)*30)+20:POKEUL,0
9140 RETURN
9200 REM TRAIN CRASHES SOUND
9205 GOSUB9500
9210 POKEUV,15:POKEUA,12:POKEUD,128:POKE
UW,129
9215 POKEUH,18:POKEUL,0
9240 RETURN
9500 REM CANCEL VOICE ONE SOUND
9510 POKEUV,0:POKEUA,0:POKEUD,0:POKEUH,0
9520 POKEUL,0:POKEUW,0:RETURN
```

Grenadier

This is a game for two players. Both are armed with a store of hand grenades and a large shovel. This idea is to lob a grenade at your opponent and blast him from the face of the Earth. There are, however, tactical considerations. Essentially you can either throw a bomb or make a move (which gives you the option of either moving along the mountain side or tunnelling yourself into a safe bolt hole). If you decide to move you can do so for four positions, however if you elect to dig you only have two moves (because of the extra effort involved). Because there is obviously a limit to the distance that a grenade can be thrown, both players have restricted arm strengths, so tactical position is of prime importance.

```
1 REM COMMODORE 64 PROGRAM
2 GOSUB5000
5 REM GRENADIER........WALWYN
6 GOSUB63900
10 G=US
12 P$(1)=U2$+"LEFT PLAYER":P$(2)=U4$+"RI
GHT PLAYER"
14 POKEUB,UF:POKEUG,U0
15 PRINT"■"UF$;:POKEUG,U9
20 X=RND(1):Z=RND(1):A=RND(1)*5:B=RND(1)
*5
22 KZ=0:X(1)=0:X(2)=0:Y(1)=0:Y(2)=0
25 FOR I=0TO39
30 X=X+RND(1)/2:Z=Z+RND(1)/2
40 Y=INT(SIN(X)*A+COS(Z)*B+14)
42 FOR K=YTO24
45 POKEG+I+40*K,160:POKEUC+I+40*K,U6
48 NEXTK
50 NEXT I
100 X(1)=INT(RND(1)*8+4):X(2)=INT(RND(1)
*8+28)
110 FOR I=1TO2
120 K=PEEK(G+X(I)+40*(Y(I)+1))
130 IF K=32 THEN Y(I)=Y(I)+1:GOTO120
140 POKE G+X(I)+40*Y(I),35
145 UM=U2:IFI=2THENUM=U4
```

```
147 POKE UC+X(I)+40*Y(I),UM
150 NEXT I
200 FOR I=1TO2:MM=4:IFLZ=1THENLZ=0:I=2
201 FOR K=1TO2:UM=U2:IFK=2THENUM=U4
202 IF PEEK(G+X(K)+40*(Y(K)+1))<>160 THE
N 204
203 POKEG+X(K)+40*Y(K),35:POKEUC+X(K)+40
*Y(K),UM:NEXT K:GOTO205
204 POKE G+X(K)+40*Y(K),32:Y(K)=Y(K)+1:G
OTO202
205 PRINT"■■"P$(I)"■   ■M:DIG OR MOVE
T:THROW"
206 GETA$:IF A$="" THEN 206
207 IF A$="T" THEN 215
209 IF A$="M" THEN 9000
210 GOTO206
215 INPUT"■■ANGLE -90 TO +90";A(I)
220 IF A(I)<-90ORA(I)>90THEN215
225 INPUT"■■■STRENGTH   (1-5)";P(I)
227 P(I)=P(I)*2:IF P(I)<=0ORP(I)>10THEN2
25
228 GOSUB10000
240 IF I=2 THEN 260
250 YF=-A(I)/90*P(I)/15
252 XF=(90-ABS(A(I)))/90*P(I)/15
255 GOTO275
260 YF=-A(I)/90*P(I)/15
262 XF=-(90-ABS(A(I)))/90*P(I)/15
275 IG=0:XX=X(I)+SGN(XF)+.5:YY=Y(I)+SGN(
YF)+.5
280 Y8=0:X8=0
300 XX=XX+X8:YY=YY+Y8:YF=YF+.01:IFYF>1TH
ENYF=1
301 X8=XF:Y8=YF
305 Z1=INT(G+INT(XX)+INT(YY)*40)
306 Z2=INT(G+INT(XX+X8)+INT(YY+Y8)*40)
307 IF YY+Y8>24 OR XX+X8<0 OR XX+X8>39 T
HEN POKE Z1,32:GOTO400
308 IF YY+Y8<1 THEN IG=1:POKE Z1,32:GOTO
313
310 IG=0
313 K=PEEK(Z2)
315 IF IG THEN 300
320 IF K=32 OR K=81 THEN 340
```

```
321 IF K=35 THEN KZ=1
323 POKEZ1,32
330 FORJ=1TO20:POKEZ2,42:POKEZ2,32:NEXTJ
:IF KZ=0 THEN 400
333 IF INT(G+X(2)+40*Y(2))=Z2 THEN LZ=1:
W1=W1+1:GOTO335
334 W2=W2+1
335 FOR J=1TO5:POKEZ2+J,42:POKEZ2-J,42:P
OKE Z2-J*40,42:POKEZ2+J*40,42:NEXT J
336 PRINT"■■DESTROYED! ANOTHER GAME? (Y/
N)":GOSUB2000:GET A$:IF A$="" THEN336
337 IF KZ=1 AND A$="Y" THEN GOTO5
338 IF KZ=1 THEN PRINT"■■THANKYOU FOR TH
E GAME...":END
340 POKEZ1,32
350 POKEZ2,81:GOTO300
400 REM
450 NEXT I
500 GOTO200
2000 PRINT"■SCORE IS NOW.....
2010 PRINTU2$;"■LEFT:"W1"
     "U4$;"RIGHT:"W2
2100 RETURN
5000 PRINT"■GRENADIER"
5010 PRINT"■THIS IS A CONTEST BETWEEN TW
O PLAYERS
5020 PRINT"ARMED WITH SHOVELS AND GRENAD
ES."
5030 PRINT"EACH PLAYER IN TURN MAY EITHE
R THROW A
5040 PRINT"HAND GRENADE OR MOVE AND/OR D
IG
5050 PRINT"THROUGH THE ROCK."
5060 PRINT"■IF THROWING, YOU MUST TELL T
HE COMPUTER
5070 PRINT"WHAT ANGLE YOU ARE THROWING T
HE GRENADE
5080 PRINT"(A NEGATIVE DEGREE IS DOWNWAR
DS)
5090 PRINT"AND HOW MUCH STRENGTH YOU ARE
 USING."
5100 PRINT"■IF MOVING, PRESS A KEY TO MO
VE OR DIG:"
5110 PRINT"Q=UP AND LEFT , W=UP , E=UP A
ND RIGHT
```

```
5120 PRINT"A=LEFT,  S=STAND STILL , D=RI
GHT
5130 PRINT"Z=DOWN AND LEFT,X=DOWN,C=DOWN
 AND RIGHT
5140 PRINT"■DIGGING WILL TAKE UP MORE TI
ME THAN
5150 PRINT"MERELY MOVING OVER THE MOUNTA
IN TOP"
5160 PRINT"■■GOOD LUCK...DON'T GET CAUGH
T..."
5200 PRINT"■PRESS ANY KEY TO START"
5210 GETA$:IFA$=""THEN5210
5230 RETURN
9000 PRINTU6$"■■PRESS APPROPRIATE LETTER
:"UF$;"Q W E
9005 PRINT"                              "UF$
;"A "U2$;"■S■"UF$;" D
9010 PRINT"                              "UF$
;"Z X C"
9020 B=0:GET B$:IF B$="" THEN 9020
9021  IFB$="Z"THENB=1
9022  IFB$="X"THENB=2
9023  IFB$="C"THENB=3
9024  IFB$="A"THENB=4
9025  IFB$="S"THENB=5
9026  IFB$="D"THENB=6
9027  IFB$="Q"THENB=7
9028  IFB$="W"THENB=8
9029  IFB$="E"THENB=9
9030  IFB=0THEN9020
9035 XX=X(I):YY=Y(I):POKE G+X(I)+Y(I)*40
,32
9040 ON B GOSUB 9110,9120,9130,9140,9150
,9160,9170,9180,9190
9050 IF X(I)>39 OR X(I)<1 OR Y(I)>24 OR
Y(I)<2 THEN X(I)=XX:Y(I)=YY
9055 K=PEEK(G+X(I)+40*Y(I))
9056 IFK=160 THEN MM=MM-1
9057 MM=MM-1:IF MM<0 THEN X(I)=XX:Y(I)=Y
Y:GOSUB10000:GOTO400
9060 UM=U2:POKE G+X(I)+40*Y(I),35:IFI=2T
HENUM=U4
9062 POKE UC+X(I)+40*Y(I),UM
9065 GOSUB10000
```

```
9070 IF MM>0 THEN 9000
9080 GOTO400
9110 X(I)=X(I)-1:Y(I)=Y(I)+1:RETURN
9120 X(I)=X(I)+0:Y(I)=Y(I)+1:RETURN
9130 X(I)=X(I)+1:Y(I)=Y(I)+1:RETURN
9140 X(I)=X(I)-1:Y(I)=Y(I)+0:RETURN
9150 X(I)=X(I)+0:Y(I)=Y(I)+0:RETURN
9160 X(I)=X(I)+1:Y(I)=Y(I)+0:RETURN
9170 X(I)=X(I)-1:Y(I)=Y(I)-1:RETURN
9180 X(I)=X(I)+0:Y(I)=Y(I)-1:RETURN
9190 X(I)=X(I)+1:Y(I)=Y(I)-1:RETURN
10000 PRINT"
              "
10100 PRINT"
              "
10105 PRINT"
              "
10107 PRINT"
              "
10110 RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="":U1=1:U1$=""
:U2=2:U2$=""
63906 U3=5:U3$="":U4=6:U4$="":U5=8:U5$
="":U6=9:U6$=""
63910 U7=10:U7$="":U8=13:U8$="":U9=14:
U9$="":UU=4:UU$=""
63915 UR=12:UR$="":UE=7:UE$="":UF=11:U
F$="":RETURN
```

Cheshire Cat

Cast adrift in space, and without fuel, you have only a beam weapon with which to defend yourself against the hostile nasties that assail you from all sides.

Your craft can be spun round to the left and right with the 1 and 2 keys. Your beam is fired with the 9 key, and if you're really desperate, you can always do your disappearing act by pressing the 0 key and visiting the void for a while.

```
1 REM***64 VERSION***
5 REM*** CHESHIRE CAT ***
10 REM MODIFIED FOR CBM 64 BY I.FROST 19
83
15 GOSUB9000
18 HS=0
20 GOSUB8000
99 REM MAIN PROGRAM LOOP: P=VALUE KEY PR
ESSED
100 P=PEEK(197):IFP=56THENRO=RO-1:IFRO<1
THENRO=8
105 IFP=59THENRO=RO+1:IFRO>8THENRO=1
130 POKECE,RO+128:POKE55296+CE-1024,0
140 IFP=35THENGOSUB4000  :REM '0'
150 IFBTHENIFP=32THENGOSUB1000  :REM '9'
180 ONTGOSUB0,200,300,400,500,600,700,80
0,900
182 P=PEEK(CE):IFP>136ORP<129THENGOSUB70
00
185 TX=TX-1:PRINT"[REVERSE]                    
       ";TX;"[REVERSE]  ":IFTX=0THENGOTO6000
190 IFT1-TX>=29THENGOSUB3000
195 GOTO100
199 REM
200 Y=Y+2:X=X+2:IFY>=24THENY=2
210 IFX>=39THENX=0
220 PRINT"[REVERSE]";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  [REVERSE]  ";
225 PRINT"[REVERSE]";LEFT$(AC$,X);LEFT$(DN$,Y);"
[REVERSE]JK[REVERSE]LM"
```

```
230 Y1=Y:X1=X:RETURN
300 Y=INT(Y+RND(1)*1.5-RND(1)*1.5):X=X+2
:IFY>=24THENY=1
305 IFY<=1THENY=23
307 IFX>=39THENX=0
320 GOTO220
400 Y=INT(Y+RND(1)*3-RND(1)*3):X=INT(X+R
ND(1)*5-RND(1)*3)
410 IFX<0THENX=39
420 IFX>38THENX=0
430 IFY>23THENY=2
440 IFY<2THENY=23
450 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
460 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);"
■■NO■■■PQ"
470 Y1=Y:X1=X:RETURN
500 Y=Y-3:IFY<2THENX=X+INT(RND(1)*7)+3:Y
=23:IFX>30THENX=INT(RND(1)*5)
510 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
520 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);"
■■NO■■■PQ"
530 X1=X:Y1=Y:RETURN
600 DE=DE+1
610 IFDE=5THENY=INT(RND(1)*23)+1:X=INT(R
ND(1)*39)+1:DE=0
615 Y=Y+INT(RND(1)*2-RND(1)*2):X=X+INT(R
ND(1)*2-RND(1)*2)
617 IFY<2ORY>23ORX<0ORX>39THENDE=5:GOTO6
10
620 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
630 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y)"■
■RS■■■TU"
640 Y1=Y:X1=X:RETURN
700 Y=Y+INT(RND(1)*2-RND(1)+(Y<11)-(Y>11
)):X=X+2
710 IFX>39THENX=0
720 IFY>23ORY<2THENY=11
730 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
735 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);"
■■SR■■■QP"
```

```
740 X1=X:Y1=Y:RETURN
800 Y=Y+DI:X=X+2:DE=DE+1:IFDE=5THENED=0:
DI=-DI
810 IFY<2THENY=23
820 IFY>23THENY=2
830 IFX>39THENX=0
840 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
845 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);"
■■SR■■■QP"
850 Y1=Y:X1=X:RETURN
900 Y=Y+DI:X=X+DE
910 IFX>39THENX=0
920 IFY<2THENY=23
930 IFY>23THENY=1
940 IFRND(I)>.8THENDE=(2ANDDE=0):DI=(2AN
DDI=0):IFRND(I)>.5THENDI=-DI
950 PRINT"■";LEFT$(AC$,X1);LEFT$(DN$,Y1)
;"  ■■■  ";
960 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);"
■■II■■■II"
970 Y1=Y:X1=X:RETURN
999 REM FIRE LASER
1000 B=B-1:PRINT"■■■■■■■■■■■■■■■■■■■■■■";B
;"■■ "
1005 POKESO+1,40:POKESO+4,32:POKESO+4,33
1010 FORJ=SR(RO)TOST(RO)STEP-UP(RO)
1020 P=(J-UP(RO)):IFPEEK(P)<>32ANDPEEK(P
)<>46THEN1500:REM A HIT!
1030 POKEJ,CP(RO):NEXT
1040 FORJ=SR(RO)TOST(RO)STEP-UP(RO):POKE
J,32:NEXT:POKESO+4,32
1050 IFB=0THEN6000
1060 RETURN
1500 POKE53281,1:FORJJ=SR(RO)TOJSTEP-UP(
RO):POKEJJ,32:NEXT:POKE53281,6
1510 POKESO+4,32:  GOTO2000
1999 REM A HIT
2000 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);
"  ■■■  "
2020 HIT=0:SC=SC+0:PRINT"■■■■■";SC;"■■  "
2024 Y=Y*08+30:X=X*08+20:HI=0:IFX>250THE
NHI=1:LO=X-251:GOTO2026
2025 LO=X:POKESO+18,128:POKESO+18,129:PO
KESO+15,35
```

```
2026 POKESO+18,128:POKESO+18,129:POKESO+
15,35
2027 POKE2040,192:POKEV,LO:POKEV+16,HI:P
OKEV+1,Y:POKEV+21,1
2029 REM * EXPLOSION *
2030 FORJ=0TO15:FORE=0TO1
2035 POKEV+29,E:POKEV+23,1:POKEV+39,J
2040 FORK=0TO50:NEXT
2050 NEXTE,J:POKEV+21,0
2300 IFB=0THEN6000
2499 REM CHOOSE NASTIE
2500 T=INT(RND(I)*8)+2:Y=INT(RND(I)*24)+
1:X=0
2504 Y1=Y:X1=X:T1=TX
2505 ONTGOTO0,2510,2510,2520,2520,2530,2
532,2532,2534
2510 A$(1)="■JK":A$(2)="■LM":O=(20ANDT=2
)+(10ANDT=3):GOTO2540
2520 A$(1)="■NO":A$(2)="■PQ":O=(25ANDT=4
)+(10ANDT=5):GOTO2540
2530 A$(1)="■RS":A$(2)="■TU":DE=0:O=30:G
OTO2540
2532 A$(1)="■SR":A$(2)="■QP":O=(25ANDT=8
)+(20ANDT=7):DE=0:DI=-2:GOTO2540
2534 DI=0:DE=2:A$(1)="■II":A$(2)="■II":O
=20
2540 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);
"■";A$(1);"■■■";A$(2)
2550 RETURN
3000 REM THING FIRE
3010 IFX=LXTHENRETURN
3020 JJ=LY-Y:W=Y:MU=120:POKESO+4,32:POKE
SO+4,33:POKESO+5,15
3030 FORII=XTOLXSTEP(LX-X)/20
3040 W=W+JJ/20:POKESO+1,MU:MU=MU-5:IFMU=
<0THENMU=5
3050 PRINT"■";LEFT$(AC$,II);LEFT$(DN$,W)
;"■●"
3055 PRINT"■";LEFT$(AC$,IJ);LEFT$(DN$,W-
JJ/20);" "              :IJ=II
3060 NEXTII
3070 PRINT"■";LEFT$(AC$,IJ);LEFT$(DN$,W-
JJ/20);" "
3100 POKESO+4,32: GOTO7000
```

```
3999 REM '0' OPTION
4000 TX=TX-30:T1=T1-30:PRINT"■■■■■■■■■■■■
■■■■■■■■■■■■
```

```
7016 POKEV+39,G:POKE53281,F:POKEV+23,E:P
OKEV+29,E:POKE2040,192
7017 FORJ=0TO5:NEXT
7020 NEXTE,F
7040 POKEV+21,0:IFLI=0THEN6000
7050 PRINT"■";LEFT$(AC$,X);LEFT$(DN$,Y);
"  ■■■  ";
7060 POKE53281,06:GOTO2500
7399 INITIALISATION (AND9100-)
8000 FORF=1TO120:POKE1024+RND(1)*1000,46
:NEXT
8009 REM * SOUND SET UP
8010 SO=54272:POKESO+24,15
8020 POKESO+5,15:POKESO+6,0
8040 POKESO+19,10
8300 RO=1: REM ORIENTATION
8320 CE=1024+500:LY=12:LX=20
8340 S=1024:ST(0)=S+47:ST(1)=S+99:ST(2)=
S+71:ST(3)=S+519:ST(4)=S+991
8350 ST(5)=S+979:ST(6)=S+967:ST(7)=S+480
:UP(0)=41:UP(1)=40:UP(2)=39
8360 UP(3)=-1:UP(4)=-41:UP(5)=-40:UP(6)=
-39:UP(7)=1
8370 FORI=1TO8:SR(I)=CE-UP(I):NEXT
8380 CP(4)=77:CP(1)=66:CP(2)=78:CP(3)=67
:FORI=5TO8:CP(I)=CP(I-4):NEXT
8500 TX=500:B=100:SC=0
8550 LI=5:HIT=0:V=53248
8560 AC$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■"
8570 DN$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■"
8600 PRINT"■■SC:0      LI:5    SH:100    TI
:500 "
8999 GOTO2500
9000 PRINT"■"
9002 POKE53280,4:POKE53281,6:PRINT"■■■■■
■■CHESHIRE CATS AND OTHER NASTIES!"
9005 PRINT"■■■      PROGRAM DESIGN & SOFT
WARE                          BY PAUL STANLEY
9007 FORI=0TO2000:NEXT
9010 PRINT"■■■■   THEY PLACED ME IN SPACE
 -  WITHOUT     ENGINES, JUST A LASER."
9020 PRINT"■  'SHOOT THE NASTIES', THEY
SAID.          I'D LIKE TO SEE THEM DO IT.
```

```
9030 PRINT"■  TWIST LEFT WITH 1.  RIGHT
WITH 2, WEREMY INSTRUCTIONS.
9040 PRINT"  THEY TOLD ME TO BLAST 'EM W
ITH 9, AND THAT IF I GOT INTO TROUBLE,";
9045 PRINT" I COULD     PRESS 0.  GOD ON
LY KNOWS WHAT IT DOES..
9070 PRINT"■■..PLEASE HELP ME...!      I
F YOU'RE     PREPARED TO, PRESS ANYKEY..
....
9080 GETA$:IFA$=""THEN9080
9100 POKE53281,7:PRINT"■":POKE53281,6
9110 RESTORE:PRINT"■PLEASE WAIT"
9119 REM READ IN CHARACTER GEN
9120 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251
9130 FORI=0TO255:FORJ=0TO7
9140 POKE14336+I*8+J,PEEK(53248+I*8+J)
9150 NEXTJ,I:POKE1,PEEK(1)OR4:POKE56334,
PEEK(56334)OR1
9160 POKE53272,(PEEK(53272)AND240)OR14
9169 REM NEW CHARACTERS - REVERSED LETTE
RS
9170 FORI=129TO149:FORJ=0TO7:READD:POKE1
4336+I*8+J,D:NEXTJ,I
9175 FORI=12288TO12350:READD:POKEI,D:NEX
T:REM SPRITE DATA IN
9180 RETURN
9189 REM DATA FOR USER DEFINED NASTIES
9190 DATA8,8,42,42,42,42,42,62,0,18,36,7
2,146,164,72,48,0,0,252,128,255,128
9200 DATA252,0,48,72,164,146,72,36,18,0,
62,42,42,42,42,42,8,8,12,18,37,73,18
9210 DATA36,72,0,0,63,1,255,1,63,0,0,0,7
2,36,18,73,37,18,12,231,195,165,24,24
9220 DATA165,195,231,0,0,1,3,71,127,21,2
1,0,0,192,224,241,255,84,84,31,63
9230 DATA102,127,93,8,0,0,252,254,51,255
,221,136,0,0,0,0
9240 DATA48,72,164,68,2,3,0,0,12,18,37,3
4,64,192,3,7,11,17,18,32,32,192,192,224
9250 DATA208,136,72,4,4,3,128,192,160,14
7
9260 DATA255,251,249,255,1,3,5,201,255,1
91,159,255,127,96,96,48,56,28,15,3
```

```
9270 DATA254,6,6,12,28,56,240,192
59999 REM ** EXPLOSION **
60000 DATA0,16,0,0,214,0,2,170,128
60001 DATA13,125,96,19,171,144,53,109,88
60002 DATA47,215,232,93,109,116,55,171,2
16
60003 DATA93,199,116,182,0,218,93,199,11
6
60004 DATA55,171,216,93,109,116,47,215,2
32
60005 DATA53,109,88,19,171,144,13,125,96
60006 DATA2,170,128,0,214,0,0,16,0
```

Horse Race

Horse Race is a racing and betting game for any number of players in which six horses race across the screen. At the beginning of the game you can choose how many races there will be at the meeting.

Before the start of each race the betting form is displayed, complete with the tipsters odds on each runner. The odds are a fairly accurate reflection of each horse's potential.

Starting with £200, each player may bet on one horse in each race and the winner is the player who ends up with the largest amount of money at the end of the meeting. If you want the rules to allow cheating then players who lose all their money may have the option of accepting the offer of an additional £50, otherwise they are out of the game.

```
0 DEF FNA(F)=RND(TI)*F
1 POKE 53280,5:POKE 53281,5:PRINT "■■■■■"
;:GOSUB 7000:PRINT "■";
2 PRINT " HOW MANY RACES WOULD YOU LIKE T
HERE TO  BE AT THIS MEETING ?"
3 INPUT RACES:IF RACES<=0 OR RACES<>INT(
RACES) THEN 2
4 INPUT " HOW MANY PUNTERS ARE THERE";A:I
F A<=0 OR A<>INT(A) THEN 4
5 DIM B(A),E(A),F(6),H(6),P(A),X(6):FOR
C=1 TO A
6 LET P(C)=200
7 NEXT C
20 PRINT "■";:GOSUB 1999:PRINT "■";
100 FOR C=2 TO 12 STEP 2
105 PRINT MID$(COLOUR$,C/2,1);TAB(0);LEF
T$(DOWN$,C+1);C/2;" ■"
106 PRINT LEFT$(DOWN$,C);TAB(2);" "
107 NEXT C
108 FOR X=1 TO 13:PRINT LEFT$(DOWN$,X+1)
;TAB(32);"|":NEXT X
109 PRINT LEFT$(DOWN$,14);"■■■ ":PRINT "■
";TAB(32);"O"
110 LET A$="FINISH":FOR C=1 TO 6:PRINT L
```

```
EFT$(DOWN$,14+C);TAB(31);A$(C):NEXT C
115 FOR X=2 TO 14 STEP 2:PRINT LEFT$(DOW
N$,X);TAB(3);
116 FOR Y=1 TO 29:PRINT "—";:NEXT Y:PRIN
T:NEXT X
117 FOR X=1 TO 13 STEP 2:PRINT LEFT$(DOW
N$,X+1);TAB(32);"┤":NEXT X
1000 LET X=250:LET Y1=8:LET Y2=97:GOSUB
10000:PRINT "■";TAB(14)"READY"
1001 LET X=250:LET Y1=11:LET Y2=48:GOSUB
 10000:PRINT "■";TAB(14)"STEADY"
1002 LET X=250:LET Y1=15:LET Y2=210:GOSU
B 10000:PRINT "■";TAB(14)"GO    "
1003 LET X=250:LET Y1=21:LET Y2=31:GOSUB
 10000:PRINT "■";TAB(14)"   "
1004 LET GE=0:FOR C=1 TO 6:LET X(C)=4:NE
XT C
1005 FOR C=1 TO 6
1006 LET X=.03:LET Y1=3:LET Y2=35:GOSUB
10000:LET X=.03:LET Y1=1:LET Y2=205:GOSU
B 10000
1007 IF F(C)=1 AND FNA(1)<.8 THEN LET X(
C)=X(C)+1
1008 IF F(C)=2 AND FNA(1)<.77 THEN LET X
(C)=X(C)+1
1009 IF F(C)=4 AND FNA(1)<.74 THEN LET X
(C)=X(C)+1
1010 IF F(C)=8 AND FNA(1)<.71 THEN LET X
(C)=X(C)+1
1011 IF F(C)=16 AND FNA(1)<.68 THEN LET
X(C)=X(C)+1
1012 IF F(C)=32 AND FNA(1)<.65 THEN LET
X(C)=X(C)+1
1016 PRINT MID$(COLOUR$,C,1);LEFT$(DOWN$
,C*2+1);TAB(X(C)-1)" ▲"
1017 IF X(C)=32 THEN LET GE=1
1018 LET X=.03:LET Y1=3:LET Y2=35:GOSUB
10000:LET X=.03:LET Y1=1:LET Y2=205:GOSU
B 10000
1019 NEXT C
1020 IF GE=1 THEN 1050
1040 GOTO 1005
1050 GOSUB 11000:PRINT "[illegible]";:LET MANY=0
:FOR C=1 TO 6
```

```
1052 IF X(C)=32 THEN LET MANY=MANY+1:LET
 H(MANY)=C
1053 NEXT C
1054 IF MANY=1 THEN LET WINNER=H(1):GOTO
 1090
1055 PRINT LEFT$(DOWN$,21);"|HERE IS A P
HOTO FINISH BETWEEN THESE   HORSES:- "
1056 PRINT LEFT$(DOWN$,23);TAB(15);H(1);
"  ";H(2);"  ";
1057 IF MANY=3 THEN PRINT H(3);
1058 IF MANY=4 THEN PRINT "  ";H(4);
1060 GOSUB 11000
1067 LET ER=FNA(4)+1
1070 LET WINNER=H(ER)
1071 IF WINNER=0 THEN 1067
1075 IF FNA(1)<.33 THEN LET G$="A SHORT
HEAD":GOTO 1079
1076 IF FNA(1)<.4 THEN LET G$="A NECK":G
OTO 1079
1077 LET G$="1 LENGTH"
1079 PRINT "□";
1080 PRINT LEFT$(DOWN$,21);"THE WINNER I
S";WINNER;"WHO WON BY"
1081 PRINT LEFT$(DOWN$,22);G$:GOSUB 1100
0
1082 PRINT "□";
1085 GOTO 1100
1090 PRINT LEFT$(DOWN$,21);"THE WINNER I
S";WINNER;"WHO WON BY"
1091 PRINT LEFT$(DOWN$,22);INT(FNA(3)+2)
;"LENGTHS.":GOSUB 11000
1095 PRINT "□";
1100 FOR R=1 TO A
1101 IF P(R)=0 THEN LET R=R+1:LET SET=1:
IF R=A+1 THEN LET SET=0:GOTO 1130
1102 IF SET=1 THEN LET SET=0:GOTO 1101
1105 IF E(R)=WINNER THEN LET P(R)=P(R)+B
(R)*F(WINNER):GOTO 1115
1110 LET P(R)=P(R)-B(R)
1115 IF P(R)<=0 THEN 8000
1117 IF E(R)<>WINNER THEN 1125
1120 PRINT "□";LEFT$(DOWN$,11);"      ELL
 DONE PUNTER";R;"!"
1121 PRINT " OUR HORSE WON AND YOU NOW H
```

```
AVE £";P(R):GOSUB 11000:GOTO 1130
1125 PRINT "■";LEFT$(DOWN$,11);"    BAD
LUCK PUNTER";R;"!"
1126 PRINT " YOUR HORSE DID NOT WIN AND Y
OU NOW HAVE"
1127 PRINT "£";P(R):GOSUB 11000
1130 NEXT R
1150 GOTO 20
1999 LET RACES=RACES-1:IF RACES=-1 THEN
6000
2000 FOR C=1 TO 6:LET F(C)=2↑(INT(RND(TI
)*6)):NEXT C
2020 PRINT "THE TIPSTERS RECKON THE BETT
ING:"
2025 FOR C=1 TO 6:PRINT MID$(COLOUR$,C,1
);"■";LEFT$(DOWN$,2*C+1);TAB(2);" ■■■■ "
;
2026 PRINT C;"■■    ";F(C);"■■:1"
2027 IF F(C)=1 THEN PRINT MID$(COLOUR$,C
,1);LEFT$(DOWN$,2*C+1);TAB(13);"■■■■■■■
"
2028 NEXT C:PRINT "■";
2029 FOR F=1 TO A
2030 IF P(F)=0 THEN LET F=F+1:LET SET=1:
IF F=A+1 THEN LET SET=0:GOTO 2050
2031 IF SET=1 THEN LET SET=0:GOTO 2030
2032 PRINT LEFT$(DOWN$,15)TAB(1);"PUNTER
 ";F;" :"
2033 PRINT "YOU HAVE £";P(F);"■■.        "
:PRINT "HOW MUCH WOULD YOU LIKE TO BET?"
2034 INPUT B(F):IF B(F)>P(F) THEN PRINT"
□            ■■■■■■■■■■■■■■";:GOTO 2034
2035 IF B(F)<>INT(B(F)) THEN PRINT"□
       ■■■■■■■■■■■■■■";:GOTO 2034
2036 PRINT "□N WHICH HORSE IS THIS TO BE
 PLACED?"
2037 INPUT E(F)
2038 IF E(F)<1 OR E(F)>6 THEN PRINT"□
            ■■■■■■■■■■■■■■■■";:GOTO 2037
2039 PRINT LEFT$(DOWN$,18);"          "
2040 PRINT LEFT$(SPACE$,36)
2041 PRINT "    "
2042 NEXT F
2050 PRINT "■";:RETURN
```

```
6000 PRINT "| |⁻ \⁻⁻|ヽ/| ヽ♥ ／⁻o ⁻ヽ／ヽ♥ |⁻⁻"
6010 FOR F=1 TO A
6015 IF P(F)=0 THEN LET F=F+1:SET=1:IF F
=A+1 THEN SET=0:GOTO 6040
6016 IF SET=1 THEN SET=0:GOTO 6015
6020 PRINT "⁻UNTER ";F;"FINISHES WITH £"
;P(F)
6030 NEXT F
6040 PRINT "■TRESS ANY KEY TO PLAY AGAIN
."
6050 FOR A=1 TO 10:GET A$:NEXT
6060 GET A$:IF A$="" THEN 6060
6070 RUN
7000 PRINT
7010 PRINT "                    |⁻_♥⁻ _♠—⁻"
7020 PRINT "                    ⁻⁻⁻⁻⁻⁻⁻⁻⁻⁻⁻⁻■■■
■■"
7030 PRINT "♠ GAMBLING GAME FOR THE WHOL
E FAMILY"
7040 PRINT "■■■   BY ⁻AVID |UCK AND ⁻.♥T
ANLEY"
7050 COLOUR$="■■■■■"
7055 DOWN$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■"
7056 SPACE$="
              ":SPACE$=SPACE$+SPACE$
7060 SOUND=54272:FOR L=SOUNDTOSOUND+24:P
OKEL,0:NEXT L
7070 POKE SOUND+5,0:POKE SOUND+6,240:POK
E SOUND+24,15
7080 GOSUB 11000
7090 RETURN
8000 PRINT "■■■■■■UT TUT! PUNTER";R;",
YOU HAVE RUN OUT":PRINT "OF MONEY."
8005 PRINT:PRINT "ヽ MUST THEREFORE NOT L
ET YOU BET ANY    MORE."
8010 PRINT "|OWEVER,IF YOUR RULES ARE TO
 ALLOW      CHEATING,IF YOU PRESS ■■ ヽ"
;
8020 PRINT " WILL GIVE YOU":PRINT "£50 M
ORE."
8021 PRINT "⁻THERWISE PRESS ■■ AND ヽ WI
LL CANCEL YOU FROM THE GAME"
8022 GET A$
8030 IF A$="X" THEN LET P(R)=0:GOTO 8050
```

```
8040 IF A$="C" THEN LET P(R)=50:GOTO 805
0
8045 GOTO 8022
8050 PRINT "■";:GOTO 1130
10000 POKE SOUND+1,Y1:POKE SOUND,Y2
10010 POKE SOUND+4,33
10020 FOR J=1 TO X:NEXT J
10030 POKE SOUND+4,32
10040 RETURN
11000 PRINT LEFT$(DOWN$,24);"          HIT
 A KEY TO CONTINUE"
11010 FOR Q=1 TO 10:GET A$:NEXT
11020 GET A$:IF A$="" THEN 11020
11030 PRINT LEFT$(DOWN$,24);LEFT$(SPACE$
,29);
11040 RETURN
```

Xmas Eve

Xmas Eve is a race against time for Santa, who must rush to deliver presents before the inhabitants of the houses awake.

By manoeuvering Santa's sleigh left and right you can catch the presents as they are thrown down from above by the elves. Presents can then be dropped down the chimneys by pressing the M key. Each time a present is successfully delivered, the inhabitants of the house awake and switch on the lights, which causes the snow on the roof to melt at a rate proportional to the activity in the house. The more work Santa does the more he has to hurry, in order to complete his work without being seen.

```
1 REM **************************
2 REM *         X-MAS EVE        *
3 REM *         FOR CBM-64       *
4 REM *            BY            *
5 REM *        DAVE PONTING      *
6 REM **************************
7 POKE52,48:POKE56,48:CLR
10 HS=0:DIMD$(40)
11 AT$="■■■
```

```
65 IFG=16THENPRINTLEFT$(AT$,G)SPC(H)" ";
:G=2:H=INT(RND(1)*36)+2
70 IFP=1THENIFKY=60THENG=10:H=X+(A$="&")
-3*(A$="#"):P=0
80 IFRND(1)>SKTHENGOSUB300
90 GOTO30
200 POKEVO+1,30-G:POKEVO+4,33
205 G=G+1:PRINTLEFT$(AT$,G-1)SPC(H)" ";
210 PRINTLEFT$(AT$,G)SPC(H)")";
220 IFG=11THENIFH=X+2ORH=X+1ORH=XTHENP=1
230 POKEVO+4,0
249 RETURN
300 REM SNOW MELTS
305 Q=INT(RND(1)*9)+1:E=INT(RND(1)*4)
310 PRINTLEFT$(AT$,20)SPC(Q*4-E+1)"■■ ■"
320 D$(Q*4-E)="P"
330 IFD$(Q*4-3)="P"ANDD$(Q*4-2)="P"ANDD$
(Q*4-1)="P"ANDD$(Q*4)="P"THEN2000
349 RETURN
1000 REM DOWN THE CHIMNEY
1005 PRINTLEFT$(AT$,G)SPC(H)" ";
1010 IFPEEK(1864+H)=169THEN25
1015 S=S+1:POKEVO+8,10+S:FORTT=1TO50:POK
EVO+11,33:NEXTTT:POKEVO+11,32
1020 PRINTLEFT$(AT$,22)SPC(H)"■■)■"
1025 FORF=3TO37STEP4:IFPEEK(1864+F)=169T
HENNEXTF:SK=SK-.02:GOSUB9300:GOTO20
1030 GOTO25
2000 REM IS THERE A 'PRESENT' PRESENT
2010 IFPEEK(1864+H)<>169THEN6000
2020 GOTO30
2499 RETURN
6000 REM END OF GAME
6002 FORTT=10TO2STEP-.5
6005 PRINTLEFT$(AT$,TT)SPC(X1)CHR$(28)A$
CHR$(5)B$CHR$(28)C$:POKEVO+18,128
6007 PRINTLEFT$(AT$,TT+1)SPC(X1)"   "
6010 NEXTTT
6015 PRINTLEFT$(AT$,2)SPC(X1)"   "
6020 IFS>HSTHENHS=S
6025 PRINTLEFT$(AT$,G)SPC(H)" ";
6030 PRINTLEFT$(AT$,22)SPC(Q*4-1)"■ - "
6035 PRINTLEFT$(AT$,10)SPC(15)"■■GAME OV
ER"
```

```
6040 PRINTSPC(6)CHR$(8)"■■■■■PRESS ANY K
EY TO PLAY AGAIN■"
6060 POKE198,0:FORT=1TO1000:NEXTT:POKE19
8,0
6070 XX=-1:GOSUB11042:GOSUB9300:GOTO15
8000 REM INSTRUCTIONS
8010 PRINT"■■■■      C H R I S T M A S
 E V E"
8020 PRINT"■IT IS APPROACHING MIDNIGHT O
N CHRISTMAS  EVE AND SANTA IS LATE.";
8030 PRINT"YOU PLAY THE PART OF SANTA AN
D YOU MUST DELIVER PRESENTS";
8040 PRINT"  WHICH ARE THROWN DOWN TO YO
U BY YOUR    ELVES."
8050 PRINT"■  HAVING CAUGHT A PRESENT (
BY FLYING    DIRECTLY BELOW IT )";
8060 PRINT" YOU MUST MOVE OVER  A CHIMNE
Y AND DROP A PRESENT DOWN IT.■"
8070 PRINT" WHEN A PRESENT HAS BEEN DROP
PED DOWN A  CHIMNEY THE FAMILY IN THAT";
8080 PRINT" HOUSE START TO OPEN UP THE P
RESENT IMMEDIATELY AND  THEY WILL ";
8090 PRINT"TURN THE LIGHT ON."
8095 PRINT"■ DROPPING A PRESENT DOWN A C
HIMNEY OF A  LIT HOUSE WILL NOT COUNT."
8100 PRINT"■■■      ■ PRESS ANY KEY TO CON
TINUE "
8105 GOSUB11000
8110 PRINT"■■■■      C H R I S T M A S
 E V E"
8120 PRINT"■ BENEATH EACH ROOF YOU WILL
SEE A PATCH  OF SNOW ";
8130 PRINT"WHICH SLOWLY MELTS AT A RATE
   IN PROPORTION TO THE ";
8140 PRINT"ACTIVITY IN THE    HOUSE."
8150 PRINT"■   AS THE PRESENTS MUST BE P
LACED DOWN   THE CHIMNEYS BEFORE ";
8160 PRINT"ANYONE SEES YOU,IF   ALL THE
SNOW HAS MELTED UNDER A ROOF ";
8170 PRINT"  WITHOUT A PRESENT BEING DRO
PPED BEFORE  THIS OCCURS IT WILL ";
8180 PRINT"INDICATE THAT THE  INHABITANT
S ARE AWAKE AND YOU WILL HAVE ";
8190 PRINT" TO RETURN IMMEDIATELY."
```

```
8200 PRINT"■■          Z..............LEF
T"
8210 PRINT"          X..............RIGHT
"
8220 PRINT"     SPACE..............DROP
PRESENT"
8230 PRINT"■■    ■ PRESS ANY KEY TO START
 THE GAME ■"
8800 GOSUB11040
8850 POKE53272,(PEEK(53272)AND240)+12
8999 RETURN
9000 REM DEFINE CHARACTERS
9005 POKE53265,PEEK(53265)OR64
9010 POKE56334,PEEK(56334)AND254
9020 POKE1,PEEK(1)AND251
9025 FORI=0TO511:POKE12288+I,PEEK(53248+
I):NEXTI
9030 FORI=0TO7:POKE12288+8*32+I,0:NEXT
9035 FORI=0TO7:POKE12288+8*31+I,255:NEXT
9040 FORI=0TO8*11-1:READA:POKE12568+I,A:
NEXT
9050 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1
9070 RETURN
9300 PRINT"■■":POKE53280,0:POKE53281,0
9305 POKE53282,0:POKE53283,2:POKE53284,0
9307 FORX=2TO34STEP4
9310 PRINTLEFT$(AT$,17)SPC(X+1)":"
9320 PRINTLEFT$(AT$,18)SPC(X+1)"■*+"
9330 PRINTLEFT$(AT$,19)SPC(X)"*←←+"
9340 PRINTLEFT$(AT$,20)SPC(X)"■■,,,,■"
9350 PRINTLEFT$(AT$,21)SPC(X)"■←←←←"
9360 PRINTLEFT$(AT$,22)SPC(X)"←←←←"
9370 PRINTLEFT$(AT$,23)SPC(X)"←←←←"
9380 PRINTLEFT$(AT$,24)SPC(X)"←←←←"
9390 NEXTX
9499 RETURN
10000 DATA0,0,1,0,0,0,0,0
10010 DATA192,64,160,224,127,126,99,82
10020 DATA8,28,8,124,156,72,63,128
10030 DATA16,56,16,62,56,18,252,1
10040 DATA3,2,5,7,254,126,198,74
10050 DATA0,0,128,0,0,0,0,0
10060 DATA0,0,0,54,54,0,54,54
```

```
10070 DATA0,1,3,7,15,31,63,127
10080 DATA0,128,192,224,240,248,252,254
10090 DATA255,220,73,65,64,0,0,0
10099 DATA24,60,86,60,24,126,255,255
11000 REM TUNE
11005 VO=54272:W1=32:POKEVO+5,13:POKEVO+
6,123:POKEVO+24,15
11007 POKEVO+12,9:POKEVO+13,246:W2=16
11009 POKEVO+19,9:POKEVO+20,129:POKEVO+1
5,20
11010 FORT=1TO8:READL(T),H(T):NEXTT
11020 FORT=1TO7:READN(T):NEXTT
11030 V1=PEEK(63):V2=PEEK(64):V3=PEEK(65
):V4=PEEK(66)
11040 READXX,YY
11042 IFXX=-1THENPOKE63,V1:POKE64,V2:POK
E65,V3:POKE66,V4:GOTO11040
11045 POKEVO,H(XX):POKEVO+1,L(XX)
11047 POKEVO+7,H(XX)+22:POKEVO+8,L(XX)
11050 POKEVO+4,W1+1:POKEVO+11,W2+1
11052 FORTT=1TO25:NEXTTT
11055 POKEVO+4,W1:POKEVO+11,W2
11060 FORTT=1TON(YY)/2:NEXTTT
11070 GETA$:IFA$<>""THENRETURN
11080 GOTO11040
12010 DATA 19,63,21,154,22,227,25,177,28
,214,32,94,34,75,38,126
12020 DATA100,137,225,350,475,725,825
12030 DATA6,1,6,1,6,3,6,1,6,1,6,3,6,1,8,
1,4,1,5,1,6,5
12040 DATA7,1,7,1,7,1,7,1,7,1,6,1,6,1,6,
1,6,1,5,1,5,1,6,1,5,3,8,3
12050 DATA6,1,6,1,6,3,6,1,6,1,6,3,6,1,8,
1,4,1,5,1,6,5
12060 DATA7,1,7,1,7,1,7,1,7,1,6,1,6,1,6,
1,8,1,8,1,7,1,5,1,4,3,4,3
12070 DATA4,1,5,1,4,3,2,3,7,3,5,3,4,7
12080 DATA4,1,5,1,4,1,5,1,4,3,7,3,6,7
12090 DATA3,1,4,1,3,3,1,3,6,3,5,3,4,7
12095 DATA4,1,5,1,4,1,5,1,4,3,5,3,2,7
12100 DATA4,1,5,1,4,3,2,3,7,3,5,3,4,7
12110 DATA4,1,5,1,4,1,5,1,4,3,7,3,6,7
12120 DATA3,1,4,1,3,3,1,3,6,3,5,3,4,7
12130 DATA4,1,5,1,4,1,5,1,4,3,8,3,7,7
12140 DATA-1,-1,-1
```

Buzzy Bee

In Buzzy Bee you control a small bird which pecks away at the stems of a row of plants which are gradually growing towards the top of the screen. If any of the plants should reach the top a bee will drop down and take the nectar and you have lost the game.

The bird can be moved from left to right by using the < and > keys and the space bar will cause it to peck, although none of the stems can be pecked twice in succession.

```
10 REM **BUZZY BEE BY PAUL ROPER
20 REM **IDEA BY PAUL STANLEY
30 GOSUB1000:REM INSTRUCTIONS
40 GOSUB2000:REM SOUND & GRAPHICS
50 DATA 1947,1952,1958,1962,1968,1974,19
80
55 FORA=1TO25:PRINT"■
                      ";:NEXT
60 FORT=1TO7:READP(T):POKEP(T),42:NEXT
61 DATA"—●—","╰●╯","—●—","╭●╮","—o—","╰o
╯","—o—","╭o╮","*"
62 FORA=1TO8:READ B$(A):NEXT
66 FORA=56256TO56295:POKEA,1:NEXT
70 TI$="000000":M=2000:B=1:V=1:DL=.45:FT
=0:DD=0
80 GOSUB3000:REM MOVE BEE
90 GOSUB4000:FT=1:REM REM MOVE AXEMAN
95 GOSUB6000:REM GROW PLANTS
100 IF DD<>1THEN80
101 POKE54273,50:FORA=1TO20:POKE54276,65
:FORF=1TO8:PRINT"■"TAB(B)B$(F)
102 NEXT:POKE54276,64:NEXT:POKE54273,10
110 PRINT"■■■■■■■■■":M$="GAME OVER.":GOSUB
5000
120 M$="■■THE BEE HAS FINALLY GOT HIS NE
CTAR":GOSUB5000
130 M$="YOU HELD OUT FOR "+STR$(INT(TI/6
0))+" SECONDS.":GOSUB5000
135 FORA=1TO10:GETA$:NEXT:REM EMPTY BUFF
ER
```

```
140 PRINT"■■■PRESS SPACE TO PLAY AGAIN"
150 GETA$:IFA$<>" "THEN150
160 RUN50
1000 PRINT"■■   B U Z Z Y  -  B E E ■■■"
1010 PRINT"■A GIANT BEE LIKES NECTAR FRO
M GIANT"
1020 PRINT"FLOWERS,BUT YOU HAVE TO STOP
IT BECAUSE"
1030 PRINT"YOU LIKE NECTAR AS WELL.CHOP
CHUNKS OUT"
1040 PRINT"OF THE STALKS WITH THE SPACEB
AR AND"
1050 PRINT"USE '>' & '<' TO MOVE RIGHT A
ND LEFT"
1060 PRINT"BUT NOTE THAT YOU MUST SUCCES
IVE PIECES"
1070 PRINT"OUT OF DIFFERENT STALKS.HOW L
ONG CAN"
1080 PRINT"YOU KEEP THE FLOWERS TOO LOW
FOR HIM TO"
1090 PRINT"GET AT ?":RETURN
2000 REM UDGS
2010 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251
2020 FORA=0TO703:POKE12288+A,PEEK(53248+
A):NEXT
2030 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1
2040 READA$:IFA$<>"*"THEN2040
2045 POKE53272,(PEEK(53272)AND240)+12
2050 READCR:IFCR=-1THEN2500
2060 FORA=0TO7:READCD:POKE12288+CR*8+A,C
D:NEXT:GOTO2050
2062 DATA 102,49,30,216,59,30,24,48,48
2063 DATA42,195,189,66,90,90,66,189,195
2064 DATA35,60,60,24,255,24,24,36,66
2070 DATA -1
2500 REM SET UP SOUND
2510 FORA=54272 TO 54300:POKEA,0:NEXT
2520 POKE54296,15
2530 POKE54272,10:POKE54273,10:POKE54275
,15
2540 POKE54277,12
2550 POKE54279,30:POKE54280,30:POKE54284
,8
```

```
2555 FORT=1TO10:GETA$:NEXT
2560 PRINT"■■■PRESS SPACE TO START"
2570 GETA$:IFA$<>" "THEN2570
2575 RESTORE
2580 RETURN
3000 REM MOVE BEE
3005 PRINT"■■"TAB(B)"    "
3006 POKE54276,64:POKE54276,65
3007 F=F+1:IFF=9THENF=1
3010 B=B+V:IFB=1 OR B=37 THENV=-V
3020 PRINT"■■"TAB(B)B$(F)
3030 IFPEEK(1065+B)<>42THENRETURN
3040 DD=1:RETURN
4000 REM MOVE AXEMAN
4010 K=PEEK(197):IFK=64ANDFTTHENRETURN
4012 IFK=60THEN4600
4015 POKEM,32
4020 IFK=47THENM=M-1:IFM<1985THENM=1985
4030 IFK=44THENM=M+1:IFM>2021THENM=2021
4040 POKEM,35
4050 RETURN
4600 IFPEEK(M-40)<>102THENRETURN
4610 RESTORE:PN=0
4615 POKE54283,128:POKE54283,129
4620 FORA=1TO7:READE:IFE=M-40THENPN=A
4630 NEXT:IFPN=LMTHENRETURN
4631 LM=PN
4632 POKEP(PN),32:P(PN)=P(PN)+40
4640 POKEP(PN),42:POKE54272+P(PN),1:RETU
RN
5000 FORA=1TOLEN(M$):PRINTMID$(M$,A,1);:
FORT=1TO30:NEXTT,A:PRINT:RETURN
6000 REM GROW PLANTS
6010 IF RND(1)<DL THENRETURN
6020 PN=INT(7*RND(1)+1):POKEP(PN),102:PO
KE54272+P(PN),5
6025 IF P(PN)<1104THENPOKEP(PN),42:RETUR
N
6030 P(PN)=P(PN)-40:POKEP(PN),42:POKE542
72+P(PN),1
6040 RETURN
```

Heli-Bomber

After all this intergalactic warfare, you'll find it refreshing to return to Earth and struggle to cope with a fleet of helicopters whose pilots are committed to wiping out your fair city. Thankfully you're in control of the metropolitan laser tower, and it's up to you to shoot down the bombs before they hit the city. You'll get points for every bomb you hit, and whilst you can wipe out a chopper if you feel so inclined, you will not add to your tally by so doing. You move your laser sight with Q, A, M and N, and the game is over once one of the bombs finds a clear path to the ground or the laser tower itself is destroyed.

```
0 HS=0:POKE650,128:REM AUTO REPEAT ON AL
L KEYS.
10 IFPEEK(56)<>48THENGOSUB9000:GOTO20
15 GOSUB9580
20 DIMSD%(24,21):SL$="
":CL$="
"
30 BD%=0:SC=0:HE=0:EN%=0:GOSUB20000
40 POKE53280,0:POKE53281,0
50 PRINT"
 DO YOU WANT INSTRU
CTIONS? (Y/N) "
60 WAIT198,15:GETA$:IFA$="Y"THENGOTO63
61 IFA$="N"THEN100
62 GOTO60
63 GOSUB10000
100 GOSUB1000:GOSUB1150:GOSUB2270
110 IFPEEK(198)>1THENPOKE198,1
111 DX=0:DY=0:GETA$:GOSUB21000
120 IFA$="Q"THENDY=-1
130 IFA$="A"ORA$="♠"THENDY=1
140 IFA$="N"ORA$="/"THENDX=-1
150 IFA$="M"ORA$="\"THENDX=1
160 IFA$=" "ORA$=" "THENGOSUB1700
170 GOSUB21000:GOSUB1200:GOSUB1300
180 GOSUB21000:IFBD%=0ANDRND(1)>.85THENB
D%=1:BX=HX:BY=HY+2
190 IFBD%=1THENGOSUB1400:IFEN%=1THEN1100
0
200 PRINTLEFT$(SL$,18);SPC(19):PRINT"
"
```

```
998 GOSUB21000:GOSUB1600
999 GOTO110
1000 REM *** BUILD TOWN
1010 PRINT"■":FORN=0TO39
1020 H=INT(RND(1)*5)+20
1030 PRINTLEFT$(SL$,H);TAB(N);:PRINTMID$
(CL$,RND(1)*7+1,1);
1040 FORX=HTO24
1050 PRINTCHR$(165)"■■";:NEXT:NEXT
1100 REM *** BUILD LASER TOWER
1110 PRINTLEFT$(SL$,18);TAB(19);"■■■";
1120 FORX=1TO6:PRINT"X■■";:NEXT
1130 RETURN
1150 REM *** INITIALISE SIGHT POSITION
1160 SX=19:SY=10
1200 REM *** PRINT SIGHT
1202 PRINTLEFT$(SL$,SY+1);SPC(SX);" ";
1210 SY=SY+DY:SX=SX+DX
1211 IFSX>39THENSX=0
1212 IFSX<0THENSX=39
1213 IFSY<2THENSY=17
1214 IFSY>17THENSY=2
1230 PRINTLEFT$(SL$,SY+1);SPC(SX);"■+":R
ETURN
1300 REM *** MOVE HELICOPTER
1310 PRINTLEFT$(SL$,HY+1);SPC(HX-1);"
■■■■■   "
1320 HX=HX+INT(RND(1)*2)+1:IFHX>37THENHX
=1
1330 HY=HY+INT(RND(1)*3)-1:IFHY>15THENHY
=15
1340 IFHY<2THENHY=2
1350 PRINTLEFT$(SL$,HY+1);SPC(HX);"■■ ■■
■■";:FORQQ=1TO3
1351 PRINTCHR$(160+QQ);:NEXT
1360 RETURN
1400 REM *** BOMB ON WAY !
1410 PRINTLEFT$(SL$,BY+1);SPC(BX);" "
1420 P=PEEK(1064+BX+(40*BY)):IFP<>32ANDP
<>43THEN1450
1430 BY=BY+1:IFBY>23THENEN%=1:RETURN
1440 PRINTLEFT$(SL$,BY+1);SPC(BX);"■";CH
R$(164);
1441 POKE54284,241:POKE54283,17:POKE5428
0,(30-BY)*8:RETURN
```

```
1450 REM *** BOMB HIT SOMETHING !
1451 POKE54296,0:POKE54283,0
1460 IFP=81THENEN%=1
1470 FORM=15TO0STEP-1:PRINTLEFT$(SL$,BY+
2);SPC(BX);CHR$(164);
1480 PRINTLEFT$(SL$,BY+2);SPC(BX);" ";
1481 POKE54296,M:POKE54284,15:POKE54280,
40:POKE54279,200:POKE54283,129:NEXT
1490 BD%=0:POKE54283,0:RETURN
1600 REM *** UPDATE SCORE LINE
1610 PRINT"■■  SCORE =";SC;" HELECOPTERS
 DESTROYED =";HE
1620 RETURN
1700 Y=18-SY:X=SX-19
1701 FORV=15TO0STEP-1.5
1702 POKE54296,V:POKE54284,15:POKE54280,
40:POKE54279,200:POKE54283,129:NEXT
1703 POKE54283,0
1710 IFX=0THEN1800
1720 M=Y/X:FORY=16TO3STEP-1:HY%=Y
1730 HX%=19+((18-HY%)/M):GOSUB2000
1735 IFHX%<1ORHX%>39THENY=2:GOTO1760
1740 PRINTLEFT$(SL$,HY%+1);SPC(HX%);"■*"
;
1750 PRINTLEFT$(SL$,HY%+1);SPC(HX%);" ";
1760 NEXT:POKE198,0:RETURN
1800 HX%=19:FORY=16TO3STEP-1:HY%=Y:GOSUB
2000:GOTO1740
2000 REM *** HIT SOMETHING?
2010 XY=PEEK(1024+HX%+(40*HY%))
2020 IFXY=32ORXY=43THENRETURN
2030 IFXY=97ORXY=98ORXY=99THEN2100
2040 FORV=10TO1STEP-1:PRINTLEFT$(SL$,BY+
1);SPC(BX);"*■ ";:GOSUB22000:NEXT
2070 SC=SC+10:GOSUB1600:BD%=0:RETURN
2100 REM *** HIT HELECOPTER
2101 POKE54276,0:POKE54277,0:POKE54272,0
2102 POKE54276,33
2120 PRINTLEFT$(SL$,HY+1);SPC(HX-1);"
■
2130 P=1023+HX+(40*(HY+2)):IFPEEK(P)<>32
ANDPEEK(P)<>100ANDPEEK(P)<>43THEN2200
2131 IFPEEK(P+1)<>32ANDPEEK(P+1)<>100AND
PEEK(P+1)<>43THEN2200
```

```
2132 IFPEEK(P+2)<>32ANDPEEK(P+2)<>100AND
PEEK(P+2)<>43THEN2200
2140 HY=HY+1:PRINTLEFT$(SL$,HY+1);SPC(HX
);"■▄▄"
2150 PRINTSPC(HX-1);"▌▄▀";:POKE54277,255
:POKE54273,(30-HY)*8:GOTO2120
2200 HE=HE+1
2210 FORV=15TO0STEP-.5:GOSUB22000
2220 PRINTLEFT$(SL$,HY+2);SPC(HX-1);"■**
*"
2225 PRINTLEFT$(SL$,HY+2);SPC(HX-1);"■\|
/"
2230 NEXT:PRINTLEFT$(SL$,HY+2);SPC(HX-1)
;"   ":POKE54283,0
2240 PRINTLEFT$(SL$,HY+3);SPC(HX-1);"
";:GOSUB1600
2270 HX=0:HY=INT(RND(1)*15)+2:GOTO1320
9000 PRINT"■■■■■■■■■■■■■■  SETTING UP GRAP
HICS - PLEASE WAIT.    ■"
9001 POKE56,48:POKE52,48:POKE1,55
9002 GOSUB9500
9003 Q=0:RESTORE
9004 READA:IFA=-1THENRETURN
9005 POKE13064+Q,A:Q=Q+1:GOTO9004
9010 DATA0,192,112,63,15,3,0,0,1,31,60,2
54,255,255,8,127
9011 DATA128,240,136,108,252,248,34,252,
60,60,24,60,60,60,60,24
9012 DATA255,153,255,153,255,153,255,153
9499 DATA-1
9500 CS=12288
9510 POKE56334,PEEK(56334)AND254
9520 POKE1,PEEK(1)AND251
9530 FORI=CSTOCS+2047
9540 POKEI,PEEK(53248+I-CS)
9550 NEXTI
9560 POKE1,PEEK(1)OR4
9570 POKE56334,PEEK(56334)OR1
9580 POKE53272,(PEEK(53272)AND240)+12
9590 RETURN
10000 REM INSTRUCTIONS
10010 PRINT"■■       H E L I - B O M B E
 R S !        ■■"
10020 PRINT"   YOUR CITY IS BEING ATTACK
```

```
ED BY       HELICOPTER BOMBERS.
10030 PRINT"WHEN A BOMB HAS A CLEAR PATH
 THROUGH TO THE GROUND, OR WHEN YOUR";
10040 PRINT"LASER TOWER IS  DESTROYED, T
HE GAME ENDS.■"
10050 PRINT"MOVE YOUR LASER SIGHT USING
'Q' TO GO UP'A' TO GO DOWN, 'M' TO GO";
10060 PRINT" RIGHT AND 'N' TO GO LEFT. T
O FIRE YOUR LASER, PRESS"
10065 PRINT"THE SPACE BAR."
10070 PRINT"THE OBJECT OF THE GAME IS TO
 PROTECT THECITY BY SHOOTING DOWN THE";
10080 PRINT" BOMBS BEFORE  THEY REACH TH
E BUILDINGS."
10090 PRINT"■■■     ■ PRESS ANY KEY TO S
TART. ■"
10091 WAIT198,51:GETA$:RETURN
11000 REM END OF GAME...
11010 PRINT"■■■          ■ G A M E   O V
E R !  ■■■"
11020 PRINT"   A BOMB HAS PENETRATED YOU
R DEFENSES.■■"
11030 PRINT"YOU DESTROYED "HE" HELICOPTE
RS, AND■"
11040 PRINT"SCORED "SC" POINTS.■■"
11050 IFSC<=HSTHEN11080
11060 PRINT"      ■ THAT'S A NEW HIGH SC
ORE! ■■■"
11070 PRINT"THE OLD HIGH SCORE WAS "HS"
POINTS.":HS=SC
11080 PRINTSL$"     ■ DO YOU WANT TO PLAY
 AGAIN? (Y/N)";
11090 WAIT198,15:GETA$:IFA$="N"THENPOKE5
4296,0:END
11095 IFA$<>"Y"THEN11090
11096 GOTO30
20000 FORM=1TO10
20005 PRINT"■■■"
20009 FORN=1TO8:PRINTMID$(CL$,N,1);"■
   ■ H E L I - B O M B E R S ! ! "
20010 NEXT:POKE53280,RND(1)*255:POKE5328
1,RND(1)*255:NEXT
20020 RETURN
21000 REM HELECOPTER SOUND
```

```
21001 POKE54276,0:POKE54277,0:POKE54272,
0
21002 POKE54276,129
21010 POKE54296,15:POKE54277,64
21020 POKE54273,10:POKE54272,255:POKE542
76,33:RETURN
22000 POKE54283,0
22001 POKE54296,V:POKE54284,15:POKE54280
,40:POKE54279,200:POKE54283,129
22002 RETURN
```

Sheepdog Trials

There's no getting away from it, sheep are dumb. The pen in the middle of the screen is large enough for them all to be housed in comfort, but the wretched creatures are demonstrating an unpalatable degree of reticence. Your trusty collie is doing the best he can, but he requires firm handling from you. As in life, time is running out, and this unusually difficult game will defeat you unless you manage to get all the sheep into the pen before the last second ticks away.

```
0 PRINT"[redacted]PLEASE WAIT !"
1 REM**********************************
2 REM*                                *
3 REM* CONVERTED BY  DAVE HODGKINSON *
4 REM*     FROM A PROGRAM BY          *
5 REM*       ROBERT ERSKINE           *
6 REM*                                *
7 REM**********************************
10 GOSUB6000
20 GOSUB5000
30 GOTO180
50 PRINT"[redacted]";:P
RINT
51 FORI=1TO4:PRINT"[redacted]
";:PRINT:NEXTI
52 PRINT"[redacted]"
55 PRINT"[redacted]";
56 FORI=1TO20:PRINT"[redacted]";:NEXTI
57 PRINT"[redacted]";
61 RETURN
100 P=PEEK(197):IFP=60THENRETURN
110 SYSPR,DX,DY,"  ":ZZ=TL+DX+40*DY
120  IFP=47THENIFPEEK(ZZ-40)=32THENDY=DY-
1
130  IFP=55THENIFPEEK(ZZ+1)=32THENDX=DX+1
:DD=1
140  IFP=12THENIFPEEK(ZZ-1)=32THENDX=DX-1
:DD=2
```

```
150 IFP=20THENIFPEEK(ZZ+40)=32THENDY=DY+
1
160 SYSPR,DX,DY,CHR$(90+DD):RETURN
180 T=1
181 GOSUB50:SC=0
186 S(1,1)=3:S(1,2)=15:S(2,1)=3:S(2,2)=1
6:S(3,1)=4:S(3,2)=15:S(4,1)=4:S(4,2)=16
190 SYSPR,0,23,"PLAYER";T;
200 FORZ=1TO4:SX=S(Z,1):SY=S(Z,2):GOSUB1
00:IFP=60THEN3000
230 IFRND(TI)<.25THENSX=SX+SGN(RND(TI)-.
5):SY=SY+SGN(RND(TI)-.5)
290 E=(ABS(DX-S(Z,1)))/10:F=(ABS(DY-S(Z,
2)))/10:G=S(Z,1)-DX:H=S(Z,2)-DY
300 Q=RND(TI):IFQ>EANDQ>FTHENSX=S(Z,1)+S
GN(G):SY=S(Z,2)+SGN(H)
340 RR=-2*(H>0)-(H<0)-(RND(TI)*2+1)*(H=0
)
350 SYSPR,S(Z,1),S(Z,2)," "
360 IFPEEK(TL+40*SY+SX)=32THENS(Z,1)=SX:
S(Z,2)=SY
380 SYSPR,S(Z,1),S(Z,2),CHR$(92+RR):NEXT
Z
510 SC=SC+1:SYSPR,20,23,"SCORE     ■■■■■";
150-SC;"■■■■■";:IFSC=150THEN3000
520 GOTO200
530 T=T+1:IFT=<ATHEN181
2000 PRINT"■"
2005 SYSPR,12,0,"RESULTS"
2010 PRINT:PRINT:FORX=1TOA
2020 PRINTTAB(9);"PLAYER"X,P(X):PRINT
2030 NEXT
2035 GOSUB4000
2040 PRINT"PRESS ANYKEY TO RESTART"
2045 FORI=1TO11:GETA$:NEXT
2050 GETA$:IFA$=""THEN2050
2060 GOSUB6320:GOTO180
3000 SYSPR,15,10,"—"
3002 P(T)=150-SC
3005 CH=0
3010 FORXX=1TO4
3020 IFS(XX,1)>10ANDS(XX,1)<20ANDS(XX,2)
>5ANDS(XX,2)<10THENCH=CH+1
3030 NEXTXX
```

```
3040 IFCH<4THENSYSPR,15,15,"YOU FAILED T
O PEN THE ":SYSPR,15,17,"SHEEP. SCORE 0"
3041 IFCH<4THENP(T)=0:CH=0:GOSUB4000:GOT
O530
3050 SYSPR,5,5,"YOUR SCORE WAS"P(T):GOSU
B4000:GOTO530
4000 FORQ=1TO1000:NEXTQ:RETURN
5000 PRINT"■"
5010 SYSPR,12,3,"SHEEPDOG TRIALS"
5020 SYSPR,4,6,"THE OBJECT IS TO HERD TH
E SHEEP"
5030 SYSPR,3,8,"INTO THE PEN, WITHIN A F
IXED TIME."
5040 PRINT"■■■ 'Z'-LEFT  'C'-DOWN  ','-UP
  '/'-RIGHT"
5078 SYSPR,12,4,"━━━━━━━━ ━━━━━━━"
5079 GETA$:IFA$=""THEN5079
5080 RETURN
6000 PR=12*4096:TL=50176:PRINTCHR$(142)
6010 FORI=PRTOPR+25:READA$:C=LEN(A$):A=A
SC(A$)-48:B=ASC(RIGHT$(A$,1))-48
6020 N=B+7*(B>9)-(C=2)*(16*(A+7*(A>9))):
POKEI,N:NEXT
6025 PRINT"■■■■■O.K.1"
6030 POKE56333,127::POKE1,51:FORX=0TO102
3:POKEX+53248,PEEK(X+53248):NEXT
6040 FORX=0TO31:READA:POKEX+53464,A:NEXT
6050 POKE1,55:POKE56333,129:POKE648,196:
POKE56576,4:POKE53272,21
6300 INPUT"■■■■■■■■HOW MANY PLAYERS    ■■
■■";A$:A=VAL(A$):IFA<1ORA>10THEN6300
6310 DIMS(4,2),P(A),R(2)
6320 DX=15:DY=15:R(1)=-1:R(2)=1:RR=1:DD=
1
6499 RETURN
7000 DATA20,FD,AE,20,9E,B7,8A,48,20,FD,A
E,20,9E,B7,68,A8,18,20,F0,FF,20,FD,AE
7010 DATA4C,A4,AA
9000 DATA 0,0,2,135,126,124,230,149
9010 DATA 0,0,64,225,126,62,103,169
9020 DATA 0,0,0,6,127,254,126,37
9030 DATA 0,0,0,96,254,127,126,164
12000 PRINTPEEK(197):GOTO12000=
```

Hangman

In this rather sophisticated game of Hangman the computer invites you to guess words from a range of topics, including animals, countries of the world, composers and artists, chemical elements, christian names and general verbs.

The strings from which the words are chosen by the computer are stored in A$ and you may wish to modify the program to include your own words and topics or to combine all the existing topics so that the selected word can be taken randomly from any one of them. Note that some of the topics are divided up into two distinct groups of words of different lengths and random number routines are used in the program to determine which group the word is to be chosen from.

```
10 REM **********************
12 REM *                      *
14 REM *      HANG MAN        *
16 REM *                      *
18 REM *  CBM 64 BASIC 2      *
20 REM *                      *
21 REM *          BY          *
22 REM *    DAVE PONTING      *
23 REM *                      *
24 REM **********************
25 POKE53280,0:POKE53281,0:PRINT"■"
30 GOSUB10000:GOSUB7000:GOTO1000
100 IFRND(1)>.5THENGOTO125
103 PRINT"■ PRESS THE APPROPRIATE KEY "
105 A$="PIGEONDONKEYBUDGIEMAGGOTJAGUARSP
IDERBEETLEWEEVILEARWIGSHRIMPPLAICE"
110 A$=A$+"MINNOWBADGERCATTLEKITTENLOCUS
TMAGPIERABBITTURKEYTURTLECANARY"
115 A$=A$+"GERBILMONKEYCURLEW"
120 I=(INT(RND(1)*25)+1)*6-5:B$=MID$(A$,
I,6):RETURN
125 A$="SNAILROACHHIPPOLLAMACHIMPCAMELHO
RSETIGERHOUNDSNAKEROBINHERONRAVENSTORK"
130 A$=A$+"TROUTWHALEHYENAPANDASKUNKTAPI
RZEBRAMOUSESHREWEAGLESWIFTPERCHPRAWN"
```

```
135 I=(INT(RND(1)*31)+1)*5-4:B$=MID$(A$,
I,5):RETURN
150 IFRND(1)>.5THENGOTO175
155 A$="ALBANIAAUSTRIABELGIUMDENMARKFINL
ANDGERMANYHUNGARYICELANDIRELANDRUMANIA"
160 A$=A$+"BAHRAINLEBANONALGERIALIBERIAN
IGERIASENEGALTUNISIABERMUDAJAMAICA"
165 A$=A$+"BOLIVIAURUGUAY"
170 I=(INT(RND(1)*21)+1)*7-6:B$=MID$(A$,
I,7):RETURN
175 A$="TURKEYUGANDASWEDENPOLANDNORWAYME
XICOKUWAITISRAELGREECEZAMBIAFRANCE"
180 A$=A$+"CYPRUSCANADABRAZILTAIWANPANAM
AMALAWIJORDANAZORESANGOLA"
185 I=(INT(RND(1)*20)+1)*6-5:B$=MID$(A$,
I,6):RETURN
200 A$="PURCELLROSSINIBELLINIBERLIOZBORO
DINPUCCINIDEBUSSYSTRAUSSBRITTENHOLBEIN"
210 A$=A$+"MILLAISDAUMIERCEZANNEGAUGUINM
ATISSEPICASSO"
215 I=(INT(RND(1)*16)+1)*7-6:B$=MID$(A$,
I,7):RETURN
250 IFRND(1)>.5THENGOTO275
255 A$="BARIUMCARBONCERIUMCOBALTCOPPERCU
RIUMERBIUMHELIUMINDIUMIODINENICKEL"
260 A$=A$+"OSMIUMOXYGENRADIUMSILVERSODIU
M"
270 I=(INT(RND(1)*16)+1)*6-5:B$=MID$(A$,
I,6):RETURN
275 A$="ARSENICBISMUTHBROMINECADMIUMCAES
IUMCALCIUMFERMIUMGALLIUMHAFNIUMHOLMIUM"
280 A$=A$+"IRIDIUMKRYPTONLITHIUMMERCURYR
HENIUMRHODIUMSILICONSULPHURTERBIUM"
285 I=(INT(RND(1)*22)+1)*7-6:B$=MID$(A$,
I,7):RETURN
300 A$="JAMESDAVIDEDGARHENRYCAROLHELENBR
IANSALLYSARAHSUSANPETERSIMONMANDY"
305 A$=A$+"KEVINSCOTTNIGELMILESROBINVENU
SROMEOCECILDYLANPERCYLEIGHEMILYPABLO"
310 A$=A$+"FRANKCLIVEDIANANICKYTRACYBARR
YGEOFFTERRY"
320 I=(INT(RND(1)*34)+1)*5-4:B$=MID$(A$,
I,5):RETURN
350 IFRND(1)>.5THENGOTO375
```

```
355 A$="CARRYCATCHMARRYLAUGHTWISTBRINGFE
TCHWRITECLIMBWORRYGLIDEAWASHSHOOTDODGE"
360 A$=A$+"PUNCHSMACKSCALETHROWLOATHDRIV
EPRESSTASTESPEAKHURRYSCORETRAILFORCE"
365 A$=A$+"PROVETRACEPAINT"
370 I=(INT(RND(1)*30)+1)*5-4:B$=MID$(A$,
I,5):RETURN
375 A$="COLOURTHRILLUNLOCKAFFECTABDUCTFO
LLOWATTACKDEFENDDIFFERSELECTOUTPUT"
380 A$=A$+"DEFINECHANCEMODIFYREMAINACCEP
TSPRINGASSUREVANISHFINISHTRAVEL"
390 I=(INT(RND(1)*21)+1)*6-5:B$=MID$(A$,
I,6):RETURN
1000 REM THE GAME PROPER
1005 PRINT"           H A N G M A N
1007 PRINT"          ------------------"
1010 PRINT"     WHICH SUBJECT WOULD YOU
 LIKE?"
1015 PRINT"  1.......ANIMALS":PRINT"  2
.......COUNTRIES OF THE WORLD"
1020 PRINT"  3.......COMPOSERE & ARTISTS
":PRINT"  4.......CHEMICAL ELEMENTS"
1025 PRINT"  5.......CHRISTIAN NAMES":PR
INT"  6.......GENERAL VERBS"
1027 PRINT"  7.......COMPUTER'S CHOICE"
1030 PRINT"PRESS THE APPROPRIATE K
EY TO MAKE CHOICE"
1040 K$="W":GETK$:IFK$=""THEN1040
1050 IFASC(K$)<49ORASC(K$)>55THEN1040
1055 IFASC(K$)=55THENK=INT(RND(1)*6)+1:K
$=STR$(K)
1057 KK=VAL(K$):IFKK<1ORKK>7THEN1040
1060 ON KKGOSUB100,150,200,250,300,350
1090 PRINT"           H A N G M A N
1092 PRINT"          ------------------"
1095 S=0:C=0:L=LEN(B$):Y=16:X=21
1097 FORW=1TOL:B$(W)=MID$(B$,W,1)
1100 PRINTLEFT$(AT$,11)SPC(20+W*2)"-":NE
XTW
1102 PRINTLEFT$(AT$,14)SPC(18)" ,--------
---------------."
1103 PRINTSPC(18)" | PREVIOUS GUESSES |"
1104 FORT=1TO4:PRINTSPC(18)" |
        |":NEXTT '
```

```
1106 PRINTSPC(18)"└──────────────────────┘"
1110 PRINT"■■■■■■■"SPC(20)"GUESS A LETTER
:-"
1130 GETI$:IFI$=""THEN1130
1140 IFASC(I$)<65ORASC(I$)>90THEN1130
1150 POKESO+4,21:FORT=1TO50:NEXTT:POKESO
+4,20
1160 FORT=1TOLEN(X$):IFMID$(X$,T,1)=I$TH
EN1130
1170 NEXTT:X$=X$+I$
2000 S1=S:FORF=1TOL
2010 IFI$=B$(F)THENB$(F)="#":GOTO2100
2020 NEXTF
2022 IFS<>S1THENPOKESO+8,15:POKESO+11,33
:GOTO2040
2023 POKESO+8,12:POKESO+11,33:C=C+1
2025 ONCGOSUB12000,12010,12020,12030,120
40,12050,12060,12070,12080,12090,12100
2030 PRINTLEFT$(AT$,Y)SPC(X)I$:X=X+2:IFX
=>36THENX=21:Y=Y+1
2040 FORT=1TO50:NEXTT:POKESO+11,0:GOTO11
10
2100 PRINTLEFT$(AT$,10)SPC(20+F*2)I$
2110 S=S+1:IFS=LTHEN3000
2200 NEXTF:GOTO2030
3000 PRINTLEFT$(AT$,22)SPC(6)"WELL DONE!
!  YOU CORRECTLY GOT "
3005 PRINTSPC(7)B$" IN "C+S" GUESSES
3010 PRINT"      ■PRESS ANY KEY TO PLAY
AGAIN":FORT=1TO1000:NEXT:WAIT197,191
3020 GOSUB10210:GOTO1000
7000 REM INITIAL SCREEN -|
7010 FORX=1TO7
7030 ONXGOSUB12000,12010,12020,12030,120
40,12050,12060,12070,12080,12090,12100
7040 FORT=1TO300:NEXTT
7050 NEXT
7060 PRINTLEFT$(AT$,8)SPC(1)HN$(5)"▬▬▬▬
▬"
7070 A$(1)=" ┌──────────┐"
7080 A$(2)="|          |"
7090 A$(3)=" └──────────┘"
7095 FORT=1TO300:NEXTT
7100 PRINTLEFT$(AT$,9)SPC(8)A$(1)
```

```
7110 FORT=1TO300:NEXTT
7120 PRINTLEFT$(AT$,10)SPC(8)A$(2)
7130 FORT=1TO300:NEXTT
7140 PRINTLEFT$(AT$,11)SPC(8)A$(3)
7150 FORT=1TO300:NEXTT
7160 PRINTLEFT$(AT$,10)SPC(9)" HANGMAN"
7200 PRINT"■■■■■■■■■■■■■■■■ ■ PRESS ANY KEY
 TO START THE GAME "
7210 WAIT197,64:WAIT197,191
7999 RETURN
10000 REM SHAPES FOR THE GAME
10005 AT$="■■■■■■■■■■■■■■■■
```

```
12020 PRINTLEFT$(AT$,17)SPC(3)HN$(3):RET
URN
12030 PRINTLEFT$(AT$, 9)SPC(1)HN$(4):RET
URN
12040 PRINTLEFT$(AT$, 8)SPC(1)HN$(5):RET
URN
12050 PRINTLEFT$(AT$,15)SPC(6)HN$(6):RET
URN
12060 PRINTLEFT$(AT$,10)SPC(6)HN$(7):RET
URN
12070 PRINTLEFT$(AT$, 9)SPC(12)HN$(8):RE
TURN
12080 PRINTLEFT$(AT$, 9)SPC(11)HN$(9):PO
KEV+21,3
12085 PRINTLEFT$(AT$,11)SPC(12)"\▒▒▒|":RE
TURN
12090 PRINTLEFT$(AT$,17)SPC(3)HN$(10)
12100 T=158:POKEV+1,T:POKEV+2,110:POKEV+
3,T+21:POKE2040,11:POKE2041,15
12105 PRINTLEFT$(AT$,11)SPC(12)HN$(8)
12107 PRINTSPC(12)HN$(8):PRINTSPC(12)"| "
12110 PRINTLEFT$(AT$,22)SPC(5)"BAD LUCK!
! YOU'VE BEEN HANGED"
12115 PRINTSPC(6)"THE ANSWER WAS "B$
12120 POKESO+11,0:GOTO3010
20000 REM *** SPRITE MAN 1  ***
20002 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20003 DATA 0, 56, 128, 0, 130, 0, 5, 1,
64, 10, 68, 160
20004 DATA 10, 0, 160, 10, 68, 160, 5, 5
7, 64, 0, 130, 0
20005 DATA 0, 108, 0, 0, 84, 0, 0, 68, 0
, 3, 199, 128
20006 DATA 7, 239, 192, 15, 255, 224, 29
, 255, 112, 57, 255, 56
20007 DATA 113, 255, 28,0
20100 REM *** SPRITE MAN 2  ***
20102 DATA 56, 255, 142, 16, 255, 132, 4
8, 247, 134, 1, 227, 192
20103 DATA 3, 193, 224, 7, 128, 240, 15,
 128, 248, 7, 128, 240
20104 DATA 7, 128, 240, 7, 128, 240, 7,
128, 240, 3, 0, 96
```

```
20105 DATA 115, 0, 103, 127, 0, 127, 123
, 64, 111, 0, 0, 0
20106 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20107 DATA 0, 0, 0, 0
20200 REM *** SPRITE MAN 3 20200-  ***
20202 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20203 DATA 0, 0, 0, 3, 128, 0, 4, 96, 0,
 9, 48, 0
20204 DATA 16, 16, 0, 20, 80, 0, 16, 144
, 0, 25, 32, 0
20205 DATA 12, 80, 0, 3, 168, 0, 0, 68,
0, 3, 199, 128
20206 DATA 7, 239, 192, 15, 255, 224, 29
, 255, 112, 29, 255, 112
20207 DATA 29, 255, 112,0
20300 REM *** SPRITE MAN 4  ***
20302 DATA29, 255,112, 9, 255,32,25, 239
,48, 1, 239, 0
20303 DATA 1, 239, 0, 1, 239, 0, 3, 239,
 128, 1, 239, 0
20304 DATA 1, 239, 0, 1, 239, 0, 1, 239,
 0, 0, 198, 0
20305 DATA 0, 198, 0, 0, 70, 0, 0, 238,
0, 13, 199, 96
20306 DATA 30, 130, 240, 60, 0, 120, 24,
 0, 48, 0, 0, 0
20307 DATA 0, 0, 0, 0
25000 REM —— DATA
25100 DATA0,11,0,0,20,56,140,0,8,0,0,32,
9,248,0,55,0,0,0,0,0,0,0,0,15,0,0,0,0
```

Evolution

This is a series of six programs which have been divided into three self contained groups. It represents the evolution of life from the single celled amoeba to modern man, linked by a single theme — survival!

Evolution 1

Evolution 1 begins with the amoeba stage, in which the player controls the movement of a tiny amoeba which must wander round the screen eating spores whilst avoiding attack from other single celled creatures.

In the second program in this suite the player is transformed into a frog which has to dodge from side to side avoiding capture by birds whilst zapping the required number of airborne flies with its tongue. There is no fairy princess as a reward for this one but instant promotion into the form of a beaver in the third program, in which you must swim around and capture ten fish whilst avoiding contact with a vicious crab.

```
1 REM ***64 VERSION***
2 REM *** EVOLUTION 1 ***
10 I=RND(-TI):POKE53280,0:POKE53281,0:PO
KE53272,23:POKE650,255
20 Y$="[■■■
```

```
)OR1:POKE53272,(PEEK(53272)AND240)+14
100 PRINT"■■"TAB(10)"▔ X ┌ └ ┌ | ┐ ┌ /",
,,"▬▬▬
```

```
150 PRINTTAB(16)"■■ - ,┐"TAB(88)"@ - └─┘
|       ↑ - ─┐| || "TAB(95)"Z - ─┌o/
156 PRINT"■■■■RESS ■♥┐♠─ |♠┘ ■TO STAR
T STAGE 1.":FORQ=1TO10:GETN$:NEXT
158 GETZ$:IFZ$<>" "THEN158
1050 PRINT"■":AY=16:AX=18:A$="■ | ■":B$
="■■■■■":T=100:SC=0
1060 FORF=1TO6:Y(F)=INT(RND(1)*22)+1:X(F
)=INT(RND(1)*32)+4
1070 PRINTLEFT$(Y$,Y(F)+1)LEFT$(X$,X(F))
MID$(B$,F,1)MID$(A$,F,1):NEXT
1100 PRINTLEFT$(Y$,AY+1)LEFT$(X$,AX)"■
1110 FORF=1TO5STEP2:FORI=FTOF+1
1120 POKE1024+40*Y(I)+X(I),32:Y(I)=INT(Y
(I)+RND(1)*2-RND(1)*2)
1122 X(I)=INT(X(I)+RND(1)*3-RND(1)*3)
1125 IFF<5THENY(I)=Y(I)-(Y(I)<AY)+(Y(I)>
AY):X(I)=X(I)-(X(I)<AX)+(X(I)>AX)
1130 IFY(I)<10RY(I)>22THENY(I)=12
1140 IFX(I)<40RX(I)>35THENX(I)=19
1150 PRINTLEFT$(Y$,Y(I)+1)LEFT$(X$,X(I))
MID$(B$,F,1)MID$(A$,I,1)
1155 IFPEEK(1024+40*AY+AX)<>101THENGOTO1
200
1157 POKE1024+40*AY+AX,32
1158 M$="":FORQ=1TO10:GETN$:IFN$=""THEN1
160
1159 M$=N$:NEXT
1160 AY=AY-(M$="Z"ANDAY<22)+(M$="2"ANDAY
>1)
1170 AX=AX-(M$="↑"ANDAX<35)+(M$="@"ANDAX
>4)
1175 T=T-1:PRINT"■"TAB(19)"■  ■■■"T:IFT=
0THEN1210
1176 IFPEEK(1024+40*AY+AX)<>32ANDPEEK(10
24+40*AY+AX)<>101THEN1200
1178 PRINTLEFT$(Y$,AY+1)LEFT$(X$,AX)"■
1180 NEXTI,F:GOTO1100
1200 IFPEEK(1024+40*AY+AX)=102ORPEEK(102
4+40*AY+AX)=103THEN1210
1201 PRINTLEFT$(Y$,AY+1)LEFT$(X$,AX)"■ "
LEFT$(Y$,23);LEFT$(X$,16)"|┌|  |┐\!
1202 FORJ=5TO6:IFAY=Y(J)ANDAX=X(J)THENWH
=J
```

```
1203 NEXT:Y(WH)=INT(RND(1)*22)+1:X(WH)=I
NT(RND(1)*32)+4
1204 PRINTLEFT$(Y$,Y(WH)+1)LEFT$(X$,X(WH
))MID$(B$,WH,1)MID$(A$,WH,1)
1205 FORQ=1TO200:NEXT:PRINTLEFT$(Y$,23)L
EFT$(X$,16)"          "
1206 SC=SC+1:IFSC<5THEN1178
1208 PRINT"■■■OELL DONE!  |OU SURVIVED T
HE FIRST
1209 PRINT"■STAGE OF EVOLUTION AS AN AMO
EBA.":GOTO8000
1210 PRINT"■■■AD LUCK!  |OU FAILED IN T
HE 1ST STAGE OF EVOLUTION.":GOTO8000
2000 PRINT"■■■N THIS STAGE YOU HAVE TO
 CATCH FLIES
2002 PRINT"ON YOUR TONGUE, WHILE AVOIDIN
G THE BIRDS
2004 PRINT"■WHICH SWOOP DOWN TO TRY AND
CAPTURE
2006 PRINT"THEIR PREY-  ■ ,!
2010 PRINT"■■■RESS 0 TO STICK YOUR TONG
UE OUT
2012 PRINT"6 TO MOVE LEFT, AND 7 TO MOVE
 RIGHT
2014 PRINT"■■ |OU HAVE SURVIVED THIS STA
GE WHEN YOU
2016 PRINT"HAVE CONSUMED 10 FLIES WITHOU
T FALLING
2018 PRINT"PREY TO THE BIRDS.
2020 PRINT"■■■RESS ■■■■■ |■■ ■TO STAR
T.":FORQ=1TO10:GETN$:NEXT
2022 GETZ$:IFZ$<>" "THEN2022
2024 PRINT"■
2100 X=18:Y(1)=RND(1)*6+14:X(1)=4:Y(2)=1
:X(2)=34:Y(3)=Y(2):X(3)=X(2):F=0
2110 PRINTLEFT$(Y$,23)"■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■■
```

```
2124 M$="":FORQ=1TO10:GETN$:IFN$=""THEN2
126
2125 M$=N$:NEXT
2126 IFM$="0"THENGOSUB2200
2140 IFPEEK(1786+X)=110THEN2250
2150 IFY(2)<>19THEN2155
2152 PRINTLEFT$(Y$,Y(2)+1)LEFT$(X$,X(2))
"  ":Y(2)=1:X(2)=X+9:IFX(2)>34THENX(2)=3
4
2155 IFX(1)<34THEN2160
2157 PRINTLEFT$(Y$,Y(1)+1)LEFT$(X$,X(1))
" ":X(1)=4:Y(1)=RND(1)*6+14
2160 PRINTLEFT$(Y$,Y(1)+1)LEFT$(X$,X(1))
" "LEFT$(Y$,Y(2)+1)LEFT$(X$,X(2))"  "
2180 Y(2)=Y(2)+2:X(2)=X(2)-(X(2)<X+2)+(X
(2)>X+2)
2182 Y(1)=Y(1)+RND(1)*1.5-RND(1)*1.5:X(1
)=X(1)+RND(1)*1.5:IFY(1)>21THENY(1)=15
2190 X=X+(M$="6"ANDX>3)-(M$="7"ANDX<33)
2195 GOTO2120
2200 PRINTLEFT$(Y$,20)LEFT$(X$,X+2)"▁▁▁
▁▁▁
```

```
3016 PRINTTAB(15)"■Z - ┬To/■
3018 PRINT"AND TRY TO EAT THE FISH. \AKE
 SURE THAT
3020 PRINT"YOU AVOID THE CRAB BECAUSE IF
 IT GRABS  YOU, YOU ARE DEAD.
3022 PRINT"■■■┐RESS ■♥┐♠─ |♠_ ┗TO STAR
T.":FORQ=1TO10:GETN$:NEXT
3024 GETZ$:IFZ$<>" "THEN3024
3070 POKE53281,6:PRINT"■"LEFT$(Y$,23)"■■
■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
3072 FORQ=1024TO1263:POKEQ,160:POKEQ+542
72,0:NEXT
3074 FORQ=1264TO1904STEP40:FORF=QTOQ+3::
POKEF,160:POKEF+36,160:POKEF+54272,0
3076 POKEF+54308,0:NEXT
3078 FORQ=1944TO2023:POKEQ,160:POKEQ+542
72,0:NEXT
3085 Y=21:X=19::Y1=Y:X1=X:F=6:G=4:F1=F:G
1=G
3087 A$=" ┌┴":FI=0:PRINT"■■"TAB(19)FI
3090  IFRND(1)>.95THENPRINTLEFT$(Y$,RND(1
)*15+7)LEFT$(X$,RND(1)*29+5)MID$(B$,RND(
1)*4+3,1)"■
3095  IFPEEK(1024+40*Y+X)<>117ANDPEEK(102
5+40*Y+X)<>117THEN3098
3096 FI=FI+1:PRINT"■■"TAB(19)FI:IFFI<>10
THEN3098
3097 PRINTLEFT$(Y$,Y1+1)LEFT$(X$,X1)"■
■"LEFT$(Y$,Y+1)LEFT$(X$,X)A$:GOTO3250
3098 PRINTLEFT$(Y$,Y1+1)LEFT$(X$,X1)"■
"LEFT$(Y$,F1+1)LEFT$(X$,G1)" ■
3099 PRINTLEFT$(Y$,Y+1)LEFT$(X$,X)A$LEFT
$(Y$,F+1)LEFT$(X$,G)"■■
3115 Y1=Y:X1=X:F1=F:G1=G
3117  IFF=YAND(G=XORG=X+1)THEN3300
3118 M$="":FORQ=1TO10:GETN$:IFN$=""THEN3
120
3119 M$=N$:NEXT
3120 IFM$="↑"THENA$=" ┌┴":X=X+(2ANDX<33)
3130 IFM$="@"THENA$="┬┤":X=X-(2ANDX>5)
3140 Y=Y+(M$="2"ANDY>6)
3150 Y=Y-(M$="Z"ANDY<21)
3160 F=INT(F+RND(1)*1.5-RND(1)*1.5-(F<Y)
+(F>Y)):G=G+1
```

```
3170 IFF<6ORF>21THENF=(21ANDF>21)+(6ANDF
<6)
3180 IFG=35THENG=4
3190 GOTO3090
3250 POKE53281,0:PRINT"■■■■OELL DONE!  ■O
U SURVIVED AS A BEAVER
3252 PRINT"AND YOU CAN CONTINUE TO THE N
EXT STAGE  IF YOU WISH.
3260 GOTO8000
3300 POKE53281,0:PRINT"■■■■■AD LUCK!  ■OU
 CAN EVOLVE NO FURTHER
3302 PRINT"■BECAUSE YOU HAVE BEEN DESTRO
YED BY THE  ▙CRAB.
8000 PRINT"■■■■■RESS THE KEY WHICH CORRE
SPONDS TO
8002 PRINT"WHAT YOU WANT TO DO NEXT.
8010 PRINT"■■1....♠MOEBA STAGE.
8012 PRINT"■2....─ROG STAGE.
8014 PRINT"■3....┃EAVER STAGE.
8016 PRINT"■4....└OAD STAGES 4 & 5.
8018 PRINT"■5....┬XIT FROM THE PROGRAM.
8019 POKE650,0
8020 FORQ=1TO10:GETN$:NEXT
8022 GETM$:IFM$=""THEN8022
8025 POKE650,255
8030 ONVAL(M$)GOTO132,2000,3000,8050,806
0
8040 GOTO8022
8050 LOAD
8060 END
8990 DATA240,240,240,240,240,240,240,240
9000 DATA120,132,180,178,129,153,85,51,,
24,36,90,90,36,24,0
9010 DATA0,73,42,28,127,28,42,73,,60,66,
145,133,145,66,60
9020 DATA28,34,78,79,56,32,64,48,56,68,1
14,242,28,4,2,12
9030 DATA15,48,64,92,88,84,82,249,240,12
,2,58,26,42,74,159
9040 DATA0,,,34,85,63,24,,,,,63,127,143,
1,15,31,124,240,192,224,255,,0
9050 DATA0,,15,16,224,159,8,12,,32,220,1
0,1,254,16,24
9060 DATA0,4,59,80,128,127,8,24,,,240,8,
7,249,16,48
```

```
9070 DATA0,,8,61,191,255,255,255,12,30,1
86,255,255,190,30,12
9080 DATA195,60,255,126,235,66,165,165
```

Evolution 2

Evolution 2 contains two programs. In the first, the player controls a large gorilla which lumbers round a forest collecting bananas which drop randomly to the ground. The computer controls a small and extremely agile monkey which makes for very tough competition.

The second program in this section puts you in control of a caveman who tries to kill raiders attacking his territory from surrounding caves by firing arrows.

```
0 REM***64 VERSION*** ***EVOLUTION 2***
1 I=RND(-TI):POKE53280,0:POKE53281,0:POK
E53272,23:POKE650,255
2 Y$="[redacted]":X$="[redacted]
[redacted]
3 PRINT"[redacted]LEASE WAIT WHILE USER-D
EFINED",,"[redacted]CHARACTERS ARE SET UP.
4 POKE52,48:POKE56,48:POKE56334,PEEK(563
34)AND254:POKE1,PEEK(1)AND251
5 FORI=14336TO15143:POKEI,PEEK(I+40960):
NEXT:FORF=1TO64:READG:NEXT
6 FORF=15144TO15279:READG:POKEF,G:NEXT
7 FORI=15280TO16383:POKEI,PEEK(I+40960):
NEXT
8 POKE1,PEEK(1)OR4:POKE56334,PEEK(56334)
OR1:POKE53272,(PEEK(53272)AND240)+14
10 PRINT"[redacted]F YOU HAVE TRIED THE PREV
IOUS PROGRAM
12 PRINT"[redacted]THIS WILL BE THE 4TH STAGE IN
THE
14 PRINT"EVOLUTION SEQUENCE. [redacted]F YOU HAV
EN'T THEN
16 PRINT"THE OBJECT IS TO EVOLVE AS FAR
AS
18 PRINT"POSSIBLE IN A ROLE-PLAYING SERI
ES OF    DIFFERENT PROGRAMS.
30 PRINT"[redacted]N THIS STAGE YOU PLAY THE P
ART OF A
32 PRINT"GORILLA WHO COMPETES AGAINST A
SMALLER
```

```
34 PRINT"MONKEY WHO IS FASTER THAN YOU.
 OU HAVE
36 PRINT"TO EAT ONLY 10 OUT OF 40 BANANA
S WHICH
38 PRINT"ARE PLACED IN THE FOREST IN RAN
DOM
40 PRINT"POSITIONS, BUT THE MONKEY LIKES
 BANANAS AS WELL!
50 PRINT"   RESS      _   TO CONTINU
E.":FORQ=1TO10:GETN$:NEXT
55 GETZ$:IFZ$<>" "THEN55
60 PRINT"   OVE USING:"TAB(97)"2 - ,"
TAB(89)"@ - L_|        ↑ - _\ ||
62 PRINTTAB(56)"◆ - _o/
64 PRINT"BUT NOTE THAT YOU CANNOT GO TH
ROUGH THE TREES.
70 PRINT"   OU PICK UP A BANANA BY ALIG
NING THE
72 PRINT"TOP HALF OF YOUR BODY WITH THE
BANANA.
80 PRINT"   RESS      _   TO START.
":FORQ=1TO10:GETN$:NEXT
82 GETZ$:IFZ$<>" "THEN82
84 POKE53280,5:POKE53281,5
200 PRINT"   ++++++++++++++++++++++++++
++++++++
202 PRINT"   ........................
........
204 FORF=1TO9:PRINT"   ++"TAB(34)"++":
PRINT"   .."TAB(34)" .."":NEXT
210 PRINT"   ++++++++++++++++++++++++++
++++++++
212 PRINT"   ........................
........
230 FORF=1TO12:X=RND(1)*27+6:Y=RND(1)*16
+4:PRINTLEFT$(Y$,Y)LEFT$(X$,X)"  H   ."":N
EXT
240 G=6:F=3:G1=G:F1=F:Y=19:X=32:Y1=Y:X1=
X
250 B=40:S=0
260 BY=INT(RND(1)*15+3):BX=INT(RND(1)*26
+6)
265 IFPEEK(1024+40*BY+BX)<>32ORPEEK(1064
+40*BY+BX)<>32THEN260
```

```
270 PRINTLEFT$(Y$,BY+1)LEFT$(X$,BX)"
280 PRINT"
300 PRINTLEFT$(Y$,Y1+1)LEFT$(X$,X1)"
  "LEFT$(Y$,Y+1)LEFT$(X$,X)"
302 PRINTLEFT$(Y$,F1+1)LEFT$(X$,G1)" "LE
FT$(Y$,F+1)LEFT$(X$,G)"
304 PRINTLEFT$(Y$,BY+1)LEFT$(X$,BX)"
320 IFY=BYAND(X=BXORX=BX-1)THENGOSUB650
330 IFF=BYANDG=BXTHENB=B-1:PRINT"
"B:GOSUB655
335 Y1=Y:X1=X
340 F1=F:G1=G
344 M$="":FORQ=1TO10:GETN$:IFN$=""THEN35
0
346 M$=N$:NEXT
350 Y=Y-(M$="Z"ANDY<19)+(M$="2"ANDY>3):X
=X-(M$="↑"ANDX<32)+(M$="@"ANDX>6)
360 IFPEEK(1024+40*Y+X)>106ORPEEK(1064+4
0*Y+X)>106THENY=Y1:X=X1
365 IFPEEK(1025+40*Y+X)>106ORPEEK(1065+4
0*Y+X)>106THENY=Y1:X=X1
380 F=F-(F<BY)+(F>BY):G=G-(G<BX)+(G>BX)
390 IFPEEK(1024+40*F+G)<107THEN300
392 F=INT(F1+RND(1)*1.5-RND(1)*1.5):G=IN
T(G1+RND(1)*1.5-RND(1)*1.5):GOTO390
650 S=S+1:B=B-1:PRINT"
"BT
AB(30)S
655 IFS=10THEN800
657 IFB=0THEN700
660 BY=INT(RND(1)*15+3):BX=INT(RND(1)*26
+6)
665 IFPEEK(1024+40*BY+BX)<>32ORPEEK(1064
+40*BY+BX)<>32THEN660
670 PRINTLEFT$(Y$,BY+1)LEFT$(X$,BX)"
680 RETURN
700 POKE53280,0:POKE53281,0:PRINT"
AD LUCK!  OU ARE NOT FAST ENOUGH TO
720 PRINT"PROGRESS ANY FURTHER IN EVOLUT
ION.":GOTO1810
800 POKE53280,0:POKE53281,0:PRINT"
ELL DONE!  OU MANAGED TO EAT THE
810 PRINT"BANANAS BEFORE YOU STARVED AND
 THEREFORE
820 PRINT"YOU CAN PROCEED TO THE NEXT S
TAGE.":GOTO1810
```

```
1000 PRINT"■■■HE OBJECT HERE IS TO STO
P OTHER
1002 PRINT"CAVEMEN FROM ATTACKING YOUR C
AVE.  ■OUR
1004 PRINT"CAVE IS IN THE MIDDLE OF 8 OT
HERS, AND
1006 PRINT"FROM ANY OF THESE CAN COME RI
VALS WHO
1008 PRINT"ARE PREPARED TO KILL YOU IN O
RDER TO     STEAL YOUR PROPERTY.
1010 PRINT"■■■OU CAN SPIN ROUND WITH 6 A
ND 7 AND
1012 PRINT"THROW A SPEAR WITH 0.  ■OU HAV
E
1014 PRINT"SUCCESSFULLY DEFENDED YOUR CA
VE WHEN 30
1016 PRINT"ATTACKS HAVE BEEN MADE.  ■OWEV
ER, YOU ARE
1018 PRINT"■GIVEN 3 LIVES TO MAKE YOUR T
ASK EASIER.
1020 PRINT"■■■■RESS ■■■■
```

```
0THEN1190
1140 PRINTLEFT$(Y$,F+1)LEFT$(X$,G)" "
1145 FORW=1TO8:PRINTLEFT$(Y$,Y+1)LEFT$(X
$,X)MID$(C$,W,1)"▌ ":NEXT:S=0:C=C+1
1150 GOTO1092
1190 M$="":FORQ=1TO10:GETN$:IFN$=""THEN1
200
1195 M$=N$:NEXT
1200 A=A-(M$="7"ANDA<8)-(7ANDM$="7"ANDA=
8)+(M$="6"ANDA>1)+(7ANDM$="6"ANDA=1)
1210 IF(M$="0"ANDS=0)=0THEN1300
1220 B$=MID$(A$,A,1):F=12:G=19:S=1
1230 ONAGOSUB1520,1530,1540,1550,1560,15
70,1580,1590
1300 GOTO1100
1400 Y=2:X=9:DY=1:DX=1:RETURN
1410 Y=1:X=19:DY=1:DX=0:RETURN
1420 Y=2:X=29:DY=1:DX=-1:RETURN
1430 Y=12:X=31:DY=0:DX=-1:RETURN
1440 Y=23:X=30:DY=-1:DX=-1:RETURN
1450 Y=23:X=19:DY=-1:DX=0:RETURN
1460 Y=23:X=8:DY=-1:DX=1:RETURN
1470 Y=12:X=7:DY=0:DX=1:RETURN
1520 Y2=-1:X2=0:RETURN
1530 Y2=-1:X2=1:RETURN
1540 Y2=0:X2=1:RETURN
1550 Y2=1:X2=1:RETURN
1560 Y2=1:X2=0:RETURN
1570 Y2=1:X2=-1:RETURN
1580 Y2=0:X2=-1:RETURN
1590 Y2=-1:X2=-1:RETURN
1600 PRINTLEFT$(Y$,F+1)LEFT$(X$,G)" "LEF
T$(Y$,Y+1)LEFT$(X$,X)"▌ ":FORF=1TO40:NEXT
1601 PRINTLEFT$(Y$,Y+1)LEFT$(X$,X)MID$(A
$,A,1)"▣"LEFT$(X$,K+11)" ":K=K+1
1605 IFK=3THEN1800
1607 S=0
1610 GOTO1092
1700 PRINT"▒▒▒▒ELL DONE! ⁻EFENDING YOUR
 CAVE WAS NOT
1702 PRINT"□EASY, BUT YOU DID VERY WELL
AND CAN
1704 PRINT"EVOLVE FURTHER IF YOU WISH TO
.":GOTO1810
```

```
1800 PRINT"■■■■AD LUCK! ■OU FAILED IN Y
OUR ATTEMPT  TO DEFEND YOUR CAVE.
1810 PRINT"■■■■RESS THE KEY WHICH CORRE
SPONDS TO    WHAT YOU WANT TO DO NEXT.
1820 PRINT"■1...♥TART THE GORILLA STAGE
.
1822 PRINT"■2...♥TART THE CAVEMAN STAGE.
1824 PRINT"■3...LOAD THE 6TH STAGE.
1826 PRINT"■4...⁻XIT FROM THE PROGRAM.
1828 FORQ=1TO10:GETN$:NEXT
1830 GETM$:IFM$=""THEN1830
1840 IFM$="1"THENPRINT"■":GOTO30
1850 IFM$="2"THEN1000
1860 IFM$="3"THENLOAD
1870 IFM$="4"THENEND
1880 GOTO1830
1900 DATA47,48,49,87,88,127,128,129,18,1
9,20,58,58,60,98,100
1910 DATA69,70,71,110,111,149,150,151,44
5,446,447,485,486,525,526,527
1920 DATA471,472,473,512,513,551,552,553
,886,887,888,926,927,966,967,968
1930 DATA898,898,900,938,940,978,979,980
,910,911,912,951,952,990,991,992
2010 DATA64,99,101,51,63,31,13,7,,192,16
0,192,248,252,190,231
2020 DATA7,7,7,14,12,12,12,28,227,225,22
4,112,48,48,48,56
2030 DATA2,2,6,14,28,56,240,,25,25,255,1
88,152,60,36,102
2040 DATA8,60,126,254,255,127,126,60,24,
24,24,24,24,24,24,24
2050 DATA8,28,8,8,8,8,8,8,,6,6,8,16,32,6
4,,,,2,255,2,,,,,64,32,16,8,6,6,0
2060 DATA8,8,8,8,8,8,28,8,,2,4,8,16,96,9
6,,,,64,255,64,,,,,96,96,16,8,4,2,0
2070 DATA28,28,8,62,8,28,20,20
```

Evolution 3

Evolution 3 is the logical culmination of survival conditioning. As the leader of the superpower of your choice you must destroy your enemy's capitals with cruise missiles before you are destroyed by one of their ICBM's. To do this you have a very short time to pre-program the flight of your missile with a series of direction codes as the enemy's missile moves towards your capital. The screen features a map of the world on which the missile courses are plotted.

```
10 REM ****************************
20 REM *     EVOLUTION #3         *
30 REM *  ORIG. BY P. STANLEY     *
40 REM *  CBM64 VERSION BY GEOFF.*
50 REM *  USER GRAPHICS ARE SHIFT*
60 REM *  A TO P.  ENTER ROUTINES*
70 REM *  AT 5000 - 5110 FIRST & *
80 REM *  SAVE THEM.  GOOD LUCK  *
90 REM ****************************
100 POKE52,64:POKE56,64:CLR:REM PROTECT
NEW CHAR SET
105 DIMA$(10),X%(10),Y%(10),A(10),C$(50)
:CM=55296:SS=16384
110 POKE54296,8:POKE53280,6:POKE53281,12
:GOSUB7000
120 SC$="■■■
```

```
EXTF:GOSUB300:GOTO290
260 IFQ$="N"ORQ$="S"ORQ$="E"ORQ$="W"THEN
C$(C)=Q$:C=C+1:PRINTQ$;:GOTO280
265 IFQ$="F"ORC=51THENGOSUB5300:HI=16:LO
=5:DU=800:GOSUB5350:F=SK*2:NEXTF:GOTO400
270 IFC1=CTHENGOSUB300:GOTO290
273 GOTO280
280 F=SK*2:NEXTF:HI=44:LO=193:DU=300:GOT
O250
290 IFPH=1GOTO3000
295 GOTO250
300 REM *** ENEMY MISSILE MOVES ***
305 IFCY%<Y%(CN)THENCY%=CY%+1:MI=67
310 IFCY%>Y%(CN)THENCY%=CY%-1:MI=65
320 IFCX%<X%(CN)THENCX%=CX%+1:MI=66
330 IFCX%>X%(CN)THENCX%=CX%-1:MI=68
340 POKESS+AP,RC:POKECM+AP,CC:AP=CY%*40+
CX%:RC=PEEK(SS+AP):CC=PEEK(CM+AP)
350 POKESS+AP,MI:POKECM+AP,10
355 IFRC=MMTHENRC=MC:CC=MD
360 IFCY%=Y%(CN)ANDCX%=X%(CN)THENGOTO300
0:REM YOU'RE HIT!
370 HI=31:LO=218:DU=20:GOSUB5350:HI=26:G
OSUB5350:RETURN
399 REM *** MOVE YOUR MISSILE ***
400 C=1:MC=70:MD=7:POKECM+OS,7
410 FORF=1TO3:Y%=Y%+(C$(C)="N")-(C$(C)="
S"):X%=X%+(C$(C)="W")-(C$(C)="E")
420 POKESS+OS,MC:POKECM+OS,MD
430 IFY%>19THENY%=0
435 IFY%<0THENY%=19
440 IFX%<0THENX%=39
445 IFX%>39THENX%=0
450 OS=Y%*40+X%:MC=PEEK(SS+OS):MD=PEEK(C
M+OS)
460 LETMM=64-(C$(C)="N")-(3*(C$(C)="S"))
-(2*(C$(C)="E"))-(4*(C$(C)="W"))
465 IFMC=MIANDF=3THENMC=RC:MD=CC
470 POKESS+OS,MM:POKECM+OS,7
480 IFY%=Y%(CA)ANDX%=X%(CA)THENF=3:NEXTF
:GOTO700:REM HIT
490 C=C+1:IFC$(C)=""ORC=51THENC=1:Y%=Y%(
CN):X%=X%(CN):GOTO550
500 DU=30:LO=100:FORHI=25TO30:GOSUB5350:
```

```
NEXTHI,F:GOSUB300:GOTO410
550 POKESS+OS,80:POKECM+OS,1:PRINTSC$"YO
U MISSED!":GOSUB5310
560 FORA=1TO10:POKE53280,0:FORA1=1TO50:N
EXT:POKE53280,1:FORA1=1TO50:NEXTA1
570 POKE54296,16-A:NEXTA:POKE53280,10
590 OS=40*Y%(CN)+X%(CN):GOSUB5365
600 F=3:NEXTF:GOSUB5300:GOTO230
698 REM
699 REM ** ENEMY CITY DESTROYED **
700 IFSC=9THENTD=1
705 GOSUB5310:POKESS+AP,RC:POKECM+AP,CC
710 FORA=1TO10:POKE53280,0:FORA1=1TO50:N
EXT:POKE53280,1:FORA1=1TO50:NEXTA1
720 POKE54296,16-A:NEXTA:POKE53280,10
730 PRINTSC$A$(CA)" HAS BEEN DESTROYED":
A(CA)=1
740 GOSUB5365:AP=X%(CA)+Y%(CA)*40:POKESS
+AP,80:POKECM+AP,1:FORA=1TO1000:NEXT
750 GOSUB5300:IFTD=0GOTO200
760 REM ** YOU GOT THEM ALL **
765 SK=SK-5:IFSK<30THENSK=30
770 GOSUB5300:PRINTSC$"YOU INHERIT A DEV
ESTATED WORLD.....":GOSUB6000:GOTO3010
2999 REM *** WHOOPS! YOU'VE HAD IT ***
3000 POKESS+AP,80:POKECM+AP,7:GOSUB5470
3010 FORA=1TO20:GETQ$:NEXT
3020 GETQ$:IFQ$=""GOTO3020
3025 FORA=54272TO54295:POKEA,0:NEXT:POKE
54296,8:GOSUB5300
3030 PRINTSC$"■ WANT TO TRY AGAIN?"
3040 GETQ$:IFQ$<>"Y"ANDQ$<>"N"GOTO3040
3050 IFQ$="N"THENGOSUB5100:END
3060 POKE53281,10:PRINT"■■THE CITIES ARE
:■"
3070 FORA=1TO10:PRINTA$(A):A(A)=0:NEXT
3080 GOSUB7120:SC=0:TD=0:GOTO200
4999 REM *** INITIALISATION ***
5000 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251:REM K/B & I/O OFF
5005 CS=20480:C1=53248
5010 FORA=0TO63:FORA1=0TO7:OS=A*8+A1
5020 POKECS+OS,PEEK(C1+OS):POKECS+OS+102
4,PEEK(C1+OS+1024):NEXTA1,A
```

```
5030 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1:REM K/B & I/O ON
5040 POKE53272,(PEEK(53272)AND240)OR4
5045 RETURN
5050 FORA=65TO80:FORA1=0TO7:READB
5055 POKE20480+(8*A)+A1,B:NEXTA1,A
5070 POKE648,64:POKE56576,(PEEK(56576)AN
D252)OR2
5075 POKE53272,(PEEK(53272)AND15)
5080 RETURN
5099 REM *** RESET EVERYTHING ***
5100 POKE648,4:POKE56576,(PEEK(56576)AND
252)OR3
5110 POKE53272,21:PRINT"■";:POKE54296,0:
RETURN
5200 PRINTTAB(5)"■PRESS ■RETURN■ TO CONT
INUE"
5210 GETQ$:IFQ$<>CHR$(13)GOTO5210
5220 PRINT"□
          □":RETURN
5299 REM *** CLEAR BOTTOM OF SCREEN ***
5300 PRINTSC$;:FORA=1TO79:PRINT" ";:NEXT
:PRINTSC$:RETURN
5309 REM ** 5310-5390 SOUND ROUTINES
5310 POKE54272,73:POKE54273,4:POKE54278,
128:POKE54277,140:POKE54276,129:RETURN
5350 POKE54272,LO:POKE54273,HI:POKE54278
,249:POKE54277,15:POKE54276,17
5360 FORA=1TODU:NEXT
5365 FORA=0TO7:POKE54272+A,0:NEXT:RETURN
5370 FORA=0TO7:POKE54279+A,0:NEXT:RETURN
5375 FORA=0TO7:POKE54286+A,0:NEXT:RETURN
5380 POKE54272,184:POKE54273,4:POKE54277
,16:POKE54278,249:POKE54276,129
5390 POKE54296,15:RETURN
5399 REM ***  LIGHTS ***
5400 FORA=35TO5STEP-1:POKE53281,10:POKE5
3280,1:FORA1=1TOA:NEXTA1:POKE53281,1
5410 POKE53280,10:FORA1=1TOA:NEXTA1,A:PO
KE53281,6:RETURN
5450 FORA=512TO40STEP-1:OS=INT(RND(TI)*1
000+1):POKESS+OS,160:POKECM+OS,1
5451 POKE54296,INT(A/32):NEXT
5453 POKE53281,0:PRINT"■";
```

```
5455 FORA=1TO24:PRINT"■
                              ";:NEXT
5460 PRINTSC$"■■  NO SECOND CHANCES....■
":RETURN
5469 REM *** DESTRUCTION SEQUENCE ***
5470 POKE54285,128:POKE54284,240:POKE542
79,100:POKE54280,50:POKE54283,129
5475 FORA=190TO8STEP-2:POKE54280,A:FORA1
=1TO50:NEXTA1:NEXTA:GOSUB5370:GOSUB5400
5480 GOSUB5380:GOSUB5450:POKE54272,31:PO
KE54273,41:POKE54278,128
5490 POKE54277,240:POKE54276,129
5500 POKE54296,PEEK(54296)OR68:POKE54293
,4:POKE54294,10
5510 POKE54295,1:RETURN
5999 REM *** DEVESTATION ***
6000 FORA=0TO23:POKE54272+A,0:NEXT
6010 POKE54286,5:POKE54290,16:POKE54275,
1:POKE54296,143:POKE54278,240
6020 POKE54278,240:POKE54276,129:FR=1438
9:GOSUB5500
6030 FORT=1TO600:GOSUB6100:NEXT
6040 HF=HF-1:POKE54273,HF:FORA=1TO40:NEX
T:IFHF>1GOTO6040
6050 GOSUB5365:GOSUB5375:POKE54296,8:RET
URN
6100 FQ=FR+PEEK(54299)*45:HF=INT(FQ/256)
:LF=FQ-HF*256
6110 POKE54272,LF:POKE54273,HF:RETURN
6999 REM *** INSTRUCTION PAGES ETC ***
7000 PRINT"■■■■THIS IS THE 3RD AND FINAL
 SECTION IN THE■";
7005 PRINT"SERIES OF EVOLUTION PROGRAMS.
"
7010 PRINT"■■■THIS ONE INVOLVES A NUCLEA
R WAR, WHERE "
7015 PRINT"■YOU CAN PLAY THE PART OF P.M
. OF ANY OF"
7020 PRINT"■TEN SUPERPOWERS WHICH MAY EX
IST IN 2002"
7025 PRINT"■(THE YEAR IN WHICH THIS WAR
TAKES PLACE)"
7030 PRINT"■■THE OBJECT IS TO PROGRAM CR
UISE MISSILES";
```

```
7035 PRINT"■TO HOME IN ON YOUR ENEMIES C
APITALS.":GOSUB5000:GOSUB5200
7040 PRINT"■■■ IN 2002 THE WORLD IS NOT
VERY DIFFERENT"
7045 PRINT"FROM 20 YEARS AGO, APART FROM
 THE NEW"
7050 PRINT"■SUPERPOWERS NOW EXISTING. SO
UTH AMERICA"
7055 PRINT"■HAS BEEN OVERRUN BY BRAZIL,
AND ITS"
7060 PRINT"■CAPITAL IS BRASILIA. JAPAN H
AS BECOME"
7065 PRINT"■A POWERFUL NATION, AND THE A
RAB STATES"
7070 PRINT"■HAVE BECOME UNIFIED AROUND A
 CAPITAL,"
7075 PRINT"■RIYADH. AUSTRALIA AND SOUTH
AFRICA HAVE"
7080 PRINT"■ALSO RISEN TO BE SUPERPOWERS
■":GOSUB5200:GOSUB5050
7085 PRINT"■"CHR$(142)"■■ENTER A SKILL L
EVEL (30-100)"
7090 INPUT"■(30 IS HARDEST) ■■*■■■■";SK$
7100 IFSK$="*"GOTO7085
7105 SK=VAL(SK$):IFSK<30ORSK>100GOTO7085
7107 PRINT"■■THE CAPITAL CITIES ARE:■"
7110 FORA=1TO10:READA$(A),X%(A),Y%(A):PR
INTA$(A):A(A)=0:NEXT
7120 PRINT"■■IN WHICH CAPITAL DO YOU WAN
T TO BE P.M.■"
7130 INPUT"(TYPE FIRST TWO CHARACTERS) ■
■*■■■■";CP$
7140 IFCP$="*"THENGOSUB5100:END
7150 FORA=1TO10:IFLEFT$(CP$,2)<>LEFT$(A$
(A),2)THENNEXTA:PRINT"□□□□":GOTO7120
7160 CN=A:X%=X%(A):Y%=Y%(A):CP$=A$(A):A=
10:NEXTA
7200 PRINT"■■YOU PROGRAM YOUR MISSILES B
Y COMPASS■"
7205 PRINT"DIRECTIONS (IE N,S,E,W). THE
WORLD MAP■"
7210 PRINT"DIVIDED INTO SQUARES, AND EAC
H STEP OF"
7215 PRINT"■THE PROGRAM MOVES THE MISSIL
E ONE SQUARE"
```

```
7220 PRINT"E.G. 'NNEES' MOVES THE MISSIL
E UP 2,■"
7230 PRINT"RIGHT 2, DOWN 1.■"
7235 PRINT"■IF THE MISSILE GOES OFF THE
SCREEN IT■"
7240 PRINT"WILL REAPPEAR ON THE OPPOSITE
 SIDE.■"
7250 PRINT"■THE RED SQUARE IS YOUR TARGE
T.■"
7260 PRINT"■ENTER YOUR COMMANDS AS FAST
AS POSSIBLE ■AND PRESS 'F' TO LAUNCH..."
7270 GOSUB5200
7300 POKE53280,10:POKE53281,6
7308 REM **** WORLD MAP ****
7309 REM ** KEYS ARE SHIFTED E-O    **
7310 PRINT"■■
";
7320 PRINT"
";
7330 PRINT"
";
7340 PRINT"
";
7350 PRINT"
";
7355 PRINT"
";
7360 PRINT"
";
7365 PRINT"
";
7370 PRINT"
";
7375 PRINT"
";
7380 PRINT"
";
7385 PRINT"
";
7390 PRINT"
";
7395 PRINT"
";
7400 PRINT"
";
```

```
7405 PRINT"──────────┤├┐──────┘─┐──────
──┘├┼┼/──────";
7410 PRINT"──────────┬┤┐────────┤──────
──┐┌┘─┌─┐─";
7415 PRINT"──────────┤┐──────────────────
──────────┬┐─";
7420 PRINT"──────────┤ ";:FORA1=1TO39:PRI
NT"─";:NEXTA1
7425 PRINT" ┤──────────────────────────
─";
7430 RETURN
10000 DATA0,8,28,8,8,62,0,0,0,32,36,62,3
6,32,0,0,0,62,8,8,28,8,0,0,0
10010 DATA2,18,62,18,2,0,0,128,128,128,1
28,128,128,128,255
10020 DATA127,127,99,99,99,127,127,0,127
,127,127,127,127,127,127,0
10030 DATA255,254,190,188,152,128,128,25
5,128,128,128,152,188,190,254,0
10040 DATA128,224,240,248,248,240,192,25
5,129,131,143,159,159,135,131,255
10050 DATA255,191,159,159,143,131,129,25
5,127,126,120,112,112,96,64,255
10060 DATA0,64,112,120,124,124,127,0,129
,131,131,143,159,191,191,192
10065 DATA24,126,255,255,90,24,24,60
10070 DATA"LONDON",18,6,"MOSCOW",23,5,"B
ONN",20,6,"WASHINGTON",9,7
10080 DATA"BRASILIA",13,13,"TOKYO",34,8,
"RIYADH",23,9,"CANBERRA",35,16
10090 DATA"PEKING",31,8,"PRETORIA",21,15
```

History Cross

Have you got your History Exams coming up soon? Or do you just need to freshen up your historical knowledge? This is just the program for you. Clues are provided (by request) but if you can't do it you can always ask for the answers. All the dates are from King Canute onwards (if you know when that was!) and concern English history only. If the computer can't find an exact match for the dates it needs to fill the square of dates it will give you an anniversary of an historical event instead.

```
1 REM*** 64 VERSION ***
10 REM HISTORYCROSS....WALWYN
15 REM DATA STORED FROM LINES 1000-
20 GOSUB7000
25 GOSUB9000
30 REM C(2) IS THE ADDITION CHECK FIGURE
32 DIM C(2)
40 C(0)=50:C(1)=5:C(2)=1
45 REM R$(15) ARE THE ANSWER SQUARES
50 REM N$(7) ARE THE EIGHT DATES
55 REM Q$(7) ARE THE EIGHT CLUES
60 REM A(7) IS USED IN THE SET-UP
65 REM D(7) IS A CHECK FOR WHICH CLUE HA
S BEEN DONE
70 DIM R$(15),N$(7),Q$(7),A(7),D(7)
80 H=0
90 G$="■■■
```

```
212 FORN=0TO7:D(N)=0:A(N)=0:N$(N)="":Q$(
N)="":NEXTN
214 D(0)=1:D(4)=1:N$(0)="1111":N$(4)="11
11"
215 D=2
220 P=INT(RND(1)*8):IFD(P)=1THEN220
221 PRINT"■■■■■■■■■■■■■■(I'M NOW WORKING ON
 DATE NUMBER:■"D-1"■)"
222 X=0:Z$="":Z=0:R=INT(RND(1)*200+1):GO
TO230
225 R=INT(RND(1)*5+2)
230 FORJ=1TOR:READN$,Q$:IFN$="END"THENRE
STORE:READN$,Q$
235 NEXTJ
240 N$="1"+N$:N=VAL(N$):NN$=N$
260 REM CHECK THIS HAS NOT APPEARED ELSE
WHERE
264 FORJ=0TO7:IFA(J)=NTHEN330
268 NEXTJ
270 IFZ<25THEN300
271 REM TOO MANY TRIES...TIME FOR A NEW
APPROACH!
272 N$=Z$:IFZ<50THEN275
273 IFN>XTHENC=N-X:GOTO290
274 IFX>NTHENC=X-N:GOTO280
275 FORE=0TO2
276 FORK=1TO10:C=K*C(E)
277 IFN-C=XTHEN290
278 IFN+C=XTHEN280
279 NEXTK:NEXTE:GOTO330
280 Q$="<>"+RIGHT$(STR$(C),LEN(STR$(C))-
1)+"+"+Q$
285 GOTO340
290 Q$="<>"+RIGHT$(STR$(C),LEN(STR$(C))-
1)+"-"+Q$
295 GOTO340
300 REM CHECK IF IT FITS IN THE CROSSNUM
BER GRID
305 PP=P+1:IFPP>4THENPP=PP-4
310 FORK=1TO4
313 IFP<4THENL=K+3
315 IFP>3THENL=K-1
317 IFD(L)=0THEN325
320 IFMID$(N$,K,1)<>MID$(N$(L),PP,1)THEN
330
```

```
325 NEXTK:GOTO340
330 REM TRY AGAIN
332 Z=Z+1:IFZ<>25THEN225
333 Z$="":FORK=1TO4
334 IFP<4THENL=K+3
335 IFP>3THENL=K-1
336 IFD(L)=0THENZ$=Z$+RIGHT$(STR$(INT(RN
D(1)*10)),1):GOTO338
337 Z$=Z$+MID$(N$(L),PP,1)
338 NEXTK
339 X=VAL(Z$):GOTO225
340 D(P)=1:D=D+1:N$(P)=N$:Q$(P)=Q$
350 A(P)=VAL(NN$)
360 IFD<8THEN220
380 FORJ=0TO15:R$(J)="":NEXTJ:H=H+1
400 REM FINISHED. NOW FOR THE PUZZLE:
405 PRINTUU$;"■                HISTORYCROS
S  #"H
415 FORJ=0TO3:R$(J)="1":NEXTJ
420 FORJ=4TO12STEP4:R$(J)="1":NEXTJ
450 PRINTUE$;"■■"
460 PRINTTAB(16)"    A B C  "
465 PRINT
470 PRINTTAB(16)"  ■       "
475 PRINTTAB(16)"  ■ ■ ■ ■ "
480 PRINTTAB(16)"D ■       "
485 PRINTTAB(16)"  ■ ■ ■ ■ "
490 PRINTTAB(16)"E ■       "
495 PRINTTAB(16)"  ■ ■ ■ ■ "
500 PRINTTAB(16)"F ■       "
505 FORK=1TO50:NEXTK
510 FORL=1TO50:NEXTL
515 FORL=0TO3
520 FORK=0TO3
525 IFR$(L*4+K)=""THEN540
530 PRINTLEFT$(G$,L*2+5);TAB(K*2+18)"■"R
$(L*4+K)
540 NEXTK
550 NEXTL
600 PRINT"■■■■■■■■■■■■■■"
650 PRINTU3$;" TO GET A CLUE, PRESS LINE
 LETTER (A-F)"
655 PRINT"  (IF YOU'VE FINISHED, PRESS '
RETURN')"
```

```
660 GETA$:IFA$<>""THEN660
670 GETA$:IFA$=""THEN670
680 IF(ASC(A$)<71ANDASC(A$)>64)THEN700
685 IFASC(A$)=13THEN900
690 GOTO660
700 PRINTU9$;"■■CLUE TO LINE "A$"...■"
710 X=0:B=0:Z=0:J=ASC(A$)-64:IFJ>3THENJ=
J+1
715 Q$=Q$(J)
720 FORK=1TOLEN(Q$)
730 B$=MID$(Q$,K,1)
735 IFZ=1THEN790
740 IFK=2ANDB$=">"THENZ=1:GOTO780
750 IFK=1THEN780
755 IFK<>2THEN765
757 B=VAL(B$):IFB=0THENPRINT"THE ";:GOTO
780
758 IFB=1THENPRINT"THE NAVAL BATTLE OF "
;:GOTO780
759 IFB=2THENPRINT"THE BATTLE OF ";:GOTO
780
760 IFB=5THENPRINT"THE ACCESSION TO THE
THRONE OF KING":GOTO780
761 IFB=6THENPRINT"THE ACCESSION TO THE
THRONE OF QUEEN":GOTO780
762 IFB=7THENPRINT"THE END OF THE REIGN
OF KING":GOTO780
763 IFB=8THENPRINT"THE END OF THE REIGN
OF QUEEN":GOTO780
764 GOTO780
765 IFB$="*"ANDB>6THENX=10
766 IFB$="*"ANDB>0ANDB<3THENX=X+1
767 IFX=1THENPRINT:PRINT"WHEN ";:X=X+1:G
OTO780
768 IFX=3THENPRINT" BEAT ";:X=X+1:GOTO78
0
769 IFX=5THENPRINT:PRINT"AND ";:X=X+1:GO
TO780
770 IFX=10ANDB=7THENPRINT:PRINT"(HE WAS
";:X=X+1:GOTO780
771 IFX=10ANDB=8THENPRINT:PRINT"(SHE WAS
 ";:X=X+1:GOTO780
775 PRINTB$;
780 NEXTK
```

```
782 IFX=6THENPRINT" WAS KILLED.":GOTO788
784 IFX=11THENPRINT").":GOTO788
786 PRINT"."
788 GOTO800
790 IFB$="+"THENPRINT" YEARS AFTER":Z=0:
GOTO797
792 IFB$="-"THENPRINT" YEARS BEFORE":Z=0
:GOTO797
794 PRINTB$;
796 GOTO780
797 Q$=RIGHT$(Q$(J),LEN(Q$)-K):GOTO720
800 REM
810 PRINTU7$;"■YEAR? (IF YOU DON'T KNOW
THEN ****)
815 INPUTA$
820 IFA$=""ORLEN(A$)<>4THENPRINT"□";:GOT
O815
830 IFJ>3THEN850
835 FORK=1TO4
840 R$(J+(K-1)*4)=MID$(A$,K,1)
845 NEXTK:GOTO880
850 FORK=1TO4
855 R$((K-1)+(J-4)*4)=MID$(A$,K,1)
860 NEXTK
880 GOTO400
900 PRINTU7$;"■SO YOU THINK YOU'VE GOT I
T RIGHT?"
910 PRINT"LET ME CHECK..."
920 FORJ=0TO7
930 FORK=1TO4
935 IFJ>3THEN950
940 IFR$(J+(K-1)*4)<>MID$(N$(J),K,1)THEN
980
945 GOTO960
950 IFR$((K-1)+(J-4)*4)<>MID$(N$(J),K,1)
THEN980
960 NEXTK
965 NEXTJ
970 PRINTUU$;"■WELL DONE...YOU FINISHED
IT"
975 PRINT"■■ANOTHER GO? (Y/N)"
976 GETA$:IFA$<>""THEN976
977 GETA$:IFA$=""THEN977
978 IFA$="Y"THENGOTO100
```

```
979 PRINTUE$"THANKYOU FOR PLAYING...GOOD
BYE":END
980 REM INCORRECT ANSWER
985 PRINTUE$"■NO! YOU'VE GOT IT WRONG."
987 PRINTUE$"■DO YOU NEED HELP (Y/N) ?"
988 GETA$:IFA$<>""THEN988
989 GETA$:IFA$=""THEN989
990 IFA$="Y"THENGOTO992
991 GOTO400
992 Z=0:PRINTUU$;"■HERE'S THE CORRECT AN
SWER....
993 PRINTLEFT$(G$,18)
994 FORJ=4TO7:PRINTTAB(32)"■"N$(J)
995 NEXTJ
996 GOTO975
999 END
1000 REM HISTORY DATES DATA
1010 REM PREFIX NUMBERS....
1012 REM 10=MISCEL.
1013 REM THIS SHOULD NOT HAVE A 'THE' IN
 FRONT
1015 REM 11=NAVAL BATTLE
1016 REM 11 AND 12 MAY CONTAIN THREE AST
ERISKS:
1017 REM THE FIRST MARKS THE VICTOR
1018 REM THE SECOND MARKS THE LOSER
1019 REM THE THIRD IS FOR A FIGURE WHO W
AS KILLED.
1020 REM 12=LAND BATTLE
1035 REM 15=START OF REIGN (KING)
1040 REM 16=START OF REIGN (QUEEN)
1045 REM 17=END OF REIGN (KING)
1047 REM 17 AND 18 MAY CONTAIN ONE ASTER
ISK
1048 REM FOR DETAILS OF HOW THE MONARCH
LEFT THE THRONE.
1050 REM 18=END OF REIGN (QUEEN)
1060 REM ALWAYS PUT THE CLUE DATA AFTER
A 2 FIGURE NUMBER.
1065 REM DATA LINES CONTAIN THE YEAR (MI
NUS THE LEADING 1)
1070 REM AND THEN HAVE THE CLUE DATA ON
THE SAME LINE.
1100 REM DATA STARTS HERE
```

```
1110 DATA "016","15CANUTE"
1115 DATA "035","17CANUTE"
1120 DATA "066","12HASTINGS*THE NORMANS*
THE ENGLISH*KING HAROLD"
1130 DATA "086","10RELEASE OF THE DOMESD
AY BOOK"
1140 DATA "087","17WILLIAM THE FIRST"
1150 DATA "087","15WILLIAM THE SECOND"
1160 DATA "100","17WILLIAM THE SECOND"
1170 DATA "100","15HENRY THE FIRST"
1180 DATA "135","17HENRY THE FIRST"
1190 DATA "135","15STEPHEN"
1200 DATA "154","17STEPHEN"
1210 DATA "154","15HENRY THE SECOND"
1220 DATA "164","10CONSTITUTIONS OF CLAR
ENDON"
1230 DATA "189","15RICHARD THE FIRST"
1240 DATA "199","17RICHARD THE FIRST"
1250 DATA "199","15JOHN"
1260 DATA "215","10MAGNA CARTA"
1270 DATA "216","17JOHN"
1280 DATA "216","15HENRY THE THIRD"
1290 DATA "265","12EVESHAM*EDWARD*SIMON
DE MONTFORT"
1300 DATA "272","17HENRY THE THIRD"
1310 DATA "272","15EDWARD THE FIRST"
1320 DATA "307","17EDWARD THE FIRST"
1330 DATA "307","15EDWARD THE SECOND"
1335 DATA "314","12BANNOCKBURN*THE SCOTS
*THE ENGLISH"
1340 DATA "327","17EDWARD THE SECOND"
1350 DATA "327","15EDWARD THE THIRD"
1352 DATA "346","12CRECY*THE ENGLISH*THE
 FRENCH"
1360 DATA "349","10BLACK DEATH"
1370 DATA "377","17EDWARD THE THIRD"
1380 DATA "377","15RICHARD THE SECOND"
1390 DATA "381","10PEASANTS' REVOLT"
1400 DATA "399","17RICHARD THE SECOND*DE
POSED"
1410 DATA "399","15HENRY THE FOURTH"
1420 DATA "413","17HENRY THE FOURTH"
1430 DATA "413","15HENRY THE FIFTH"
1440 DATA "415","12AGINCOURT*THE ENGLISH
```

```
*THE FRENCH"
1450 DATA "422","17HENRY THE FIFTH"
1460 DATA "422","15HENRY THE SIXTH"
1470 DATA "461","17HENRY THE SIXTH*DEPOS
ED"
1480 DATA "461","15EDWARD THE FOURTH"
1490 DATA "471","12BARNET*YORK*LANCASTER
*WARWICK"
1500 DATA "483","17EDWARD THE FOURTH"
1510 DATA "483","15RICHARD THE THIRD"
1520 DATA "485","12BOSWORTH*HENRY*RICHAR
D"
1530 DATA "485","17RICHARD THE THIRD"
1540 DATA "485","15HENRY THE SEVENTH"
1550 DATA "509","17HENRY THE SEVENTH"
1560 DATA "509","15HENRY THE EIGHTH"
1570 DATA "513","12FLODDEN FIELD*THE ENG
LISH*THE SCOTS"
1580 DATA "547","17HENRY THE EIGHTH"
1590 DATA "553","16MARY"
1595 DATA "558","18MARY"
1600 DATA "558","16ELIZABETH THE FIRST"
1610 DATA "588","10DEFEAT OF THE SPANISH
 ARMADA"
1620 DATA "603","18ELIZABETH THE FIRST"
1630 DATA "603","15JAMES THE FIRST"
1640 DATA "605","10GUNPOWDER PLOT"
1650 DATA "625","17JAMES THE FIRST"
1660 DATA "625","15CHARLES THE FIRST"
1670 DATA "642","10START OF THE ENGLISH
CIVIL WAR"
1680 DATA "648","12PRESTON*CROMWELL*THE
SCOTS"
1690 DATA "649","17CHARLES THE FIRST*EXE
CUTED"
1700 DATA "658","10DEATH OF OLIVER CROMW
ELL"
1710 DATA "660","15CHARLES THE SECOND"
1720 DATA "665","10GREAT FIRE OF LONDON"
1725 DATA "685","17CHARLES THE SECOND"
1730 DATA "685","15JAMES THE SECOND"
1740 DATA "688","10'GLORIOUS REVOLUTION'
"
1750 DATA "694","10BANK OF ENGLAND ESTAB
LISHED"
```

```
1760 DATA "702","16ANNE"
1770 DATA "704","12BLENHEIM*THE DUKE OF
MARLBOROUGH*THE FRENCH"
1780 DATA "713","10PEACE OF UTRECHT"
1790 DATA "714","15GEORGE THE FIRST"
1800 DATA "727","17GEORGE THE FIRST"
1810 DATA "727","15GEORGE THE SECOND"
1820 DATA "745","12CULLODEN*THE ENGLISH*
THE SCOTS"
1830 DATA "757","12PLASSEY*CLIVE OF INDI
A*THE FRENCH"
1840 DATA "759","12QUEBEC*THE BRITISH*TH
E FRENCH*GEN. WOLFE"
1850 DATA "760","17GEORGE THE SECOND"
1860 DATA "760","15GEORGE THE THIRD"
1870 DATA "765","10STAMP ACT"
1880 DATA "773","10BOSTON TEA PARTY"
1890 DATA "776","10AMERICAN DECLARATION
OF INDEPENDENCE"
1900 DATA "777","12SARATOGA*THE AMERICAN
S*THE BRITISH"
1910 DATA "781","11ST. VINCENT*THE BRITI
SH*THE FRENCH"
1920 DATA "781","10END OF THE SIEGE OF Y
ORKTOWN"
1930 DATA "783","10END OF THE WAR OF U.S
. INDEPENDENCE"
1940 DATA "789","10STORMING OF THE BASTI
LLE"
1950 DATA "793","17LOUIS THE SIXTEENTH*G
UILLOTINED"
1960 DATA "798","11THE NILE*ADMIRAL NELS
ON*THE FRENCH"
1970 DATA "802","10PEACE OF AMIENS"
1980 DATA "805","11TRAFALGAR*ADMIRAL NEL
SON*THE FRENCH*NELSON"
1990 DATA "806","12JENA*THE FRENCH*THE P
RUSSIANS"
2000 DATA "809","12WAGRAM*THE FRENCH*THE
 AUSTRIANS"
2010 DATA "812","12BORODINO*THE FRENCH*T
HE RUSSIANS"
2020 DATA "813","12LEIPZIG*THE ALLIES*TH
E FRENCH"
```

```
2030 DATA "815","12WATERLOO*THE ALLIES*T
HE FRENCH"
2999 DATA "END","*"
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
7400 RETURN
7500 REM ******************************
9000 PRINTUU$;"■                HISTORYCRO
SS"
9010 PRINT"■THIS IS A 'CROSS-NUMBER' PUZ
ZLE MADE
9020 PRINT"UP OF DATES FROM BRITISH HIST
ORY.
9030 PRINT"FIRSTLY I SHALL SIFT THROUGH
THE DATA
9040 PRINT"BANK AND CROSS MATCH RESPECTI
VE DATES."
```

```
9050 PRINT"SOMETIMES I WILL NOT BE ABLE
TO FIND AN"
9060 PRINT"EXACT MATCH AND WILL THEN LOO
K FOR
9070 PRINT"ANNIVERSARIES AND 'NEAR MISSE
S'."
9080 PRINT"AT THE LAST RESORT, I SHALL G
IVE YOU A
9090 PRINT"MATHEMATICAL CLUE."
9100 PRINTU9$;"■■PROGRAMMERS NOTE:"
9105 PRINT"AT PRESENT, I'VE INCLUDED LOT
S OF DATES
9107 PRINT"FROM CANUTE TO WATERLOO BUT Y
OU MAY
9110 PRINT"CHANGE OR ALTER THE DATES DAT
A FROM
9120 PRINT"LINES 1000- ONWARDS IF YOU WI
SH.
9130 PRINT"■THE CLUE DATA IS ALWAYS PREC
EEDED BY A"
9140 PRINT"TWO FIGURE CODE NUMBER."
9150 PRINT"SEE 'REM' STATEMENTS IN THE L
ISTING FOR
9160 PRINT"FURTHER DETAILS."
9990 PRINT"■■PRESS ANY KEY TO CONTINUE"
9995 GETA$:IFA$<>""THEN9995
9996 GETA$:IFA$=""THEN9996
9997 RETURN
```

Blitz

You are being shot at by an enemy plane which has broken through your defences. Your missile launchers must try to stop it from wiping out your base. Not an easy task!

```
5 REM BLITZ..........WALWYN
10 GOSUB63900
11 POKEU6,U6:PRINT"■"U9$;
12 PRINT"THIS IS A GAME OF SURVIVAL CALL
ED
14 PRINT"■                ■■■■■BLITZ■■■■■
18 PRINT"■IT IS REALLY TW0 GAMES IN ONE
SINCE"
20 PRINT"■■YOU MAY CHOOSE WHICH SIDE TO
BE...
22 PRINT"■EITHER A BOMBER OR GROUND DEFE
NCES.
24 PRINT"■ AS A BOMBER , EACH TIME YOU P
RESS '2',
26 PRINT"YOU DIVE & EACH TIME '8' , YOU
CLIMB.
28 PRINT"BOMBS ARE RELEASED AT A RANDOM
BUT LOW
30 PRINT"HEIGHT. WHEN ALL BOMBS ARE DROP
PED, "
31 PRINT"YOU WILL CLIMB MUCH FASTER. BE
CAREFUL"
32 PRINT"NOT TO CRASH INTO THE TOP OF TH
E SCREEN!"
33 PRINT"■ONCE YOU HAVE BEEN HIT, YOU WI
LL HAVE"
34 PRINT"NO CONTROL OVER YOUR AIRCRAFT A
ND WILL"
35 PRINT"CRASH ANYWHERE!"
40 PRINT"■■PRESS ANY KEY
41 GET A$:IF A$="" THEN 41
44 PRINT"■AS THE ANTI-AIRCRAFT PLAYER,
45 PRINT"YOUR GUNS OPEN FIRE WHENEVER YO
U PRESS
```

```
46 PRINT"THEIR NUMBER. THE SHELL BURSTS
ARE
47 PRINT"EFFECTIVE FOR APPROX. 8 SECONDS
 AFTER
48 PRINT"EXPLOSION.
49 PRINT"EACH ENEMY AIRCRAFT NEEDS TO BE
 HIT
50 PRINT"TWICE TO EXPLODE OTHERWISE (WIT
H 1 HIT)
51 PRINT"IT WILL CRASH CAUSING MUCH DAMA
GE!
52 PRINT"■■EACH AIRCRAFT CARRIES 10 BOMB
S AND WILL"
54 PRINT"BE REPLACED BY ANOTHER PLANE WH
EN ALL"
55 PRINT"ITS BOMBS ARE DROPPED."
56 PRINT"■THE HEIGHT OF EACH SHELL BURST
 CAN BE "
57 PRINT"STOPPED BY PRESSING NUMBER '0'
OR"
58 PRINT"FIRING OFF ANOTHER GUN."
59 PRINT"■■WHAT DO YOU WISH TO BE?
60 PRINT"■PRESS 'A' FOR AIRCRAFT , 'G' F
OR GROUND"
62 INPUT A$
63 V=0:IF A$="A"THEN V=1:GOTO65
64 IFA$<>"G"THEN62
65 PRINTU6$;"■"
70 PL=0:TI$="000000"
71 G=US:W=UC
72 DIM TX(250),TY(250)
99 POKEUG,UF:PRINT"■":POKEUG,U9:POKEUB,U
E
100 POKE G+79,31
105 PRINT"■■■
```

```
130 IFY1=-2ANDX=1THENPOKEG+40*Y+X,32:Y1=
0:X=39:Y=INT(RND(1)*11+1):BD=0
140 POKE G+40*Y+X,32
141 IF V=1 AND Y1<>1 THEN 7000
142 IF X%>4 THEN Y=Y+1+Y1
143 X=X-1:IF X=0 THEN X=39
144 IF PEEK(G+X+40*Y)<>32 AND Y<24 THEN
GOSUB3000
145 POKE G+X+40*Y,31
150 IF V=1 THEN 8000
300 GET A$:IFA$=""THEN305
301 IFASC(A$)<48ORASC(A$)>57THENA$="0":A
=0:GOTO310
305 A=VAL(A$)
306 IF A$="0" THEN B=0
310 IF A=0 AND B<=0 THEN 400
312 IF PEEK(G+A*4-1+960)=102 THEN 400
315 IF A>0 THEN B=24:XX=A*4-1:YY=23:W=0
320 B=B-1
330 POKE G+XX+YY*40+W,32
340 YY=YY-1:R%=RND(1)*3-1
345 W=W+R%
350 POKE G+XX+YY*40+W,42
360 TX(K)=XX+W:TY(K)=YY
400 IF Y=>24 THEN GOSUB2000
405 L=K-22:IF L<1 THEN L=250-K
410 POKE G+TX(L)+TY(L)*40,32
420 IF Y1=0 AND Y>12+X% THEN GOSUB4000
425 B3=0
430 FOR N=1TO10
431 IF PEEK (G+959+(N-1)*4)=102 THEN B3=
B3+1
432 IF B3=9 THEN 5000
434 IF BR(N)=0 THEN 460
435 POKE G+BX(N)+40*BY(N),32
440 BX(N)=BX(N)-1:BY(N)=BY(N)+3
441 IF BX(N)=0 THEN BX(N)=39
442 IF BY(N)=>24 THEN POKE G+BX(N)+960,1
02:BR(N)=0:GOTO460
445 POKE G+BX(N)+40*BY(N),46
460 NEXT N
500 IF GM=1 THEN POKE G+X+40*Y,83
502 NEXT K
600 GOTO115
```

```
2000 FOR N=0TO6
2010 PRINTU2$;"■ C R A S H !"
2012 IFX-N<1 THEN X=X+40
2015 POKE G+X+960-N,102:POKE G+X+920-N,1
04
2020 PRINT"■                "
2030 NEXT N
2040 Y=INT(RND(1)*11+1):X=39:BD=0:Y1=0
2045 GM=0:PL=PL+1
2090 RETURN
3000 PRINTU2$;"■ BALE OUT!       "
3005 IF GM=1 THEN GM=0:POKE G+40*Y+X,86:
PRINT"■                          ":GOTO2040
3010 Y1=1:D5=83
3020 GM=1
3030 RETURN
4000 BD=BD+1
4010 IF BD>=11 THEN Y1=-2:RETURN
4020 BX(BD)=X:BY(BD)=Y+1
4025 BR(BD)=1
4030 RETURN
5000 PRINTU4$;"■ALL DESTROYED!"
5010 PRINTU0$;"■■ANOTHER GO? (Y/N)"
5020 GET A$:IF A$="" THEN 5020
5025 IFA$="N"THENPRINT"■THANKYOU FOR PLA
YING.":END
5030 RUN
7000 GET A$:A=VAL(A$)
7010 IF A=2 THEN Y=Y+1+Y1:GOTO143
7020 IF A=8 THEN Y=Y-1+Y1:GOTO143
7035 A=0
7040 GOTO143
8000 IF YY+(XX-X+W)/4<=Y AND Y1=0 THEN 8
100
8010 IF YY<Y+1 THEN 8100
8050 B=24:GOTO320
8100 A=INT(X/4-(24-Y)/3)+1
8110 IF A<1THEN A=9-A
8120 IF A>9 THEN A=A-9
8195 GOTO312
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
```

```
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
=" ":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Scuba

Try your skill at sub-aqua piscatorial plunder whilst avoiding the unpredictable jaws of death! Starting from the safety of your floating platform, you take your three minutes' worth of air and descend to the depths, questing after your prey (they're the small fish). The sharks (they're the big ones) are mostly harmless, but when they open their mouths you're in trouble. Getting eaten by a shark that feels like a snack or running out of air are both losing options. Recharge your air supply back at the platform.

```
2 REM SCUBA GAME
3 POKE 53269,0:REM CANCEL ALL SPRITES
6 PRINT"{CLR}PLEASE WAIT A MOMENT FOR...S C
U B A"
10 REM SCUBA.....WALWYN
20 GOSUB5000
25 GOSUB3000
30 POKEV+16,0:POKEV+21,0
40 FORK=0TO7:POKEV+K*2,0:POKEV+K*2+1,0:N
EXTK
50 REM SPRITE NUMBERS ARE AS FOLLOWS...
51 REM 0,1 AND 2 ARE SHARKS
52 REM 3,4,5 ARE FISH
53 REM 6 IS NOT USED
54 REM 7 IS THE SWIMMER
60 REM X(7) AND Y(7) ARE SCREEN PLACINGS
61 REM XX(7) IF 1 THEN X(7) OVER 255
62 DIM X(7),Y(7),XX(7)
63 REM FD(5) ARE FISH DEPTH STEPS
64 DIM FD(5)
65 REM FM(5) ARE FISH MOVE STEPS
66 DIMFM(5)
67 REM FS(5) ARE FISH RANDOMISER VARIABL
ES
68 DIM FS(5),FU(5)
70 REM EXPAND SHARKS
72 POKEV+29,7:POKEV+23,7
80 REM FU(5) ARE SPRITE COLOURS
81 REM SHARKS ARE ALWAYS BLACK
82 FU(0)=U0:FU(1)=U0:FU(2)=U0
```

```
83 REM FISH ARE DIFFERENT COLOURS...
84 REM FISH SPRITE 3 IS LIGHT RED
85 FU(3)=U7
86 REM FISH SPRITE 4 IS LIGHT BLUE
87 FU(4)=U9
88 REM FISH SPRITE 5 IS YELLOW
89 FU(5)=UE
90 REM SWIMMER IS LIGHT GREY
91 POKEV+46,UR
92 FORJ=0TO5:POKEV+39+J,FU(J):NEXTJ
99 REM ***S=SWIMMER SPRITE TYPE***
100 GOSUB4000
120 REM FISH SETUP
130 POKEV+16,0:FORK=3TO5
135 FS(K)=1:IFRND(1)>.5THEN150
140 XX(K)=0:X(K)=0:Y(K)=INT(RND(1)*130+8
0)
145 FS=4:FM(K)=INT(RND(1)*2+2):FD(K)=INT
(RND(1)*5-2)
148 POKE2040+K,(240+FS):GOTO160
150 XX(K)=1:X(K)=98:Y(K)=INT(RND(1)*130+
80)
155 FS=5:FM(K)=-INT(RND(1)*2+2):FD(K)=IN
T(RND(1)*5-2)
156 POKEV+16,PEEK(V+16)+2↑K
158 POKE2040+K,(240+FS):GOTO160
160 POKEV+K*2,X(K):POKEV+K*2+1,Y(K)
165 NEXTK
180 POKEV+21,184
182 REM ENABLE SWIMMER SPRITE
190 X(7)=197:Y(7)=53:POKEV+46,UF:S=11:T=
1
200 REM GET CONTROL KEY
210 K1=PEEK(197)
220 IFK1=12THEN230
221 IFT=1THEN300
222 IFK1=9THEN240
223 IFY(7)<75THEN300
224 IFK1=13THEN250
226 IFK1=10THEN260
228 Y(7)=Y(7)+1:IFY(7)>220THENY(7)=220
229 GOTO300
230 IFT=1ANDY(7)>75THENT=0:POKEV+46,UR:T
A=TI+10800
```

```
232 Y(7)=Y(7)+4:IFS=11THENS=10:GOTO234
233 S=11
234 IFY(7)>220THENY(7)=220
236 GOTO300
240 Y(7)=Y(7)-4:IFS=11THENS=10:GOTO244
242 S=11
244 IFY(7)<118ANDX(7)>183ANDX(7)<206THEN
248
245 IFY(7)<76THENY(7)=76
246 GOTO300
248 X(7)=195:IFY(7)<54THENPOKEV+46,UF:T=
1
249 GOTO300
250 X(7)=X(7)+5:IF(S<4ANDS>1)THENS=10:GO
TO254
251 IFS=0THENS=1:GOTO254
252 S=0
254 IFXX(7)=1THEN257
255 IFX(7)>255THENXX(7)=1:X(7)=4:POKEV+1
6,PEEK(V+16)+128
256 GOTO300
257 IFX(7)>78THENXX(7)=0:X(7)=19:POKEV+1
6,PEEK(V+16)-128
258 GOTO300
260 X(7)=X(7)-5:IFS<2THENS=11:GOTO264
261 IFS=2THENS=3:GOTO264
262 S=2
264 IFXX(7)=1THEN267
265 IFX(7)<19THENXX(7)=1:X(7)=78:POKEV+1
6,PEEK(V+16)+128
266 GOTO300
267 IFX(7)<0THENXX(7)=0:X(7)=251:POKEV+1
6,PEEK(V+16)-128
268 GOTO300
300 POKE2047,S+240:POKEV+14,X(7)
310 POKE V+15,Y(7)
320 Q=PEEK(V+30):IFQ<>0THEN330
325 GOTO400
330 REM COLLISION OF SPRITES
331 IFQ=>128THEN333
332 GOTO400
333 FORK=0TO5:IFFS(K)=0THEN340
334 IFQAND2↑KTHEN336
335 GOTO340
```

```
336 XF=ABS((XX(7)*255+X(7))-(XX(K)*255+X
(K)))
337 YF=ABS(Y(7)-Y(K))
338 IFK<3ANDXF<25ANDYF<20THEN345
339 IFK>2ANDXF<14ANDYF<14THEN345
340 NEXTK:GOTO400
345 IFK<3ANDFS(K)=2THEN615
347 IFK<3THEN340
350 FORL=1TO20:POKEV+39+K,U1:FORM=1TO10:
NEXTM
355 POKEV+39+K,U0:FORM=1TO10:NEXTM:NEXTL
360 POKEV+39+K,FU(K)
365 P=P+1:IFXX(K)=1THENPOKEV+16,PEEK(V+1
6)-2↑K:XX(K)=0
370 POKEV+K*2,0:POKEV+K*2+1,0:X(K)=0:Y(K
)=0
380 POKEV+21,PEEK(V+21)-2↑K:FS(K)=0
400 REM FISH RANDOMISER
410 R=INT(RND(1)*100):IFR>8THEN500
415 IFR>5THENR=R-3
420 IFFS(R)<>0THEN450
430 FS(R)=1:IFRND(1)>.5THEN440
434 XX(R)=0:X(R)=0:Y(R)=INT(RND(1)*130+8
0)
435 POKEV+21,PEEK(V+21)+2↑R
436 FS=4:FM(R)=INT(RND(1)*2+2):FD(R)=INT
(RND(1)*5-2)
437 IFR<3THENFS=6
438 POKE2040+R,(240+FS):GOTO500
440 XX(R)=1:X(R)=35:Y(R)=INT(RND(1)*130+
80)
442 POKEV+21,PEEK(V+21)+2↑R
444 POKEV+16,PEEK(V+16)+2↑R
446 FS=5:FM(R)=-INT(RND(1)*2+2):FD(R)=IN
T(RND(1)*5-2)
447 IFR<3THENFS=8
448 POKE2040+R,(240+FS):GOTO500
450 IFFS(R)=1THEN460
455 FS(R)=1:IFRND(1)>.5THEN436
457 GOTO446
460 FD(R)=INT(RND(1)*9-4):FM(R)=FM(R)*4*
(INT(RND(1)*2)*2-1)
470 FS(R)=2:IFR<3THEN480
472 IFSGN(FM(R))=1THENPOKE2040+R,(240+4)
```

```
474 IFSGN(FM(R))=-1THENPOKE2040+R,(240+5
)
475 GOTO500
480 IFSGN(FM(R))=1THENPOKE2040+R,(240+7)
490 IFSGN(FM(R))=-1THENPOKE2040+R,(240+9
)
500 FORK=0TO5:IFFS(K)=0THEN600
510 X(K)=X(K)+FM(K):Y(K)=Y(K)+FD(K)
512 IFY(K)<80THENY(K)=80
513 IFY(K)>220THENY(K)=220
515 IFRND(1)>.92THENFD(K)=INT(RND(1)*5-2
)
520 IFXX(K)ANDX(K)<0THEN550
525 IFX(K)<0THEN560
530 IFX(K)>255THEN540
535 IFXX(K)ANDX(K)>98THEN570
539 GOTO590
540 XX(K)=1:X(K)=X(K)-255:POKEV+16,PEEK(
V+16)+2↑K
545 GOTO590
550 XX(K)=0:X(K)=255+X(K):POKEV+16,PEEK(
V+16)-2↑K
555 GOTO590
560 XX(K)=1:X(K)=95+X(K):POKEV+16,PEEK(V
+16)+2↑K
565 GOTO590
570 XX(K)=0:X(K)=X(K)-98:POKEV+16,PEEK(V
+16)-2↑K
575 GOTO590
590 POKEV+K*2,X(K):POKEV+K*2+1,Y(K)
600 NEXTK:GOTO700
615 REM SWIMMER EATEN!
620 FORL=1TO20:POKEV+46,U1:FORM=1TO10:NE
XTM
625 POKEV+46,U0:FORM=1TO10:NEXTM:NEXTL
630 POKEV+46,UR
632 PRINTU7$"■■NO FISH! YOU'RE THE SUPPE
R!"
635 PRINTU7$;"■■■EATEN BY A SHARK!"
640 GOTO820
700 PRINTU0$"■■FISH CAUGHT="P;U9$
705 IFT=1THENPRINT"■■■                  ":GO
TO200
710 PRINT"■■■AIR LEFT=      ■■■■■■"INT((TA
-TI)/60)
```

```
720 IF(TA-TI)<0THEN800
750 GOTO200
800 PRINT"■                                "
805 PRINTU1$;"■■"P"FISH BROUGHT BACK FOR
 SUPPER."
810 PRINTU7$;"■■■RUN OUT OF AIR..."
820 PRINTU1$;"■■■ANOTHER GO (Y/N)?"
830 GETA$:IFA$<>""THEN830
840 GETA$:IFA$=""THEN840
850 IFA$="Y"THENRUN
860 IFA$="N"THENPRINT"THANKYOU FOR PLAYI
NG ■SCUBA":END
870 GOTO840
999 END
3000 REM SCUBA INSTRUCTIONS
3010 POKEUG,U9:POKEUB,U2:PRINTU2$"■"TAB(
15)"S C U B A"
3030 PRINTUF$;"YOU ARE A SCUBA DIVER ON
A RAFT ABOUT
3040 PRINT"TO SWIM OFF AND CATCH FISH FO
R SUPPER."
3050 PRINT"HOLD DOWN....A...TO SWIM TO T
HE LEFT"
3060 PRINT"HOLD DOWN....S...TO SWIM TO T
HE RIGHT"
3070 PRINT"HOLD DOWN....W...TO SWIM TO T
HE SURFACE"
3080 PRINT"HOLD DOWN....Z...TO SWIM TO T
HE BOTTOM"
3100 PRINT"■YOU ARE ARMED WITH A HAND SP
EAR AND
3110 PRINT"YOU SIMPLY NEED TO SWIM WITHI
N REACH OF"
3120 PRINT"A FISH TO CATCH IT FOR DINNER
!"
3130 PRINT"BEWARE OF THE SHARKS...THEY A
RE QUITE
3140 PRINT"HARMLESS BUT CAN SUDDENLY OPE
N THEIR
3150 PRINT"MOUTHS AND THEN BECOME VERY N
ASTY!"
3155 PRINT"A SPEAR WONT HELP YOU AGAINST
 SHARKS..."
3160 PRINT"THERE'S A MAX. OF 3 FISH AND
3 SHARKS
```

```
3170 PRINT"IN THE SEA AT ANY ONE TIME."
3180 PRINT"FISH MAY SUDDENLY CHANGE COUR
SE OR
3190 PRINT"SPEED IF THEY BECOME RANDOMLY
 PANICKY!"
3200 PRINT"■WHEN YOU ENTER THE WATER, YO
U HAVE 3
3210 PRINT"MINS. AIR SUPPLY. YOU MAY RET
URN TO THE
3220 PRINT"RAFT AS OFTEN AS YOU LIKE FOR
 MORE AIR."
3230 PRINT"A GOOD DIVER WILL GET AT LEAS
T 20 FISH!"
3250 PRINT"■GOOD LUCK. PRESS ANY KEY TO
START      ■"
3260 GETA$:IFA$<>""THEN3260
3270 GETA$:Q=RND(1):IFA$=""THEN3270
3280 RETURN
4000 REM CLEAR SCREEN AND PRINT SEA
4010 POKEUB,U0:POKEUG,U4
4020 PRINT"■"U9$;
4030 FORJ=0TO3
4040 PRINT"■
          ";
4050 NEXTJ
4060 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■";
4070 PRINTU6$"■       ";
4080 PRINTU0$"■■■■■■■++■■■++■■■++■■■++■■■
++■■■++"
4100 PRINTU3$"■■■■■■■■■■■"
4110 PRINT"           *  *     *
          ";
4120 PRINT"        * **  **    *  * *
  *       ";
4130 PRINT"        ****  ** * *  * *    *
  **      ";
4140 PRINT"      ********************  *
* **  *    ";
4150 PRINTU5$;"  ■■
            ■■■"
4900 RETURN
5000 REM SPRITE DATA SUBROUTINE...'64'
5001 REM SPRITE BASE VARIABLE = 'V'
5002 V=53248
```

```
5004 REM ALTER BASIC MAX MEMORY AND VARI
ABLE LOW MEMORY
5005 POKE52,60:POKE56,60
5006 REM LOAD DATA INTO BLOCKS 240-UPWAR
DS
5007 FORK=0TO11:FORJ=0TO62
5008 READ A:POKE(240+K)*64+J,A:NEXTJ,K
5010 REM SWIMMER RIGHT 1
5020 DATA 0, 0, 0, 0, 0, 0, 0, 0
5030 DATA 0, 0, 0, 0, 0, 0, 0, 32
5040 DATA 31, 192, 112, 31, 192, 152, 12
7, 236
5050 DATA 15, 255, 254, 127, 255, 238, 6
4, 6
5060 DATA 0, 64, 31, 255, 0, 1, 224, 0
5070 DATA 0, 0, 0, 0, 0, 0, 0, 0
5080 DATA 0, 0, 0, 0, 0, 0, 0, 0
5090 DATA 0, 0, 0, 0, 0, 0, 0
5110 REM SWIMMER RIGHT 2
5120 DATA 0, 0, 0, 0, 0, 0, 0, 0
5130 DATA 0, 0, 0, 0, 0, 0, 0, 0
5140 DATA 31, 192, 64, 31, 192, 112, 127
, 236
5150 DATA 95, 255, 254, 79, 255, 238, 25
2, 6
5160 DATA 0, 192, 31, 255, 64, 1, 224, 3
2
5170 DATA 0, 0, 0, 0, 0, 0, 0, 0
5180 DATA 0, 0, 0, 0, 0, 0, 0, 0
5190 DATA 0, 0, 0, 0, 0, 0, 0
5210 REM SWIMMER LEFT 1
5220 DATA 0, 0, 0, 0, 0, 0, 0, 0
5230 DATA 0, 0, 0, 0, 0, 0, 0, 3
5240 DATA 248, 0, 3, 248, 12, 55, 254, 2
6
5250 DATA 127, 255, 241, 119, 255, 192,
1, 192
5260 DATA 96, 255, 248, 56, 14, 0, 8, 0
5270 DATA 0, 8, 0, 0, 8, 0, 0, 0
5280 DATA 0, 0, 0, 0, 0, 0, 0, 0
5290 DATA 0, 0, 0, 0, 0, 0, 0
5310 REM SWIMMER LEFT 2
5320 DATA 0, 0, 0, 0, 0, 0, 0, 0
5330 DATA 0, 0, 0, 0, 0, 0, 0, 3
```

```
5340 DATA 248, 0, 3, 248, 0, 55, 254, 0
5350 DATA 127, 255, 255, 119, 255, 249,
1, 192
5360 DATA 13, 255, 248, 9, 14, 0, 16, 0
5370 DATA 0, 0, 0, 0, 0, 0, 0, 0
5380 DATA 0, 0, 0, 0, 0, 0, 0, 0
5390 DATA 0, 0, 0, 0, 0, 0, 0
5410 REM SMALL FISH RIGHT
5420 DATA 0, 0, 0, 0, 0, 0, 0, 0
5430 DATA 0, 0, 0, 0, 0, 0, 0, 0
5440 DATA 0, 0, 0, 0, 0, 0, 12, 0
5450 DATA 4, 62, 0, 3, 125, 0, 1, 255
5460 DATA 128, 3, 125, 0, 4, 28, 0, 0
5470 DATA 0, 0, 0, 0, 0, 0, 0, 0
5480 DATA 0, 0, 0, 0, 0, 0, 0, 0
5490 DATA 0, 0, 0, 0, 0, 0, 0
5510 REM SMALL FISH LEFT
5520 DATA 0, 0, 0, 0, 0, 0, 0, 0
5530 DATA 0, 0, 0, 0, 0, 0, 0, 0
5540 DATA 0, 0, 0, 0, 0, 0, 96, 0
5550 DATA 0, 240, 64, 1, 125, 128, 3, 25
5
5560 DATA 0, 1, 125, 128, 0, 112, 64, 0
5570 DATA 0, 0, 0, 0, 0, 0, 0, 0
5580 DATA 0, 0, 0, 0, 0, 0, 0, 0
5590 DATA 0, 0, 0, 0, 0, 0, 0
5610 REM SHARK RIGHT
5620 DATA 0, 0, 0, 0, 0, 0, 0, 16
5630 DATA 0, 0, 24, 0, 0, 28, 0, 128
5640 DATA 30, 0, 192, 31, 0, 192, 63, 12
8
5650 DATA 96, 255, 192, 115, 255, 248, 1
27, 255
5660 DATA 223, 127, 255, 254, 127, 255,
84, 113
5670 DATA 255, 252, 224, 255, 240, 128,
63, 192
5680 DATA 0, 30, 0, 0, 0, 0, 0, 0
5690 DATA 0, 0, 0, 0, 0, 0, 0
5710 REM SHARK RIGHT OPEN MOUTH
5720 DATA 0, 0, 0, 0, 0, 0, 0, 16
5730 DATA 0, 0, 24, 0, 0, 28, 0, 128
5740 DATA 30, 0, 192, 31, 0, 192, 63, 12
8
```

```
5750 DATA 96, 255, 255, 115, 255, 222, 1
27, 255
5760 DATA 244, 127, 255, 208, 127, 255,
64, 113
5770 DATA 255, 232, 224, 255, 252, 128,
63, 192
5780 DATA 0, 30, 0, 0, 0, 0, 0, 0
5790 DATA 0, 0, 0, 0, 0, 0, 0
5810 REM SHARK LEFT
5820 DATA 0, 0, 0, 0, 8, 0, 0, 24
5830 DATA 0, 0, 56, 1, 0, 120, 3, 0
5840 DATA 248, 3, 3, 252, 7, 15, 255, 14
2
5850 DATA 59, 255, 254, 255, 255, 252, 8
5, 255
5860 DATA 254, 63, 255, 206, 15, 255, 6,
 7
5870 DATA 252, 3, 0, 240, 0, 0, 96, 0
5880 DATA 0, 0, 0, 0, 0, 0, 0, 0
5890 DATA 0, 0, 0, 0, 0, 0, 0
5910 REM SHARK LEFT OPEN MOUTH
5920 DATA 0, 0, 0, 0, 8, 0, 0, 24
5930 DATA 0, 0, 56, 1, 0, 120, 3, 0
5940 DATA 248, 3, 63, 252, 7, 247, 255,
142
5950 DATA 95, 255, 254, 23, 255, 252, 5,
 127
5960 DATA 254, 43, 255, 206, 63, 255, 6,
 7
5970 DATA 252, 3, 0, 240, 0, 0, 96, 0
5980 DATA 0, 0, 0, 0, 0, 0, 0, 0
5990 DATA 0, 0, 0, 0, 0, 0, 0
6010 REM SWIMMER LEFT HAND UP
6020 DATA 0, 0, 0, 2, 0, 0, 2, 0
6030 DATA 0, 2, 56, 0, 2, 56, 0, 2
6040 DATA 56, 0, 3, 16, 0, 1, 255, 0
6050 DATA 0, 125, 128, 0, 124, 128, 0, 1
24
6060 DATA 128, 0, 124, 128, 0, 125, 128,
 0
6070 DATA 110, 0, 0, 102, 0, 0, 102, 0
6080 DATA 0, 102, 0, 0, 102, 0, 0, 103
6090 DATA 128, 0, 96, 0, 1, 224, 0
```

```
6110 REM SWIMMER RIGHT HAND UP
6120 DATA 0, 0, 0, 0, 1, 0, 0, 1
6130 DATA 0, 0, 57, 0, 0, 57, 0, 0
6140 DATA 57, 0, 0, 19, 0, 1, 254, 0
6150 DATA 3, 124, 0, 2, 124, 0, 2, 124
6160 DATA 0, 2, 124, 0, 3, 124, 0, 0
6170 DATA 236, 0, 0, 204, 0, 0, 204, 0
6180 DATA 0, 204, 0, 0, 204, 0, 3, 204
6190 DATA 0, 0, 12, 0, 0, 15, 0
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$=CHR$(129):REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
7400 RETURN
7500 REM ******************************
```

Plot Planner

Even the smallest vegetable patch can be productive if you take care to plant your plot with careful planning. Which vegetables? How much room do I need to leave between rows of broad beans? Can I squeeze in the odd lettuce at the end of the garden? This program solves all such dilemmas.

"Plot Planner" allows you to sketch out a plan of your garden on the screen, and then prints out a shopping list of how many seeds or bulbs you require. On the screen the essential gaps to be kept free from weeds are marked as '+'. Happy gardening!

```
5 REM PLOTPLANNER.........WALWYN
8 GOSUB63900
20 POKEUB,U6:POKEUG,U6:PRINTU1$;"
  P L O T   P L A N N E R"
40 PRINT"THERE IS SPACE FOR 25 DIFFERE
NT"
45 PRINT"VARIETIES OF VEGETABLE."
48 PRINT"AT PRESENT THERE ARE 18 IN THE
 DATA BANK"
50 PRINT"UPDATE OR ALTER THE 'READ' AN
D 'DATA'"
60 PRINT"STATEMENTS WHERE NECESARY"
70 PRINT"IN LINES 100-110,200-,400- & 6
00-"
80 PRINT"PRESS ANY KEY"
81 GET A$:IF A$="" THEN 81
85 DIM V$(25),C$(25),D(25),Y(25),Y$(25)
87 DIM N(25),N$(25),P$(25),T(25)
90 CH$(1)="LEGUMES":CH$(2)="SALADS":CH$(
3)="ROOTS"
91 REM V$(X) IS THE NAME OF THE VEGETABL
E
92 REM C$(X) IS THE INITIAL LETTER OF TH
E FAMILY
93 REM WHERE L=LEGUMES, S=SALADS, R=ROOT
S
94 REM D(X) IS THE RECOMMENDED DISTANCE
```

```
IN FEET BETWEEN ROWS
95 REM Y(X) IS THE MAXIMUM YIELD PER 25
FOOT ROW
96 REM Y$(X) IS THE YIELD DESCRIPTION
97 REM N(X) IS THE AMOUNT OF SEEDS/BEANS
 REQUIRED
98 REM N$(X) IS THE MEASURE DESCRIPTION
OF SEEDS/BEANS REQUIRED
99 REM P$(X) IS THE IDENTIFYING LETTER U
SED ON THE SKETCH
100 FOR A=1TO 18
105 READ V$(A),C$(A),D(A),Y(A),Y$(A)
110 READ N(A),N$(A),P$(A)
120 NEXT A
200 DATA "PEAS",L,3,60,"LBS",0.5,"PINTS"
,"P"
210 DATA "MANGETOUT",L,3,60,"LBS",0.5,"P
INTS","M"
220 DATA "BROAD BEANS",L,2,20,"LBS",0.12
,"PINTS","B"
230 DATA "FRENCH BEANS",L,2,38,"LBS",0.2
5,"PINTS","F"
240 DATA "ONIONS",L,1,25,"LBS",50,"BULBS
","O"
250 DATA "SHALLOTS",L,1,15,"LBS",1,"LBS"
,"S"
260 DATA "LEEKS",L,1,38,"LEEKS",0.12,"OZ
","L"
400 DATA "MARROWS",S,3,40,"FRUIT",9,"SEE
DS","M"
410 DATA "TOMATOES",S,3,40,"LBS",0.12,"O
Z","T"
420 DATA "CUCUMBERS",S,2,25,"CUES.",13,"
SEEDS","R"
430 DATA "CELERY",S,2,30,"LBS",0.12,"OZ"
,"C"
440 DATA "LETTUCE",S,1,25,"HEADS",0.12,"
OZ","L"
450 DATA "ENDIVE",S,1,25,"HEADS",0.12,"O
Z","E"
600 DATA "ARTICHOKES",R,2,36,"LBS",12,"T
UBERS","A"
610 DATA "BEETROOT",R,1,38,"LBS",0.25,"O
Z","B"
```

```
620 DATA "PARSNIPS",R,1,50,"LBS",0.25,"O
Z","P"
630 DATA "CARROTS",R,1,20,"LBS",0.12,"OZ
","C"
640 DATA "SPINACH",R,1,20,"LBS",0.5,"OZ"
,"S"
800 POKEUG,U3:PRINTU2$;"
810 PRINT"LEGUMES    (L)
812 PRINT"SALADS     (S)
814 PRINT"ROOTS      (R)
817 PRINT"
818 Q=0:INPUT"WHICH TYPE";X$
819 IF X$="L"THEN Q=1
820 IF X$="S"THEN Q=2
821 IF X$="R"THEN Q=3
822 IFQ=0THEN818
823 PRINTUF$;
825 PRINT"          ________________
826 PRINT"         |                |
827 PRINT"         |                |
828 PRINT"         |                |
829 PRINT"         |                | X FT.
830 PRINT"         |                |
831 PRINT"         |                |
832 PRINT"         ________________
833 PRINT"              Y FT.
834 PRINT"
835 PRINT"TYPE IN YOUR PLOT SIZE IN FEET
"
836 INPUT"FIRST 'X' (MAX 18 FT.)";X
837 INPUT"& NOW 'Y' (MAX 38 FT.)";Y
838 IFX>18ORY>38ORX<=0ORY<=0THEN PRINT"
   ":GOTO835
839 POKEUG,UR:PRINTU2$;"IF YOU'VE ALR
EADY PUT YOUR"
840 PRINT"TARGET YIELDS IN FOR "CH$(Q)
841 PRINT"AND YOU WANT A PLOT SKETCH"
842 PRINT"STRAIGHT AWAY THEN TYPE 'M'."
843 PRINT"OTHERWISE TYPE ANY LETTER...
"
844 GET W$:IF W$=""GOTO844
845 IF W$="M"GOTO885
847 FOR J=1TO25
848 POKEUG,U6:PRINTUE$;"********"CH
```

```
$(Q)"********
849 IF X$=C$(J) GOTO853
851 NEXT J
852 GOTO875
853 PRINT"■NAME                    "V$(J)
854 PRINT"■SKETCH LOGO             "P$(J)
855 PRINT"■YIELD PER 25'ROW   "Y(J)"  "Y$(
J)
856 PRINT"■NO. PER 25'ROW     "N(J)"  "N$(
J)
858 PRINTU7$;"■■TARGET YIELD IN "Y$(J)
859 PRINTU7$;"■■■(IF NONE TYPE '0')
    "
860 INPUT"■■";T(J)
862 PRINT"■
865 NEXT J
875 PRINT"■■■■THAT'S ALL THE "CH$(Q)
877 PRINT"■■DO YOU WANT A MAP DRAWN NOW?
(Y/N)
879 GET W$:IF W$=""GOTO879
880 IF W$="N" GOTO800
885 G=US+80
886 H=US+121
887 R=0:S=0
888 POKEUG,U3:PRINTU7$;"■■"CH$(Q)" IN PL
OT "X" BY "Y:POKEUG,UF
890 PRINT"(EACH LETTER OR BLANK =1 SQ FO
OT)"
900 XX=X+1
901 YY=Y+1
902 FORA=1 TO Y
904 POKE G+A,100
906 POKE G+XX*40 +A,99
907 NEXT A
908 FOR A=1 TO X
910 POKE G+A*40,103
912 POKE G+YY +A*40,101
913 NEXT A
918 FOR J=1TO25
920 IF C$(J)=X$ GOTO924
922 NEXT J
923 GOTO2000
924 U=T(J)/Y(J)*25
925 IF T(J)=0 THEN NEXT J
```

```
928 U=INT(U)
930 R=S
938 IFR+U>Y GOTO942
940 S=U+R-1:U=0:GOTO943
942 S=Y-1:U=U-S+R-1
943 IF D(J)=3 GOTO975
944 IF D(J)=2 GOTO955
945 FORK=RTOS:GOSUB7000:POKE H+K,ASC(P$(
J))-64
946 NEXT K
947 S=S+1
948 IF E>0 AND W>0 THEN E=0
949 IF U<=0 AND S>=Y-1 THEN H=H+E+W+40:S
=0:W=0:E=0:NEXT J
950 IF U<=0 THEN NEXT J
952 H=H+E+W+40:S=0
954 W=0:E=0:GOTO930
955 FORK=RTOS:GOSUB7000:POKE H+K,ASC(P$(
J))-64
957 NEXT K
959 H=H+40
960 FORK=RTOS:GOSUB7000:POKE H+K,ASC("+"
)
961 NEXTK
962 H=H-40
964 W=40
970 GOTO947
975 FOR K=RTOS:GOSUB7000:POKE H+K,ASC("+
")
977 NEXT K
979 H=H+40
981 FOR K=RTOS:GOSUB7000:POKE H+K,ASC(P$
(J))-64
983 NEXT K
985 H=H+40
987 FOR K=RTOS:GOSUB7000:POKE H+K,ASC("+
")
989 NEXT K
991 H=H-80
993 E=80
995 GOTO947
2000 PRINT"[redacted]"U7$;
2002 IFH>=G+XX*40THEN2005
2003 GOTO2010
```

```
2005 PRINT"************PLOT TOO SMALL!**
***********"
2010 PRINTU9$;"■R■ REQUIREMENTS FOR ABOV
E IF HAPPY."
2015 PRINT"■V■ CHANGE VEGETABLE LAYOUT O
N SKETCH."
2020 PRINT"■S■ CHANGE PLOT SIZE. ■PRESS
RELEVANT KEY.■□"
2022 GETA$:IFA$=""THEN2022
2023 IFA$="R"THEN3000
2024 IFA$="V"THEN2027
2025 IFA$="S"THENPRINT"□":GOTO825
2026 GOTO2022
2027 S=0:PRINTU7$
2028 INPUT"LETTER IDENT OF VEGETABLE";O$
2029 INPUT"NEW YIELD.....          ";NY
$
2030 NY=VAL(NY$):FOR J=1TO25
2032 IF P$(J)=O$ THEN T(J)=NY
2034 NEXT J
2035 GOTO885
3000 POKEUG,U3:PRINTUF$;"□FOR YOUR CHOSE
N PLAN FOR
3005 PRINT"■"CH$(Q)" IN PLOT "X" BY "Y
3010 PRINT"■YOU WILL NEED:
3020 FOR J=1TO 25
3025 IFC$(J)=X$ GOTO3040
3030 NEXT J
3037 GOTO3060
3040 U=T(J)/Y(J)
3042 D=U*N(J)
3043 D=D*100:DD=INT(D):IFDD=0THEN3050
3044 DD=DD/100:PRINTU2$;
3045 PRINT"■"DD" "N$(J)" OF "V$(J)" ("T(
J)Y$(J)" )
3050 NEXT J
3060 PRINTUF$;
3065 INPUT"■■ANOTHER PLOT TO PLAN (Y/N)"
;A$
3070 IF A$="Y" GOTO 800
3080 PRINT"■■■THANKYOU FOR USING MY SER
VICES!
3090 PRINT"■■HAPPY GARDENING....
4000 END
```

```
7000 REM CHECK NOT OFF SCREEN
7010 IFH+K<2024THENRETURN
7015 PRINT"                              "U7$;
7020 PRINT"*********TOO LARGE FOR THE SC
REEN*******"
7030 GOTO2005
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
="":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Toptrainer

This is a horseracing game in two parts. In the first section players are presented with a board on which their counters are randomly moved by the computer. This offers players the opportunity to buy and sell horses, win or lose money, train their nags and prepare for stage two, the actual race. Prior to the race itself, each player has the chance to decide which of his horses he wants to enter and how he wants to place his bets. After players have issued 'race instructions' to their jockeys, the race is run and the winner collects both the prize money and any returns due from bets placed. At the start of the game each player has £10,000, and throughout the game balances are presented so that you can keep track of your fortunes. Play continues until someone reaches six figures, or until only one player is left in credit.

```
0 GOSUB63900:REM TOPTRAINER.....WALWYN
1 DATA ANTELOPE,BEETLE,CRISPY,DRAGON,EAS
Y EEL
2 DATA FOX HUNTER,GREAT KING,HEFFALUMP,I
NDIANA,JEREMY
3 DATA KANGA,LADY JANE,MARRY ME,NAUGHTY
BOY,ORANGE MAID,PEACOCK
10 G=US
12 DIM H$(15),H(15),F(15),P2(11),P(15)
14 DIM A$(7),A(7),P1(11)
16 DIM OV(15),PQ(15),S(15),O(15),Q(3,15)
,BH(7),BA(7)
20 FOR I=0 TO 15
22 READ H$(I)
25 H(I)=INT(RND(1)*10+1)
26 O(I)=-1
29 NEXT I
30 DATA 323,332,341,350,550,750,950,941,
932,923,723,523
40 DATA 414,374,334,294,413,373,333,293,
412,372,332,292
42 FOR I=0 TO11
43 READ P2(I):NEXT I
44 FOR I=0 TO11
45 READ P1(I):NEXT I
```

```
50 FOR I=0TO10:READ WB$(I):NEXT
60 DATA "HAS WON","DID VERY WELL","DID W
ELL","PERFORMED WELL ENOUGH"
70 DATA "HAS HELD HIS FORM RATING","DID
OK","WAS NOT TOO FAR BEHIND"
80 DATA "WAS NOT SO GOOD","WILL LOSE POI
NTS","WILL LOSE MORE POINTS"
85 DATA "WILL LOSE PRETTY HEAVILY"
100 POKEUG,U4:POKEUB,U4:PRINTUR$;
105 INPUT"HOW MANY PLAYERS?(1-8)";N
107 IFN<1ORN>8THEN100
110 FOR I=0 TO N-1
120 PRINT"NAME OF PLAYER NO."I+1"?
125 INPUT A$(I)
126 IFLEN(A$(I))>8THENPRINT"MAX 8 CHARAC
TERS":GOTO125
128 A(I)=10000
130 NEXT I
135 POKEUB,U2
140 PRINTU5$;"                    TOPTRAINER"
141 PRINTU7$;"YOU ALL START WITH 10000
POUNDS EACH."
142 PRINT"EACH OF YOU IS AN 'OWNER/TRAIN
ER' OF
144 PRINT"HORSES WHICH YOU CAN BUY,SELL,
TRAIN UP,
146 PRINT"AND ENTER FOR RACES.
148 PRINT"YOU MAKE MONEY OUT OF
PRIZE MONEY"
150 PRINT"IF YOU WIN A RACE AND ALSO BY
BETTING"
152 PRINT"ON YOUR- OR ANYONE ELSE'S - HO
RSES
153 PRINT"HORSES IMPROVE WHEN TH
EY RUN WELL
154 PRINT"BUT LOSE VALUE WHEN THEY DON'T
. IT COSTS";
155 PRINT"500 POUNDS TO ENTER A HORSE FO
R THE RACE"
157 PRINT"IF YOU GO BANKRUPT YOU
LOSE THE
158 PRINT"CHANCE TO TRAIN,RUN OR BET ON
HORSES.
159 GOSUB 9900
```

```
200 POKEUB,U3:POKEUG,UF:PRINTU2$;"■":M=0
:POKEUG,UE:W3=0
201 FOR I=2 TO 38 STEP 9
205 FOR J=160 TO 960 STEP 40
210 POKE G+J+I,42
215 NEXT J
217 NEXT I
220 FOR I=160 TO 960 STEP 200
225 FOR J=2TO38
230 POKE G+J+I,42
235 NEXT J:NEXT I
240 FOR I=1TO9
245 POKE G+380+I*40,32:NEXT I
250 FOR I=12 TO 28
255 POKE G+560+I,32:NEXT I
257 FOR I=0 TO N-1
258 P(I)=0:POKE G+P2(P(I))+I,177+I
259 NEXT I
260 PRINTU2$;
262 PRINT"■■■■■■■■■■■■START──>■■■CHANCE■■■
■SALE■■■TRAINING■
265 PRINT"■■■■■■■■■TRAINING■  "U4$;"BANK B
ALANCE"U2$;"    ■■■SALE■■■
270 PRINT"■■■■■■■■■CHANCE■■■■■■■■■■■■■■■■■
■■■■■CHANCE■■■
275 PRINT"■■■■■■■■■■■SALE■■■TRAINING■■■CHAN
CE■■■■■SALE■■■
280 PRINT"■■■■■■■■■■■■■■"
285 FOR J=0 TO N-1
286 R$="■":IF A(J)<0 THEN R$="■"
287 PRINTU4$;TAB(22)"          "
290 PRINT"□"R$;TAB(12)J+1 TAB(14)A$(J) T
AB(23)A(J)
295 NEXT J
300 PRINTUF$;"■"R$;A$(M)"■'S GO..."
310 Q%=RND(1)*6+1
315 GOSUB9500
320 POKE G+20,176+Q%
330 GOSUB 9500
335 POKE G+P2(P(M))+M,32
337 X=P(M)+Q%
340 IF X>11 THEN X=X-12
345 P(M)=X
350 POKE G+P2(P(M))+M,177+M
```

```
355 GOSUB9000
358 IF P(M)=0 GOTO450
360 ON P(M) GOTO 6000,7000,8000,7000,600
0,7000,6000,8000,7000,6000,8000
375 PRINT"■"
377 GOSUB9900
380 GOSUB9000
385 IF A(M)>=0 THEN 395
390 REM
395 M=M+1
397 IF M=N THEN M=0
400 GOTO 280
450 POKEUG,UF:POKEUB,U6:PRINTUE$;
452 PRINT"■SOMEONE LANDED ON 'START', SO
 ITS TIME"
455 PRINT"■■FOR A RACE...
460 GOSUB9500
550 FOR I=0 TO N-1
557 FOR J=0 TO 15
560 IFO(J)<>I THEN 575
562 PRINT"■■"A$(I)"
563 PRINT"■■"H$(J)" COST"H(J)*500"POUNDS
":GOSUB5400
564 PRINT"■WILL ■"H$(J)"■ RACE TODAY?(Y/
N)
565 GET B$:IF B$="" GOTO 565
570 IFB$="Y" THEN A(I)=A(I)-500:IF A(I)<
0 THEN A(I)=A(I)+500:GOSUB9960:GOTO585
572 IF B$="Y" THEN S(J)=1:R=R+1:X=INT(H(
J)+F(J)/2):GOSUB5000
575 NEXT J
585 NEXT I
599 PRINT"■":POKEUG,U3:POKEUB,U7:Z=0:A=0
600 GOSUB 4000
610 M=INT(RND(1)*16):IFW3>400THEN885
615 IF S(M)=0 OR S(M)=5 THEN W3=W3+1:GOT
O610
620 P(M)=P1(RR)
630 RR=RR+1:S(M)=5
635 POKE G+P(M),129+M
636 Z=Z+H(M)+F(M)
640 IF R<>RR THEN 610
650 FOR J=0 TO 15
655 IF S(J)<>5 THEN 662
```

```
658 H9=H(J)+F(J):IF H9<=1 THEN H9=1
660 PRINTU4$;"■■■■"TAB(A)LEFT$(H$(J),1)"=
"INT(Z/H9)"■"
661 A=A+10
662 NEXT J
664 FOR I=0 TO N-1:PRINTU6$;
665 IF A(I)<=0THENPRINT"■■"A$(I)" HAS NO
 MONEY TO BET!":GOSUB9500:GOTO697
666 PRINT"■■ODDS ARE BELOW.■"A$(I)" BET?
(Y/N)        ■■■■"
668 GET A$:IF A$="" GOTO668
670 IF A$="N" THEN 697
672 PRINT"■NOW TYPE THE LETTER OF YOUR H
ORSE"
674 GET A$:IF A$="" GOTO674
676 FOR J=0 TO 15
678 IF A$=LEFT$(H$(J),1) THEN BH(I)=J
679 NEXT J
680 PRINT"■
          "
682 INPUT"■AMOUNT OF MONEY";A$:A=VAL(A$)
683 IF A(I)-A<0 THEN PRINT"■NOT ENOUGH M
ONEY IN THE KITTY!":GOSUB9500:GOTO680
684 BA(I)=A:A(I)=A(I)-A
697 NEXT I
698 PRINT"■
          "
699 GOSUB 4300
700 FORJ=0 TO 15
710 IF S(J)<>5 THEN 850
720 IF PQ(J)=0 THEN 950
730 IF PQ(J)=1 THEN 970
740 X=-1:Y=40
750 M=INT(RND(1)*5)
755 X=X-Y
760 IF M>2 THEN 780
765 IF M=2 AND Q(PQ(J),J)>0 THEN Q(PQ(J)
,J)=Q(PQ(J),J)-1:GOTO780
770 GOTO 850
780 FOR I=0 TO 2
785 IF PEEK(G+P(J)+X)=32 THEN 800
787 X=X+Y
789 NEXT I
790 GOTO 850
```

```
800 POKE G+P(J),32
810 P(J)=P(J)+X
820 POKE G+P(J),129+J
823 IF P(J)>827 THEN PQ(J)=2:GOTO 835
830 IF P(J)=465 OR P(J)=386 OR P(J)=387
OR P(J)=425 OR P(J)=426 THEN PQ(J)=1
835 IF P(J)=815 OR P(J)=855 OR P(J)=895
THEN PQ(J)=3
840 IF P(J)=803 OR P(J)=843 OR P(J)=883
THEN 860
850 NEXT J
855 GOTO700
860 GOSUB9000
861 PRINT"■THE WINNER IS ■"H$(J)"■
862 R=(RR+1)*1000
863 PRINTA$(O(J))" GETS "R" POUNDS PRIZE
":A(O(J))=A(O(J))+R
865 GOSUB9900
867 GOSUB 9000
868 Z=INT(Z/(H(J)+F(J))):IF Z<1THEN Z=1
869 GOSUB10000:PRINT"■■"H$(J)" WON AT OD
DS OF "Z"TO 1"
870 FOR K=0 TO N-1
872 IF BH(K)=J THEN A(K)=A(K)+BA(K)*Z+BA
(K):PRINTA$(K)"'S BET WINS!"
876 NEXT K
879 GOSUB9900
880 R=0:RR=0
881 FOR J=0 TO15
883 PQ(J)=0:S(J)=0:P(J)=0
884 NEXT J
885 PRINT"■
886 GOTO 200
950 X=1:Y=-40:GOTO750
970 X=40:Y=1:GOTO750
4000 FOR I= 250 TO 267
4010 POKE G+I,114:NEXT I
4020 FORI=450 TO 463
4030 POKE G+I,114:NEXT I
4040 POKE G+268,110
4050 POKE G+464,110
4060 FOR I=0 TO 7
4070 POKE G+40*I+504,115:NEXT I
4080 FORI=0 TO 15
```

```
4090 POKE G+40*I+308,107:NEXT I
4100 POKE G+948,125
4105 POKE G+948,91
4110 FOR I=760 TO 783
4120 POKE G+I,114:NEXT I
4130 FOR I=920 TO 947
4140 POKE G+I,114:NEXT I
4150 POKE G+763,91
4160 POKE G+723,87
4170 POKE G+774,91
4180 POKE G+734,90
4190 FOR I=0 TO 3
4200 POKE G+I*40+295,102:NEXT I
4210 POKE G+306,77:POKE G+347,77:POKE G+
307,218
4220 POKE G+906,78:POKE G+867,78:POKE G+
907,218
4290 RETURN
4300 FOR J=0 TO 3
4330 POKE G+J*40+295,32:NEXT J
4340 FOR I=0TO15:OV(I)=INT(H(I)*500+F(I)
*250):NEXTI
4350 RETURN
5000 IF X<=0THEN PRINT"■THIS HORSE IS BA
DLY OUT OF FORM":GOTO5100
5005 PRINT"■POINTS FOR RACE..."X
5010 FOR M=0 TO 3
5020 IF M=3 THEN PRINT"■THE 4TH QUARTER
IS THEREFORE "X:Q(M,J)=X:GOTO5100
5025 PRINT"■RACE ORDERS FOR QUARTER NO."
M+1"(0-9)
5030 GET B$:IF B$="" THEN 5030
5035 B=VAL(B$)
5040 X=X-B
5050 IF X<0 THEN X=0:B=0
5060 Q(M,J)=B
5070 NEXT M
5100 GOSUB 9900
5105 FOR M=0TO3:Q(M,J)=0:NEXTM:RETURN
5110 RETURN
5400 PRINT"■CURRENT VALUE"F(J)*250+H(J)*
500
5405 IF (F(J)*250+H(J)*500)<=0 THEN PRIN
T"■WHICH IS PRETTY BAD NEWS!!!"
```

```
5410 RETURN
6000 Q%=RND(1)*10+1
6010 X%=RND(1)*6+1
6020 X=X%*-250
6030 IF Q%>5 THEN X=-X
6040 A(M)=A(M)+X:GOTO375
7000 PRINT"■"A$(M)","
7005 PRINT"DO YOU WISH TO SELL A HORSE?(
Y/N)"
7010 GOSUB9800
7020 IFA$="N" THEN 7050
7025 GOSUB9000
7026 FORI=0 TO15
7027 IF O(I)<>M THEN 7045
7028 PRINT"■DO YOU WISH TO SELL "H$(I)"?
(Y/N)":GOSUB9800
7030 IF A$="N" THEN 7040
7031 GOSUB9000:BB=INT(H(I)*500+F(I)*250)
:IF BB<0THEN BB=0
7032 PRINT"■"H$(I)" COST"H(I)*500". NOW
WORTH"BB
7033 PRINT"(IF NO ONE WISHES TO BUY, TYP
E '9')"
7034 INPUT"■■■PLAYER NO";B:
7035 IF B=9 THEN PRINT"OK I'VE BOUGHT IT
 FOR"BB:GOSUB9500
7036 IF B=9 THEN O(I)=-1:A(M)=A(M)+BB:GO
TO7040
7037 IFB>NORB<1THEN7034
7038 INPUT"□AND AT WHAT PRICE";A
7039 O(I)=B-1:A(M)=A(M)+A:A(B-1)=A(B-1)-
A
7040 GOSUB9000
7045 NEXT I
7050 Q%=RND(1)*15
7060 IF O(Q%)<>-1 THEN 7050
7070 GOSUB9000
7080 PRINT"■"A$(M)", I COULD SELL YOU "H
$(Q%)
7090 PRINT"FOR"H(Q%)*500"  (Y/N)
7100 GOSUB9800
7105 GOSUB9000
7106 PRINT"■"
7110 IF A$="N" THEN 375
```

```
7120 PRINT"■OK- DONE!":O(Q%)=M:A(M)=A(M)
-H(Q%)*500:GOTO375
8000 FOR I=0 TO 15
8010 IF O(I)<>M THEN 8100
8012 IF A(M)<=0 THEN PRINT"■YOU'RE BANKR
UPT...":GOSUB9500:GOSUB9000:GOTO8100
8015 PRINT"■"A$(M)",HOW MUCH MONEY WILL
YOU
8020 PRINT"SPEND ON TRAINING "H$(I)
8030 INPUT A
8032 IF A(M)-A<0THEN PRINT"NO MONEY IN T
HE KITTY!":GOSUB9500:GOTO8050
8034 Q%=RND(1)*5+2
8036 B=INT(Q%*A/3000):IF B>5 THEN B=5
8040 F(I)=F(I)+B:A(M)=A(M)-A
8050 GOSUB9000
8100 NEXT I
8200 GOTO375
9000 PRINT"■
          "
9005 FOR C=0 TO 2
9010 PRINT"
          ":NEXT C
9020 RETURN
9500 FOR C=1 TO 1400:NEXT C
9510 RETURN
9800 GET A$:IF A$="" GOTO9800
9810 RETURN
9900 PRINT"■PRESS ANY KEY■"
9910 GET B$:IF B$="" GOTO 9910
9920 RETURN
9960 PRINT"■NO MONEY IN THE BANK.
9962 PRINT"IT COSTS 500 POUNDS TO ENTER
A HORSE AND
9964 PRINT"YOU ONLY HAVE"A(I)"LEFT!
9965 GOSUB9900
9966 RETURN
10000 P8(1)=803:P8(2)=843:P8(3)=883
10005 GOSUB9000:PRINT"■FORM ALTERATIONS
AS RESULT OF THIS RACE"
10006 PRINT"————————————————————————
————————";
10010 FOR P8=0TO10:FORP9=1TO3
10020 IF PEEK(G+P8(P9))=32 THEN 10050
```

```
10030 FOR W7=0TO15
10031 IF P(W7)<>P8(P9)THEN10040
10033 PRINTH$(W7);" ";WB$(P8)
10034 F(W7)=F(W7)+INT((12-P8)*.75)
10040 NEXT W7
10050 P8(P9)=P8(P9)+1:NEXT P9,P8
10055 PRINT"■IF ANY HORSE HASN'T BEEN ME
NTIONED HERE ";
10057 PRINT"THEN IT HAS LOST 4 POINTS. I
T SHOULD    HAVE STAYED AT HOME!"
10058 GOSUB9500:GOSUB9900:PRINT"■"
10060 FOR W7=0TO15:IF S(W7)<>5 THEN 1007
0
10065 F(W7)=F(W7)-4
10067 IF F(W7)>20 THEN F(W7)=F(W7)-INT(R
ND(1)*4)
10068 PRINT"■"H$(W7)"■";TAB(15)"OWNED BY
 "A$(O(W7))
10069 PRINT"VALUE BEFORE:"OV(W7)".";TAB(
22)"VALUE NOW:"H(W7)*500+F(W7)*250
10070 NEXT W7
10090 RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
="":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Battleships

This is the traditional game of Battleships to be played against the computer. For anyone who hasn't come across the game before (does such a creature exist?), there are full instructions included in the listing. The winner is the first to destroy all six enemy ships, and there are levels of difficulty (1 or 2) which must be entered before battle can commence.

```
0 PRINT"■":GOTO9
1 **                                    **
2 **   BATTLESHIPS BY PAUL STANLEY      **
3 **  FOR THE SINCLAIR ZX SPECTRUM      **
4 **                                    **
5 ** CONVERTED FOR THE COMMODORE 64     **
6 **           BY ANDY GREEN            **
7 **          17 AUGUST 1983            **
8 **                                    **
9 POKE53280,0:POKE53281,0:PRINT"■";
10 GOSUB9000:REM ** SET-UP GRAPHIC CHARS
15 GOSUB7000:REM ** DISPLAY INSTRUCTIONS
20 GOSUB8000:REM ** ENTER SKILL-LEVEL/
POSITION SHIPS ON GRID
50 ZX=43:Q=16:P=18
100 ZX=PEEK(1024+P+Q*40):POKE1024+P+Q*40
,43
110 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■
    YOUR MOVE                  "
120 PRINT"■■■MOVE YOUR CROSS ABOUT WITH
5-8 (L,U,D,R)FIRE BY PRESSING 9."
130 POKE1024+P+Q*40,ZX
135 POKE650,128:GETA$
140 IFA$="6"THENQ=Q+1:IFQ=17THENQ=5
150 IFA$="7"THENQ=Q-1:IFQ=4THENQ=16
160 IFA$="5"THENP=P-1:IFP=17THENP=29
170 IFA$="8"THENP=P+1:IFP=30THENP=18
180 IFA$="9"THEN200
190 ZX=PEEK(1024+P+Q*40):POKE1024+P+Q*40
,43
195 GOSUB20000:POKE54273,34:POKE54272,75
:FORX=0TO10:NEXT:POKE54276,0:GOTO130
```

```
200 GOSUB20000:POKE54273,36:POKE54272,85
:FORX=0TO10:NEXT:POKE54276,0
205 POKE1024+P+Q*40,ZX
210 FORF=1TO6
220 IFH(F)=0ANDQ=F(F)THENIFP=G(F)ORP=G(F
)+1THEN250
230 NEXTF
240 GOTO300
250 H(F)=1:FORG=7TO0STEP-1:POKE1024+F(F)
*40+G(F),82
251 POKE1025+F(F)*40+G(F),83:POKE55296+F
(F)*40+G(F),G:POKE55297+F(F)*40+G(F),G
260 FORI=0TOG*8STEPG+1:GOSUB20000:POKE54
272,I:POKE54273,I*2:NEXTI
265 NEXTG
267 POKE55296+F(F)*40+G(F),5:POKE55297+F
(F)*40+G(F),5
270 S1=S1+1:IFS1=6THEN2000
300 PRINT"
     MY MOVE                    "
305 G=(INT(RND(1)*12/SL))*SL+1:F=INT(RND
(1)*12+1)
320 IFC$(F,G)="X"THEN305
330 C$(F,G)="X"
350 Y=F+4:X=G+3
370 FORI=1TO6
376 IFY=Y(I)THENIFX=X(I)ORX=X(I)+1THEN40
0
385 NEXTI
390 GOTO100
400 FORO=7TO0STEP-1:POKE1024+Y(I)*40+X(I
),82:POKE1025+Y(I)*40+X(I),83
401 POKE55296+Y(I)*40+X(I),0:POKE55297+Y
(I)*40+X(I),0
420 FORL=0TO0*8STEP0+1:GOSUB20000:POKE54
272,L:POKE54273,L*2:NEXTL
425 NEXTO:POKE55296+Y(I)*40+X(I),5:POKE5
5297+Y(I)*40+X(I),5
430 C$(Y(I)-4,X(I)-3)="X":C$(Y(I)-4,X(I)
-2)="X"
440 SC2=SC2+1:IFSC2=6THEN2100
450 GOTO100
1130 POKE1024+Y*40+X,74
1140 RETURN
```

```
2000 PRINT"■■■■■■■■WELL DONE ! YOU DESTROY
ED ALL THE        COMPUTER'S FLEET !!!"
2050 GOTO2200
2100 PRINT"■■■■■■■■BAD LUCK ! THE COMPUTER
 SUNK ALL YOUR    SHIPS !!!"
2200 PRINT"■■■■■PRESS ANY KEY TO PLAY AGA
IN..."
2300 IFPEEK(197)=64THEN2300
2400 PRINT"■";:RUN15
3265 FORI=1TO6:IFY=Y(I)THENIFX=X(I)THEN8
210
7000 A$="BATTLESHIPS    "
7010 PRINT"■■■■";:FORF=1TO5:FORG=1TO14:PR
INTMID$("■■■■■■■■■■■■■■■■",RND(1)*10+1,1);
7015 PRINTMID$(A$,G,1);:GOSUB20000:POKE5
4272,G:POKE54273,G+2:NEXTG,F
7020 POKE54276,0:PRINT"■■■■■■■■";
7050 PRINT"       (C)  P A U L  S T A N L
 E Y"
7051 PRINT"          CONVERTED BY ANDY GRE
EN"
7100 PRINT"■■■■PLAY THE COMPUTER AT BATTL
ESHIPS"
7110 PRINT"■■■■THE WINNER IS THE FIRST TO
 DESTROY ALL  SIX ENEMY SHIPS."
7120 PRINT"■■■FULL INSTRUCTIONS ARE GIVE
N AS YOU       PROCEED."
7130 PRINT"■■■PRESS ANY KEY TO START ..."
7140 IFPEEK(197)=64THEN7140
7150 PRINT"■":RETURN
8000 INPUT"ENTER SKILL LEVEL (1=EASY OR
2=HARD) ";SL:PRINT"■"
8005 IFSL<>2ANDSL<>1THEN8000
8010 PRINT"■■■■■■■■":FORF=5TO16:PRINT"■■■■
■■■■■■■■■■■■■■■■
```

```
8100 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■YOU CAN PO
SITION 6 SHIPS BY TYPING 'D4' (FOR EXAMP
LE";
8101 PRINT"). THEN PRESS ■ENTER■."
8200 DIMA$(3),Y(6),X(6),H(6)
8205 PRINT
8206 FORF=1TO6
8210 PRINT"□";:INPUTA$
8220 IFA$<"A"ORA$>"M"THENGOTO8210
8230 Y=ASC(A$)-60
8250 X=VAL(MID$(A$,2))+3
8260 IFX<4ORX>14THEN8210
8265 FORI=1TO6:IFY=Y(I)THENIFX=X(I)-1ORX
=X(I)ORX=X(I)+1THEN8210
8270 NEXTI
8280 POKE1024+Y*40+X,77:POKE1025+Y*40+X,
78
8290 Y(F)=Y:X(F)=X
8300 GOSUB20000:POKE54272,149:POKE54273,
68:FORX=1TO15:NEXT:POKE54276,0
8310 NEXTF
8400 PRINT"■■■■■■■■■■■■■■■■■■■
```

```
9001 FORX=0TO2047:POKE14336+X,PEEK(53248
+X):NEXT:POKE1,PEEK(1)OR4
9002 POKE56334,PEEK(56334)OR1:POKE53272,
31:FORX=0TO150:READA:POKE14856+X,A:NEXT
9010 DATA0,0,0,0,224,248,252,254,255,255
,255,255,254,252,248,224
9020 DATA31,31,31,255,255,31,31,31,224,2
40,248,248,248,248,240,224
9030 DATA0,63,63,63,63,63,63,0,0,63,63,2
55,255,63,63,0
9040 DATA0,224,240,248,248,240,224,0,0,0
,60,63,63,60,0,0
9050 DATA0,0,252,254,254,252,0,0,0,0,0,2
22,255,222,0,0
9060 DATA128,128,128,128,128,128,128,255
,129,129,129,129,129,129,129,255
9070 DATA0,2,34,59,63,255,127,0,0,0,32,4
8,120,126,124,0
9080 DATA0,38,41,41,41,41,38,0,0,20,20,2
0,20,20,20,0,0,76,82,68,72,80,94,0
9090 DATA128,128,208,164,254,231,255,255
,128,128,136,151,200,174,252,255
9999 RETURN
19999 END
20000 POKE54276,0:POKE54276,17:POKE54296
,15:POKE54277,0:POKE54278,240:RETURN
```

Galaxians

You are the commander of the sole surviving laser base on Earth. The fleets of Alien spacecraft are moving in for the final onslaught. Some swoop down, lasers blasting; others sit at the top of the screen launching unstoppable bombs which must be dodged. If you wipe out one fleet, another will appear in its place. In short, you haven't a chance. But make sure you take as many of the nasties with you as you can before you go.

```
10 POKE53280,0:POKE53281,0:PRINT"■"
15 HS=0
18 PRINT"■CHARACTERS BEING DEFINED,PLEAS
E WAIT":GOTO9000
20 GOSUB8000
21 X=15:SC=0:L=3:M=INT(RND(1)*18):G=3:H=
INT(RND(1)*18)
30 A$=" ♠| ♠| ♠| ♠| ♠| ♠| ":B$=" ── ── ─
─ ── ── ── ":C$="                    "
35 D$=" ─_  ─_ ":QQ=1
40 DI=1:Y=0:HI=0:CD$="■■■■■■■■■■■■■■■■■■■■
■■■■":SS=1024:CS=55296
80 PRINT"■"SPC(17)"■HI-SCORE"HS
100 IFQQ=1THENAA$=B$:QQ=2:GOTO120
110 IFQQ=2THENAA$=A$:QQ=1
120 PRINTLEFT$(CD$,4)SPC(Y)"■"AA$
140 X=X-2*(PEEK(197)=23ANDX<31)+2*(PEEK(
197)=12ANDX>1)
150 PRINTCD$TAB(X);"  /|  "
155 IFPEEK(197)=36THENGOSUB1000:PRINT"■
SCORE"SC
160 Y=Y+DI
170 IFY=0ORY=21THENDI=-DI
175 PRINTLEFT$(CD$,L+1)SPC(M)"          "
180 L=L+1:M=M+INT(RND(1)*4)-INT(RND(1)*4
)
185 IFL=21THENL=3:D$=" ─_  ─_ "
186 IFM>32THENM=31
187 IFM<8THENM=9
188 PRINTLEFT$(CD$,L+1)SPC(M)"■"D$
```

```
190 PRINTLEFT$(CD$,G+1)SPC(H)"   "
200 G=G+3:PRINTLEFT$(CD$,G+1)SPC(H)"L\":
IFG<>21THEN210
201 G=3:PRINTCD$SPC(H)"   ":H1=H:H=INT(RN
D(1)*17)+1
202 IFH1=X+3ORH1=X+2ORX1=X+1THEN4000
210 REM IFRND(1)>.8THENIFD$<>"       "THE
NGOSUB3000
300 GOTO100
1000 IFPEEK(SS+X+122)<>32THENHI=1
1005 IFPEEK(SS+X+2+L*40)<>32THEN1080
1007 IFPEEK(SS+X+3+L*40)<>32THEN1080
1009 FORZZ=20TO2STEP-1
1020 POKESS+ZZ*40+X+2,103:POKECS+ZZ*40+X
+2,1
1030 NEXT
1031 FORZZ=20TO2STEP-1:POKESS+X+2+ZZ*40,
32:NEXT
1040 IFHI<>1THEN1050
1041 XY=X-Y+2:IFXY<1THENXY=1
1042 LETA$=LEFT$(A$,XY-1)+"    "+MID$(A$,
XY+3)
1043 LETB$=LEFT$(B$,XY-1)+"    "+MID$(B$,
XY+3)
1045 SC=SC+10:PRINTLEFT$(CD$,4)SPC(X+1)"
■|||"
1046 FORDL=1TO50:NEXTDL
1048 PRINTLEFT$(CD$,4)SPC(X+1)"    "
1050 HI=0
1055 IFA$=C$THEN2000
1060 RETURN
1080 IFG=1THENIFH=X+1ORH=X+2THENRETURN
1081 FORZZ=20TOLSTEP-1
1082 POKEZZ*40+SS+X+2,103:POKECS+ZZ*40+X
+2,1
1083 NEXT
1084 FORZZ=20TOLSTEP-1:POKESS+X+2+ZZ*40,
32:NEXT
1090 MX=X-M+2:IFMX<1 THENRETURN
1130 D$=LEFT$(D$,MX-1)+"     "+MID$(D$,MX
+4):SC=SC+20
1131 PRINTLEFT$(CD$,L+1)SPC(X+1)"||||"
1135 FORDL=1TO50:NEXTDL
1137 PRINTLEFT$(CD$,L+1)SPC(X+1)"     "
```

```
1140 RETURN
2000 PRINTLEFT$(CD$,4)SPC(Y)C$
2010 FORF=0TO25:PRINT"■■■■■■■■■■■■"SPC(F)"
 ◝ ◡ "
2020 IFF<>0ANDF<>3ANDF<>6ANDF<>9ANDF<>12
ANDF<>15THEN2040
2022 FORI=6TO2STEP-2:PRINTLEFT$(CD$,I+1)
SPC(F+1)"   ":NEXTI:PRINT"■■■■"SPC(F+1)"◣
◆| "
2040 NEXTF
2042 FORF=25TO34STEP2
2046 PRINT"■■■■■■■■■■■■"SPC(F)"    ◝ ◡ "
2048 PRINT"■■■■■■■■■■■■"SPC(28)"      ":GOTO
30
3000 IFMID$(D$,2)<>"─"THEN3080
3050 RETURN
3080 IFG=1ANDH=X+2ORH=X+1THENRETURN
3160 RETURN
4000 FORF=1TO75:PRINTLEFT$(CD$,22)SPC(X)
;"■|||||■■■■■■      ":NEXT
4040 IFSC>HSTHENHS=SC
4050 PRINT"■■■■■■■■■■■■■■■■"TAB(12)"■■GAME OV
ER"
4060 PRINT:PRINT"    PRESS ANY KEY TO PL
AY AGAIN
4070 POKE198,0:WAIT198,1
4080 PRINT"■◡":GOTO21
4999 END
8000 PRINT"◡"TAB(12)"■G A L A X I A N S"
:PRINTTAB(12)"──────────────────"
8010 PRINT:PRINT"FLEET AFTER FLEET,THE I
NVADERS FORM AND WAIT TO ATTACK."
8020 PRINT"■THE INVADERS IN FORMATION DR
OP DANGEROU-S BOMBS TO TRY AND DESTROY Y
OUR";
8030 PRINT" LASER   BASE.DIVING ALIENS A
RE WORTH MORE POINTS."
8040 PRINT"AS SOON AS ONE FLEET OF ALIEN
S HAVE BEENDESTROYED THEIR MOTHER-SHIP W
ILL";
8050 PRINT" ARRANGEA NEW BATTLE LINE."
8060 PRINT"■■Z=LEFT  X=RIGHT M=FIRE"
8070 PRINT"■■PRESS ANY KEY TO START.":PO
KE198,0:WAIT198,1:PRINT"◡":RETURN
```

```
8999 STOP
9000 IFPEEK(56)=48THENPOKE53272,(PEEK(53
272)AND240)+12:GOTO9500
9002 POKE56,48:POKE52,48:CLR:POKE56334,P
EEK(56334)AND254:POKE1,PEEK(1)AND251
9003 FORF=0TO2047:POKE12288+F,PEEK(53248
+F):NEXT:POKE1,PEEK(1)OR4
9004 POKE56334,PEEK(56334)OR1
9006 POKE53272,(PEEK(53272)AND240)+12
9008 FORF=0TO111:READA:POKE12808+F,A:NEX
T
9010 DATA34,35,36,62,15,7,2,14
9020 DATA36,196,228,252,240,224,64,112
9030 DATA2,3,7,63,39,39,34,3
9040 DATA64,192,32,124,228,228,68,192
9050 DATA128,166,242,123,61,47,39,3
9060 DATA1,101,79,222,188,244,196,192
9070 DATA0,240,248,252,254,6,6,6
9073 DATA145,82,0,3,192,0,74,145
9080 DATA7,31,127,170,170,127,31,7
9090 DATA255,255,255,170,170,255,255,255
9100 DATA192,240,252,170,170,252,240,192
9110 DATA18,19,18,28,4,2,1,1
9120 DATA72,200,72,56,32,64,128,128
9300 DATA1,31,63,127,255,193,192,192
9500 GOTO20
```

Countabout

Kids and computers just don't mix. Not if it's your computer that is. They take up far too much valuable hacking time. However it has to be conceded that micros do have a role in the pedagogic process, and so it is not without some reluctance that we have included a selection of educational programs, of which this is one. This is for the very small, and has been designed to keep them quiet while you have an algorithm to work on, whilst at the same time teaching them the basics of counting.

The program sets a series of counting problems from the numbers one to nine. You know, count the ships, flowers, cats, houses or whatever and — if the answer is correct — reward the little angels with ships moving, cats smiling, telephones ringing or the like.

```
0 REM***COUNTABOUT***64 VERSION***H.WALW
YN
1 GOSUB63900
2 POKEUG,UF:POKEUB,U4:PRINTU7$;"■■COUNTA
BOUT■"
3 PRINT"■A COUNTING GAME FOR CHILDREN AG
ED 2-5.
5 GOSUB1000
6 PRINT"■■PRESS ANY KEY TO START PROGRAM
"
7 GET A$:K=RND(1):IFA$="" THEN 7
18 POKEUG,U9:POKEUB,UE:PRINT"■
20 PRINTU6$;"■■■■■■P L E A S E   P R E S
 S   A N Y   K E Y "
25 GET B$:K=RND(1):IF B$="" THEN 25
30 PRINT"■"
100 Q%=RND(1)*9+1
105 K=INT(RND(1)*5+1)
110 J=6:FOR I=1TOQ%
120 IFI=4ORI=7THENJ=6
140 ON I GOSUB 9020,9020,9020,9010,9010,
9010,9000,9000,9000
150 PRINTTAB(J);
165 IF X=1 THEN 185
170 ON K GOSUB 10000,11000,12000,13000,1
4000
```

```
182 GOTO195
185 ON K GOSUB 20000,21000,22000,23000,2
4000
195 J=J+11:NEXT I
196 IF X=1 THEN X=0:GOTO300
200 GET A$:IF A$<>"" THEN 200
205 PRINTUF$;"■H O W   M A N Y   "N$" ?"
210 GET A$:IF A$="" THEN 210
212 IFASC(A$)<49ORASC(A$)>57THEN210
215 PRINTUF$;"■"TAB(18)A$:FOR L=1TO500:N
EXT L
220 IF VAL(A$)=Q% THEN 250
225 IF VAL(A$)=Q%+1 OR VAL(A$)=Q%-1 THEN
 280
230 PRINTU2$;"■N O ,   W R O N G   A N
S W E R"
235 GOSUB9500:GOTO200
250 X=1:GOTO110
280 IF VAL(A$)=0 THEN 230
282 PRINTU6$;"■V E R Y   N E A R L Y   !"
285 GOSUB9500:GOTO200
300 GOSUB9600:PRINTU4$;"■C O R R E C T !
"
305 IF Q%=1 THEN PRINT"■■"Q%"   "LEFT$(N
$,LEN(N$)-2):GOTO320
310 PRINT"■■"Q%"   "N$
320 GOSUB7000:GOTO20
1000 REM INSTRUCTIONS
1010 PRINT"■THERE IS NO NEED TO USE THE
1020 PRINT"'RETURN KEY' IN THIS PROGRAM.
"
1030 PRINT"■ONCE THE CHILD KNOWS WHERE T
HE NUMBERS"
1040 PRINT"FROM 1 - 9 ARE ON THE KEYBOAR
D,"
1050 PRINT"YOU CAN JUST SIT BACK AND LET
 THE"
1060 PRINT"COMPUTER DO A BIT OF TEACHING
!"
1100 RETURN
7000 PRINTU0$;"■"TAB(30);
7005 ON Q% GOTO 7100,7200,7300,7400,7500
,7600,7700,7800,7900
7100 PRINT"/\ ■■■ ■■■ ":RETURN
```

```
7200 PRINT"
7300 PRINT"
7400 PRINT"
7500 PRINT"
7600 PRINT"
7700 PRINT"
7800 PRINT"
7900 PRINT"
9000 PRINT"
9010 PRINT"
9020 PRINT"
9500 FOR L=1TO1700:NEXT L
9600 PRINT"
          "
9605 FOR L=1TO4
9610 PRINT"
         "
9615 NEXT L
9620 RETURN
10000 REM HOUSE DRAWING
10005 N$="H O U S E S":PRINTU6$;
10010 PRINT"
10050 RETURN
11000 REM CATS
11005 N$="C A T S":PRINTU0$;
11010 PRINT"
11020 PRINT"
11050 RETURN
12000 REM TELEPHONE
12005 N$="T E L E P H O N E S":PRINTU2$;
12010 PRINT"
12050 RETURN
13000 REM BOATS
13005 N$="S H I P S":PRINTU2$;
13010 PRINT"
13050 RETURN
14000 REM FLOWER
14005 N$="F L O W E R S":PRINTU6$;
14010 PRINT"
```

```
14050 RETURN
20000 REM HOUSE CORRECT
20005 PRINTU6$;
20010 PRINT"                    o o
                 ♥              ";
20050 RETURN
21000 REM CATS
21005 PRINTU0$;
21010 PRINT"                                  ";
21020 PRINT"                                  ";
21050 RETURN
22000 REM TELEPHONE
22005 PRINTUF$;
22006 PRINT"RING                ";U2$;
22010 PRINT"                                  ";
22020 PRINT"                                  "
;
22050 RETURN
23000 REM BOATS
23005 PRINTU2$;
23007 FOR H=JTO1 STEP -1
23010 PRINT"                                  ";
23030 PRINT"                "UF$;"                ";
23040 NEXT H
23045 PRINT"                                  ";
23050 RETURN
24000 REM FLOWER
24005 PRINTU6$;
24010 PRINT"                          "U3$"
                ,"U4$"                ";
24020 PRINT"
24050 RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="":U1=1:U1$="
:U2=2:U2$="
63906 U3=5:U3$="":U4=6:U4$="":U5=8:U5$
```

```
="":U6=9:U6$="■"
63910 U7=10:U7$="◘":U8=13:U8$="▐":U9=14:
U9$="◙":UU=4:UU$="♦"
63915 UR=12:UR$="◪":UE=7:UE$="◧":UF=11:U
F$="▣":RETURN
```

Tanx

Tanx is a two player game in which two guns are placed on either side of a range of randomly generated hills. Each player takes turns in attempting to hit the gun on the other side by entering the angle and velocity of fire. The winner is the player with the highest score after a total of seven hits have been made. Your best chance of success is to use the smallest possible angle of elevation for a given velocity and, at higher speeds, it may be possible to fire through one of the hills.

```
10 REM ****************************
11 REM **                          **
12 REM **          TANX            **
13 REM **                          **
14 REM **    ADAPTED FOR THE       **
16 REM **         CBM 64           **
17 REM **                          **
18 REM **    BY DAVE PONTING       **
19 REM ** WRITTEN BY STANLEY      **
20 REM ****************************
22 POKE53280,0:POKE53281,0:PRINT"■":AT$=
"■■■
```

```
120 A=-1:INPUT"ENTER ELEVATION";A$
122 IFA$<"0"ORA$>"90"THENPRINT"     ( 0-9
0 )";:GOTO115
130 PRINT"□■■■■■■■■■■■■■■■■■■■■■■■■";:INPUT
"ENTER VELOCITY";VEL
132 IFVEL<2ORVEL>10THENPRINT"■■■■■■■■■■■■
■■■■■■■■( 2-10 )";:PRINT"□":GOTO130
135 POKESO+4,129:POKESO+18,129
140 MAX=120+5*VEL:A=VAL(A$)
145 E=A/10:E1=E/4:E2=E/16
146 S1=PEEK(V+1)-16
147 PP=PEEK(V+31):PP=PEEK(V+30):POKESO+4
,128:POKESO+18,128
148 POKEV+4,PEEK(V)+8:POKEV+5,S1:POKE204
2,11:POKEV+21,7
149 PP=PEEK(V+31):PP=PEEK(V+30):POKESO+1
1,33
150 FORG=32TO316STEPVEL
152 PP=PEEK(V+31):PP=PEEK(V+30):POKESO+1
1,33
155 POKESO+8,G/2
160 POKEV+4,G+255*(G>255):POKEV+5,S1
165 IFG>255THENPOKEV+16,PEEK(V+16)OR4
167 IFG<256THENPOKEV+16,PEEK(V+16)AND251
170 IFS1>50THENIF((PEEK(V+31)AND4)=4)THE
NGOSUB300:G=316
175 IF((PEEK(V+30)AND2)=2)THENGOSUB400:G
=316
180 S1=S1+E*((G<MAX)AND(S1>30))-E*((G)=M
AX))
182 E=E+((E/8)*(G<MAX))-((E2)*(G)MAX-1))
190 NEXTG
192 POKESO+11,32
195 POKEV+21,3:RETURN
300 REM HIT ON THE GROUND
305 POKE2042,15:POKESO+4,17:POKESO+11,33
:POKESO+18,129
310 FORT=1TO200:POKESO+1,T:POKESO+8,250-
T:NEXTT:POKESO+1,20
320 POKEV+21,3:POKESO+4,128:POKESO+11,12
8:POKESO+18,128
325 IFG<12THENG=12
330 PRINTLEFT$(AT$,(INT((S1+19)/8)-5))SP
C(INT((G+13)/8)-3)" "
```

```
399 GOTO8410
400 REM HIT TANK 2
405 SC(1)=SC(1)+1
420 GOSUB300
430 IFSC(1)+SC(2)=7THEN1000
449 GOTO8000
450 REM HIT TANK 1
455 SC(2)=SC(2)+1
460 GOSUB300
480 IFSC(1)+SC(2)=7THEN1000
499 GOTO8000
700 REM ─!ER 2
705 PRINTLEFT$(AT$,22)SPC(16)"           "
710 PRINT"
          "
712 PRINT"
          "
715 PRINTLEFT$(AT$,23)SPC(16)"PLAYER 2"
720 A=-1:INPUT"ENTER ELEVATION";A$
722 IFA$<"0"ORA$>"90"THENPRINT"     ( 0-9
0 )";:GOTO715
730 PRINT"□■■■■■■■■■■■■■■■■■■■■■■■■";:INPUT
"ENTER VELOCITY";VEL
732 IFVEL<20RVEL>10THENPRINT"■■■■■■■■■■■■
■■■■■■( 2-10 )";:PRINT"□":GOTO730
735 POKES0+4,129:POKES0+18,129
740 MAX=200-5*VEL:A=VAL(A$)
745 E=A/10:E1=E/4:E2=E/16
746 S1=PEEK(V+3)-16
747 PP=PEEK(V+31):PP=PEEK(V+30):POKES0+4
,128:POKES0+18,128
748 POKEV+4,48:POKEV+5,S1:POKEV+16,PEEK(
V+16)OR4:POKE2042,11:POKEV+21,7
749 PP=PEEK(V+31):PP=PEEK(V+30):POKES0+1
1,33
750 FORG=304TO8STEP-VEL
755 POKES0+8,G/2
760 POKEV+4,G+255*(G>255):POKEV+5,S1
765 IFG>255THENPOKEV+16,PEEK(V+16)OR4
767 IFG<256THENPOKEV+16,PEEK(V+16)AND251
770 S1=S1+E*((G>MAX)AND(S1>30))-E*((G<=M
AX))
780 E=E+((E/8)*(G>MAX))-((E2)*(G<MAX-1))
785 IF((PEEK(V+31)AND4)=4)THENGOSUB300:G
=8
```

```
787 IF((PEEK(V+30)AND1)=1)THENGOSUB450:G
=8
790 NEXTG
798 POKESO+11,32
799 RETURN
1000 REM END OF THE GAME
1005 PRINTLEFT$(AT$,4)SPC(10)"THE BATTLE
 IS OVER"
1010 PRINTSPC(10)"■PRESS ANY KEY TO PLAY
 AGAIN"
1020 WAIT197,191
1030 SC(1)=0:SC(2)=0:GOTO30
7000 REM *** INITIAL SCREEN —| AND O—WRU
CTIONS ***
7002 PRINT"■";:T1=0:T2=10:T3=27:T4=37
7005 FORT=18TO1STEP-1
7010 PRINTLEFT$(AT$,T)TAB(T1)"T"TAB(T2)"
A"TAB(T3)"N"TAB(T4)"X"
7020 IFT>1THENPRINTLEFT$(AT$,T)TAB(T1)"
"TAB(T2)" "TAB(T3)" "TAB(T4)" "
7030 T1=T1+1:T2=T2+.5:T3=T3-.5:T4=T4-1
7040 NEXTT
7045 T1=0:T2=10:T3=27:T4=37
7047 FORT=19TO2STEP-1
7050 PRINTLEFT$(AT$,T)TAB(T1)"—"TAB(T2)"
—"TAB(T3)"—"TAB(T4)"—"
7060 IFT>2THENPRINTLEFT$(AT$,T)TAB(T1)"
"TAB(T2)" "TAB(T3)" "TAB(T4)" "
7070 T1=T1+1:T2=T2+.5:T3=T3-.5:T4=T4-1
7080 NEXTT
7150 PRINT"■■THE TWO PLAYERS TAKE TURNS
TO ENTER THE  ANGLE AND VELOCITY AT ";
7155 PRINT"WHICH THEY WANT   TO FIRE TO
TRY TO HIT THEIR OPPONENT."
7160 PRINT"■THE SHELLS MUST BE FIRED OVE
R THE HILLS  BUT IF YOU ARE LUCKY YOUR";
7165 PRINT" SHELL MAY BE ABLE TO GO THRO
UGH A HILL";
7167 PRINT" (PARTICULARLY  AT THE HIGHER
 SPEEDS.)"
7170 PRINT"■THE WINNER IS THE PLAYER WHO
 HAS HIT HIS  OPPONENT THE MOST ";
7175 PRINT"AFTER A TOTAL OF 7  HITS HAVE
 BEEN MADE"
7180 PRINT"■  TO STAND THE BEST CHANCE O
```

```
F HITTING    YOUR OPPONENT TRY TO ";
7185 PRINT"USE THE SMALLEST   POSSIBLE A
NGLE OF ELEVATION."
7190 PRINT"■   ■ PRESS ANY KEY TO START
THE GAME "
7195 A$="":GETA$:IFA$<>""THEN7195
7197 GETA$:IFA$=""THEN7197
7200 PRINT"■";:RETURN
8000 REM *** INITOAL SCREEN SET-UP ***
8003 POKEV+21,0
8005 Q=20-INT(RND(1)*10)
8007 PRINT"■"
8010 FORF=0TO39
8020 FORG=21TOQSTEP-1
8030 PRINTLEFT$(AT$,G)SPC(F)"■■ "
8035 REM PRINTLEFT$(AT$,G)SPC(F-2)
8040 NEXTG
8042 IFF<3THENNEXTF
8045 IFF>36THENNEXTF:GOTO8100
8050 Q=Q+INT(RND(1)*4)-INT(RND(1)*4)
8060 IFQ<7THENQ=8+INT(RND(1)*2)
8065 IFQ>20THENQ=20-INT(RND(1)*2)
8070 NEXTF
8100 FORF=1TO24:IFPEEK(1024+(40*F))<>32T
HENPOKEV+1,(F*8)+32:POKEV,24:GOTO8120
8115 NEXTF
8120 FORF=1TO24:IFPEEK(1063+(40*F))<>32T
HEN8150
8130 NEXTF
8140 GOTO8400
8150 POKEV+3,F*8+32:POKEV+2,64:POKEV+16,
2
8400 POKEV+21,7
8405 PRINT"■    PLAYER 1              PLA
YER 2"
8410 PRINT"■■       "SC(1)"
     "SC(2)
8500 RETURN
9000 REM *** READ SPRITE DATA ***
9005 POKEV+21,0
9010 FORT=0TO191:READA:POKE13*64+T,A:NEX
TT:POKE2040,13:POKE2041,14
9015 FORT=0TO63:POKE704+T,0:NEXTT:POKE75
9,8:POKE762,28:POKE765,8:POKE2042,11
```

```
9020 V=53248
9030 POKEV+39,1:POKEV+40,1:POKEV+41,1
9050 POKEV+21,7
9100 SO=54272
9110 FORT=0TO28:READA:POKESO+T,A:NEXTT
9500 RETURN
10000 REM *** SPRITE TANK LEFT  ***
10002 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
10003 DATA 0, 0, 8, 0, 0, 56, 0, 0, 248,
 0, 227, 224
10004 DATA 1, 247, 128, 3, 254, 0, 3, 24
8, 0, 127, 255, 254
10005 DATA 255, 255, 255, 255, 255, 255,
 64, 0, 4, 81, 17, 20
10006 DATA 63, 255, 248, 0, 0, 0, 0, 0,
0, 0, 0, 0
10007 DATA 0, 0, 0, 0
10050 REM *** SPRITE TANK-RIGHT  ***
10052 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
10053 DATA 32, 0, 0, 120, 0, 0, 62, 0, 0
, 15, 135, 0
10054 DATA 1, 239, 128, 0, 127, 192, 0,
31, 192, 127, 255, 254
10055 DATA 255, 255, 255, 255, 255, 255,
 32, 0, 2, 40, 136, 138
10056 DATA 31, 255, 252, 0, 0, 0, 0, 0,
0, 0, 0, 0
10057 DATA 0, 0, 0, 0
10100 REM *** SPRITE SHELL BURST  ***
10102 DATA 0, 0, 0, 0, 0, 16, 0, 128, 0,
 0, 0, 32
10103 DATA 0, 64, 0, 16, 0, 64, 0, 0, 0,
 8, 64, 128
10104 DATA 0, 0, 0, 4, 1, 2, 0, 0, 4, 2,
 2, 8
10105 DATA 0, 0, 16, 1, 4, 32, 0, 0, 64,
 64, 136, 128
10106 DATA 32, 1, 0, 16, 82, 15, 12, 4,
112, 1, 11, 128
10107 DATA 0, 112, 0, 0
11000 REM —
```

```
11010 DATA0,20,0,0,128,26,250
11020 DATA0,20,0,0,16,9,240
11030 DATA0,7,0,0,128,9,240
11040 DATA0,0,0,15,0,0,0,0
```

Stellar Run

On a routine run into hyperspace, you suddenly come upon a new universe. Instantly your cruiser is confronted with a series of mazes, obstacles and tunnels as you struggle to chart new horizons. As an experienced commander, you are well aware that any contact with the numerous meteors, rock walls or barriers will lead to your instant destruction. You will need to think fast and use your missiles to blast a hole through obstacles. So stand by, finger on the keyboard . . . Good luck!

```
10 REM STELLAR RUN...WALWYN
12 PRINT"■   STELLAR RUN....WAIT FOR 5 S
ECONDS"
15 REM SET UP INITIAL DATA
18 DIM KX(255),KY(255)
20 GOSUB5000
22 REM PLACE SCREEN TO 40 COLUMNS
24 POKE53270,PEEK(53270)OR8
25 REM PRINT BLACK BORDER
26 POKEUB,U0:POKEUG,U9
27 GOSUB3000
28 PRINT"■■■
```

```
132 A1$="◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆ ◆
 ◆ ◆ ◆ ◆ ◆ ◆ ◆"
135 B$="■
          "
140 C$="      *      *               *
       *"
142 C$=C$+"
        *           "
150 E=E+EE*RND(1)
160 ON DGOTO200,250,300,350,400,450,500,
550,600
200 D$=LEFT$(A$,SIN(E)*9+10)+LEFT$(B$,20
)+A$
210 IFE>15THENPOKEUG,U3:D=2
220 GOTO650
250 D$=LEFT$(A$,SIN(E)*11+12)+LEFT$(B$,1
6)+A$
260 IFE>30THENPOKEUG,UU:D=3
270 GOTO650
300 D$=LEFT$(A$,(SIN(E)+COS(E*.9))*4.5+1
2)+LEFT$(B$,16)+A$
305 IF RND(1)<.08THEND$="■■"+A$
310 IFE>45THENPOKEUG,U5:D=4
320 GOTO650
350 N$=B$:IF RND(1)<.08THENN$="■"+A1$
355 D$=LEFT$(A$,(SIN(E)+COS(E*1.1))*4.5+
12)+LEFT$(N$,16)+A$
360 IFE>60THENPOKEUG,U9:D=5
370 GOTO650
400 IF RND(1)>.6THEND$="■■"+B$:GOTO410
405 D$="■■■"+MID$(C$,INT(RND(1)*40+1),40
)
410 IFE>75THENPOKEUG,U7:D=6
420 GOTO650
450 D$=LEFT$(A$,SIN(E)*12+13)+LEFT$(B$,1
4)+A$
460 IFE>90THENPOKEUG,UR:D=7
470 GOTO650
500 D$=LEFT$(A$,(SIN(E)+COS(E*5.1))*4.5+
12)+LEFT$(B$,16)+A$
510 IFE>105THENPOKEUG,U8:D=8
520 GOTO650
550 IF RND(1)>.25THEND$="■■"+B$:GOTO560
555 D$="■■■"+MID$(A1$,INT(RND(1)*2+1),40
)
```

```
560 IFE>120THENPOKEUG,U1:D=9
570 GOTO650
600 IF RND(1)>.5THEND$="■■"+B$:GOTO610
605 D$="■■"+A$
610 IFE<135THEN650
620 FORK=0TO14:PRINTTAB(K)"WELL DONE, YO
U MADE IT"
630 POKEUB,K:NEXTK
640 GOTO9110
650 PRINTU0$;LEFT$(D$,42)
660 POKEUS+1,FG+48
700 REM KEY PRESSED ACTION
710 K=PEEK(197):IFM<0THENM=0
712 POKEUH+7,2:POKEUL+7,M*8:FG=FG+1
715 IFK=64THENM=M-2:GOTO800
716 IFK<>60THEN725
718 IFFG<2THEN800
720 F=1:FX=X:FY=Y+6:POKEV,FX:POKEV+1,FY:
POKEV+21,3:FG=FG-2
722 IFPEEK(V+16)=2THENPOKEV+16,3
723 IFFG<0THENFG=0
724 GOTO800
725 M=M+1:IFM>9THENM=9
730 IF(2ANDPEEK(V+16))AND(K=10ORK=13)THE
N770
735 IFK=10THENX=X-M:IFX<30THENX=30
740 IFK=13THENX=X+M:IFX>255THENPOKEV+16,
PEEK(V+16)+2:X=X-255
750 IFK=12THENY=Y+M:IFY>200THENY=200
760 IFK=9THENY=Y-M:IFY<60THENY=60
765 GOTO800
770 IFK=10THENX=X-M:IFX<0THENPOKEV+16,PE
EK(V+16)-2:X=255+X
780 IFK=13THENX=X+M:IFX>60THENX=60
800 REM DISPLAY AND CHECK HIT
805 IFFG>9THENFG=9
810 POKEV+2,X:POKEV+3,Y
820 IFPEEK(V+31)AND2THEN9000
850 IFF<1THEN150
852 IFF=2THEN860
855 POKEUV,15:POKEUA,12:POKEUD,128:POKEU
W,17:F=2
860 FORK=0TO40STEP8:FY=FY+8:POKEV+1,FY:I
FFY>220THEN900
```

```
865 POKEUL,FY:POKEUH,6
870 IFPEEK(V+31)<>1THENNEXTK:GOTO990
875 NX=0:IFPEEK(V+16)AND1THENFX=FX+255:N
X=1
880 Z=US+INT((FX-25)/8)+INT((FY-42)/8+1)
*40
882 POKEUV,15:POKEUA,72:POKEUD,128:POKEU
H,11
883 POKEUL,0:POKEUW,129
884 POKEV+4,FX:POKEV+5,FY:IFNXTHENPOKEV+
16,PEEK(V+16)+4
885 POKEV+21,6
886 FORK=0TO3:POKEZ+K,32:POKEZ-40+K,32
887 NEXTK
900 F=0:POKEV+21,2:IFNXTHENPOKEV+16,PEEK
(V+16)-4
910 GOSUB9500
990 GOTO150
999 END
3000 PRINTU2$;"■STELLAR RUN"
3010 REM INSTRUCTIONS
3020 PRINTUF$"■YOU ARE IN CONTROL OF THE
3030 PRINT"■STELLAR TRIPPER■ AND HAVE DI
SCOVERED
3040 PRINT"A NEW GALAXY."
3050 PRINT"THE GALAXY IS 135 LIGHT YEARS
 WIDE AND
3060 PRINT"YOU WILL HAVE TO NAVIGATE YOU
R WAY
3070 PRINT"THROUGH THE WARP MAZE."
3080 PRINT"■EACH TIME YOU PLAY, YOU WILL
 BE GIVEN
3090 PRINT"A SLIGHTLY DIFFERENT MAZE...W
ATCH OUT!"
3100 PRINT"SEE HOW FAR YOU CAN GET. NO O
NE'S EVER
3110 PRINT"REACHED THE OTHER SIDE!"
3115 PRINT"THE FURTHER YOU GO, THE HARDE
R IT IS!"
3120 PRINTU2$;"■HOLD DOWN 'A'...TO MOVE
LEFT"
3130 PRINT"           'S'...TO MOVE RIGHT
"
3140 PRINT"           'Z'...TO MOVE DOWN"
```

```
3150 PRINT"            'W'...TO MOVE UP"
3160 PRINT"THE SPACE BAR FIRES A STELLAR
 MISSILE
3170 PRINT"(DON'T WEAR OUT YOUR MISSILE
BANK...  "
3180 PRINT"THE NUMBER OF MISSILES READY
FOR
3190 PRINT"FIRING IS AT THE TOP LEFT)"
3200 PRINTU0$"■PRESS ANY KEY TO START"
3210 GETM$:IFM$=""THEN3210
3220 RETURN
5000 REM SPRITE DATA SUBROUTINE...'64'
5001 REM SPRITE BASE VARIABLE = 'V'
5002 V=53248
5004 REM ALTER BASIC MAX MEMORY AND VARI
ABLE LOW MEMORY
5005 POKE52,60:POKE56,60
5006 REM LOAD DATA INTO BLOCKS 240-UPWAR
DS
5007 FORK=0TO2:FORJ=0TO62
5008 READ A:POKE(240+K)*64+J,A:NEXTJ,K
5010 REM SPRITE MISSILE
5020 DATA 0, 0, 0, 0, 0, 0, 0, 0
5030 DATA 0, 0, 0, 0, 0, 0, 0, 0
5040 DATA 0, 0, 0, 0, 0, 0, 0, 0
5050 DATA 0, 124, 0, 0, 56, 0, 0, 16
5060 DATA 0, 0, 16, 0, 0, 16, 0, 0
5070 DATA 16, 0, 0, 0, 0, 0, 0, 0
5080 DATA 0, 0, 0, 0, 0, 0, 0, 0
5090 DATA 0, 0, 0, 0, 0, 0, 0
5110 REM SPRITE SHIP
5120 DATA 0, 0, 0, 126, 60, 126, 62,24
5130 DATA 124, 30, 24, 120, 15, 24, 240,
 7
5140 DATA 153, 224, 1, 255, 128, 0, 255,
 0
5150 DATA 0, 255, 0, 127, 255, 254, 63,
255
5160 DATA 252, 63, 189, 252, 47, 255, 24
4, 39
5170 DATA 189, 228, 3, 255, 192, 1, 165,
 128
5180 DATA 0, 231, 0, 0, 102, 0, 0, 60
5190 DATA 0, 0, 24, 0, 0, 24, 0
```

```
5210 REM SPRITE SHIP EXPLODES
5220 DATA 34, 162, 73, 84, 20, 84, 42, 4
4
5230 DATA 84, 20, 129, 40, 74, 8, 160, 1
65
5240 DATA 17, 68, 16, 170, 130, 32, 85,
0
5250 DATA 4, 170, 0, 85, 85, 84, 0, 124
5260 DATA 4, 21, 21, 84, 40, 170, 160, 3
6
5270 DATA 161, 100, 0, 9, 66, 1, 36, 128
5280 DATA 42, 138, 84, 1, 36, 0, 0, 0
5290 DATA 72, 66, 128, 0, 8, 0, 16
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
7400 RETURN
7500 REM ******************************
```

```
8000 REM SOUND SUBROUTINES
9000 REM SHIP HIT
9010 POKEV+40,U0:POKEV+4,X:POKEV+5,Y
9020 IFPEEK(V+16)AND2THENPOKEV+16,6
9030 POKEUV,15:POKEUA,15:POKEUD,63:POKEU
H,7:POKEUL,20
9032 POKEUW,129
9035 FORK=0TO20:POKEV+40,U1:FORJ=1TO20:N
EXTJ
9040 POKEV+40,U0:FORJ=1TO20:NEXTJ,K
9050 POKEV+21,6
9060 FORJ=0TO200:NEXTJ
9070 POKEV+21,4
9080 FORJ=0TO200:NEXTJ:POKEV+21,0
9100 PRINTU0$;"■ D E S T R O Y E D"
9102 PRINT"■ YOU GOT AS FAR AS"
9105 PRINT"■"INT(E*10)/10;"LIGHT YEARS"
9110 PRINT"■ ANOTHER GAME? (Y/N)"
9120 GETA$:IFA$=""THEN9120
9130 IFA$="Y"THEN GOSUB9500:POKEUV,0:PRI
NT"  0K...":RUN
9140 IFA$="N"THEN PRINT"■THANKYOU FOR PL
AYING":END
9150 GOTO9120
9500 REM CANCEL SOUND FOR VOICE 1
9510 POKEUA,0:POKEUD,0:POKEUH,0:POKEUL,0
:POKEUW,0:RETURN
```

Flying Geese

It's time to don your tweeds, grease up your shotgun and head for the marshes. The geese are back from the north and the freezer is empty. Don't worry about the corpses — your faithful hound will deal with those after the game is over. Just blast away with your shooter and notch up a handsome tally.

```
10 REM FLYING GEESE
11 REM "■" = INSERT          ( IN )
12 REM "■" = CURSOR DOWN     ( CD )
13 REM "■" = CURSOR UP       ( CU )
14 REM "■" = CURSOR LEFT     ( CL )
15 REM "■" = CURSOR RIGHT    ( CR )
16 REM "■" = CLEAR SCREEN    ( CS )
17 REM "■" = CURSOR HOME     ( CH )
18 REM "■" = REVERSE ON      ( RO )
        "■" = REVERSE OFF    ( RF )
19 REM
20 POKE52,48:POKE56,48:CLR
22 AT$="■■■
```

```
55 REM IFG(X)>TNTHENPRINTLEFT$(AT$,H(X))
SPC(G(X)-O)"   ":G(X)=O
57 POKE2040+X,(PEEK(2040+X)-F):F=-F
60 NEXTX:IFSH>99THEN300
70 GOTO30
71 :
72 :
80 REM FIRE!
81 SH=SH+1:PRINT"■"SPC(5)SH
82 FORY=OTOTW
83 PP=PEEK(V+30):PP=PEEK(V+31)
84 PRINTLEFT$(AT$,SI+(DI=2))SPC(MI+DI-1)
SO$(DI):POKESO+4,129:NEXTY
85 PRINTLEFT$(AT$,SI+(DI=2))SPC(MI+DI-1)
"■ ■":POKESO+4,128:REM (RO)+SPACE+(RF)
87 Y1=(SI+(DI=2))*8+42:X1=(MI+DI-1)*8+24
88 POKEV+21,143
90 X2=3*(DI-2):FORY=Y1TO30STEP-8
91 X1=X1+X2:POKEV+14,X1*-(X1>0)+256*(X1>
255):POKEV+15,Y
92 POKEV+16,PEEK(V+16)AND(255+128*(X1<25
5))OR(128*-(X1>255))
93 ZZ=PEEK(V+31):IFY<200THENIF((PEEK(V+3
1)AND128)=128)THENPOKEV+21,15:GOTO99
94 PP=PEEK(V+30)
95 IF((PPAND128)=128)THENPP=PP-128:GOTO4
00
96 NEXTY
99 PRINTLEFT$(AT$,SI+(DI=2))SPC(MI+DI-1)
"■ ■":RETURN:REM (RO)+SPACE+(RF)
100 REM **** SCREEN SET-UP ****
101 POKE53265,PEEK(53265)OR64
103 SP$="■
          ■■■ ■"
104 REM (RO)+(39*SPACE)+(CL)+(IN)+SPACE+
(RF)
105 FORX=0TO3:H(X)=60+10*X:G(X)=((X+1)*5
)-4:NEXTX
107 PRINT"■SHOTS       ■A = FIRE       SC
ORE    "
110 PRINT"■■■
```

```
114 PRINTLEFT$(AT$,16)SPC(7)"''''''''":PR
INTLEFT$(AT$,17)SPC(7)"''''''''"
116 PRINTLEFT$(AT$,18)SPC(7)"''■ ■&■ ■''
"
118 PRINTLEFT$(AT$,19)SPC(10)"&":PRINTLE
FT$(AT$,20)SPC(10)"&";
130 REM PRINTLEFT$(AT$,21)SPC(18)MAN$(DI
)
140 POKEV,25:POKEV+2,50:POKEV+4,75:POKEV
+6,100
152 PRINTLEFT$(AT$,13)SPC(32)"''''":PRINT
LEFT$(AT$,14)SPC(31)"''''''"
154 PRINTLEFT$(AT$,15)SPC(30)"''''''''":P
RINTLEFT$(AT$,16)SPC(30)"''''''''"
156 PRINTLEFT$(AT$,17)SPC(30)"''■ ■&■ ■'
''"
158 PRINTLEFT$(AT$,18)SPC(33)"&":PRINTLE
FT$(AT$,19)SPC(33)"&";
165 GOTO30
166 :
299 REM ****      END OF GAME       ****
300 IFB>T0THENT0=B
310 FORT=1TO400:NEXTT:POKEV+21,0
320 PRINT"■":PRINTLEFT$(AT$,8)SPC(15)"GA
ME OVER"
330 PRINTSPC(8)"YOU SCORED "B" IN 100 SH
OTS"
340 PRINTSPC(10)"HIGHEST SCORE "T0
345 POKE198,0
350 PRINT"■■■■■■":INPUT" PRESS ■ RETURN ■
 FOR THE NEXT GAME ";X$
360 SH=0:B=0:POKEV+21,15:GOTO105
400 REM HIT!!!!
405 B=B+1:PRINT"■"SPC(37)B:G(X)=0+TW:H(X
)=0
410 IFPP=1THENXX=0
420 IFPP=2THENXX=2
430 IFPP=4THENXX=4
440 IFPP=8THENXX=6
450 POKEV+8,PEEK(V+XX):POKEV+9,PEEK(V+XX
+1):POKEV+21,31
455 POKEV+43,PEEK(V+39+(XX/2))
460 POKEV+XX,20:POKES0+11,33
470 FORQQ=PEEK(V+9)TO220STEP2
```

```
480 POKEV+9,QQ:POKESO+8,230-QQ:NEXTQQ
490 POKEV+21,15:POKESO+11,0
499 GOTO39
570 REM ****    INITIALIZATION      ****
580 POKE53281,3:PRINT"■":POKE53280,6:PO
KE53282,5:POKE53283,5
585 PRINT"■■■
```

```
1100 DATA128,70,47,23,26,23,31,7:REM MAN
 LEFT TOP
1110 DATA7,7,9,9,9,9,9,27:REM MAN LEFT L
EGS
1120 DATA0,0,0,8,8,8,8,8
1130 DATA8,14,15,15,26,23,31,7:REM MAN L
EFT TOP
1140 DATA85,42,20,42,20,0,8,8
1150 DATA66,8,33,132,32,138,32,5
7000 REM INITIAL SCREEN & INSTRUCTIONS
7010 PRINT"■":
7020 PRINT"     F L Y I N G  G E E S E
                                        "
7030 PRINT"■■ IT'S TIME TO DON YOUR TWEE
DS,";
7035 PRINT" GREASE UP YOUR SHOTGUN AND H
EAD FOR THE MARSHES."
7040 PRINT" THE GEESE ARE BACK FROM THE
NORTH AND    THE FREEZER IS EMPTY."
7050 PRINT"  DON'T WORRY ABOUT THE CORPS
ES";
7060 PRINT" - YOUR   FAITHFUL RETRIEVER
WILL DEAL";
7070 PRINT" WITH THEM AFTER THE GAME IS
OVER."
7080 PRINT" JUST BLAST AWAY SITH YOUR 12
-BORE AND    NOTCH UP A HANDSOME TALLY"
7100 PRINT"■  CONTROLS:-"
7110 PRINT"■ < = MOVE PLAYER TO THE LEFT
"
7120 PRINT"■ > = MOVE PLAYER TO THE RIGH
T"
7130 PRINT"■ A = FIRE THE SHOT GUN
7140 PRINT"■■  PRESS ANY KEY TO START T
HE GAME   "
7150 WAIT197,64:WAIT197,191
7200 RETURN
7999 GOTO7999
9000 REM READ SPRITE DATA
9010 FORT=0TO131:READA:POKE12864+T,A:NEX
TT
9020 FORT=0TO63:POKE64*200+T,0:NEXTT
9030 POKE12809,16:POKE12812,56:POKE12815
,16
```

```
9100 V=53248
9110 POKEV+39,0:POKEV+40,2:POKEV+41,6:PO
KEV+42,11:POKEV+43,0:POKEV+46,0
9120 POKE2040,201:POKE2041,201:POKE2042,
201:POKE2043,201:POKE2047,200
9130 POKEV+21,143:POKE2044,203
9140 SO=54272:FORT=0TO28:POKESO+T,0:NEXT
T
9150 POKESO+1,25:POKESO+5,9:POKESO+6,25:
POKESO+12,9:POKESO+13,240:POKESO+24,15
9999 GOTO15000
10000 REM SPRITE DATA
10010 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
10020 DATA2,0,0,6,0,0,7,48,0,7,104,0,127
,254,0,31,192,0,8,0,0,0,0,0,
10030 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0
10050 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
10060 DATA0,0,0,0,0,0,0,48,0,0,104,0,127
,254,0,31,192,0,15,0,0,3,0,0
10070 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,0,0,0
10100 DATA0,0,00,0,16,0,0,18,0,0,54,0,0,
118,0,0,62,0,0,60,0,0,60
10110 DATA0,0,48,0,0,56,0,0,28,0,0,20,0,
0,24,0,0,16,0,0,16,0,0,0
10120 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0
15000 FORT=0TO111
15005 READA:X=X+A
15010 POKE828+T,A
15015 NEXTT:POKE254,4
15020 IFX=13483THENSYS828:GOTO100
15025 PRINT"DATA ERROR IN LINES 15030-15
100"
15027 PRINT"PLEASE CHECK THESE LINES FOR
 A WRONG NUMBER"
15030 DATA120,173,20,3,133,251,173,21,3,
133,252,169,96,141,20
15040 DATA3,169,3,141,21,3,88,96
15050 DATA120,165,251,141,20,3,165,252,1
41,21,3,88,96,169,0
15060 DATA168,10,170,9,1,133,253,254,0,2
08,189,0,208,201,0
```

```
15070 DATA240,7,201,89,240,14,76,155,3,1
65,253,13,16,208,141
15080 DATA16,208,76,155,3,173,16,208,37,
253,240,246,169,255
15090 DATA229,253,45,16,208,141,16,208,1
69,20,157,0,208,200
15100 DATA196,254,240,8,6,253,152,10,170
,76,105,3,108,251,0,234
15200 REM CHECKSUM=  13483
```

Show Sign

This forces your computer to work for a living. When you don't want it to grapple with your tax problems, beat you at chess or zapp your lunar bases, then with the aid of this program you can make it display a message in large characters to alert passers-by (useful if shop window displays play a role in your life), or entertain party guests with ribald comments. You choose the message which can be up to fifty lines in length. You also have the facility to change the colour of letters and screen background colours.

```
10 REM SHOW-SIGN
20 GOSUB7000
25 GOSUB8000
100 POKE UG,U9:POKEUB,UF
110 PRINTU2$"                    SHOW-SIGN"
120 PRINTU4$;"THIS IS A MOVING SIGN DIS
PLAY FOR
130 PRINT"YOUR SHOP, OFFICE, PARTY OR HO
ME ETC."
140 PRINT"FIRSTLY SET THE SCREEN COLOUR
S AND"
150 PRINT"THEN TYPE IN YOUR MESSAGE. NO
LINE MAY"
160 PRINT"BE MORE THAN SIX CHARACTERS IN
 LENGTH."
170 PRINT"YOU MAY TYPE ANY ASCII CHARACT
ER FROM:"
180 PRINT"ASC(32) - A BLANK - TO..."
190 PRINT"ASC(94) - AN UPWARDS ARROW"
200 PRINT"THERE ARE 4 FUNCTION KEYS FOR
SPECIFIC"
210 PRINT"SHAPES FOR YOUR DISPLAY:"
220 PRINT"F 1  A SOLID BLOCK"
230 PRINT"F 3  A LINE"
240 PRINT"F 5  A ZIG-ZAG PATTERN"
250 PRINT"F 7  A DIAMOND"
260 PRINTUF$;"YOU MAY CHANGE COLOUR FOR
 ANY CHARACTER
270 PRINT"BY USING YOUR COMPUTER'S NORMA
L COLOUR"
```

```
280 PRINT"KEYS. YOU MAY ALSO DELETE MIST
AKES."
290 PRINT"NO OTHER KEYSTROKE WILL BE ACC
EPTED."
300 PRINT"WHEN FINISHED, TYPE 'RETURN'."
305 PRINTU6$;"■PRESS ANY KEY TO PROCEED■
"
310 GETA$:IFA$<>""THEN310
320 GETA$:IFA$=""THEN320
400 FORJ=1TO2:K=0
410 IFJ=2THEN430
420 PRINT"■SET BACKGROUND COLOUR BY PRES
SING THE"
422 L=UG
425 PRINT"SPACE BAR. WHEN FINISHED TYPE
RETURN"
427 GOTO440
430 PRINT"■■SET BORDER COLOUR BY PRESSIN
G THE"
432 L=UB
435 PRINT"SPACE BAR. WHEN FINISHED TYPE
RETURN"
440 GETA$:IFA$=""THEN440
445 IFASC(A$)=13THEN480
450 IFA$=" "THENK=K+1:IFK=16THENK=0
460 POKEL,K
470 GOTO440
480 NEXTJ
500 PRINTUF$;"■■NOW LET'S HAVE YOUR MESS
AGE..."
510 PRINT"■REMEMBER, NO LINE MAY BE MORE
 THAN
520 PRINT"SIX CHARACTERS IN LENGTH.
522 PRINT"TYPE 'INST/DEL ' KEY TO REDO L
INE"
525 PRINT"TYPE 'CLR/HOME' KEY FOR NEXT L
INE.
530 PRINT"TYPE 'RETURN' WHEN FINISHED.
532 PRINT"■■■123456"
535 Z=0:W=0:L=0:C$=UF$
540 PRINTC$;"●■";
550 GETA$:IFA$=""THEN550
555 A=ASC(A$)
560 IFA>31ANDA<95THEN650
```

```
565 IFA>132ANDA<137THEN600
570 IFA=13THENZ=1:GOTO640
572 IFA=20THEN610
574 IFA=13THEN640
575 FORJ=0TO15:IFA=C(J)THEN620
580 NEXTJ:GOTO550
600 REM SPECIAL FUNCTION KEY PRESSED
601 Q=A-38:A=A-132
602 N$(W,L)=CHR$(Q):CL$(W,L)=C$
603 ONAGOTO604,605,606,607
604 PRINTC$;"■ ■●■";:GOTO680
605 PRINTC$;"─●■";:GOTO680
606 PRINTC$;"▒●■";:GOTO680
607 PRINTC$;"◆●■";:GOTO680
610 REM DELETE A LINE
615 FORJ=0TO5:N$(W,J)="":CL$(W,J)="":NEX
TJ
616 L=0:PRINT:PRINT"□
    "
617 PRINTC$;"□●■";
618 GOTO550
620 REM COLOUR KEY PRESSED
625 C$=CHR$(C(J)):GOTO540
640 REM NEW LINE
642 N$(W,L)="  ":CL$(W,L)=C$:PRINT"  ";
644 L=L+1:IFL=6THENL=0:GOTO690
646 GOTO642
650 REM ACCEPT A CHARACTER
660 N$(W,L)=A$:CL$(W,L)=C$
665 IFASC(A$)=34THENA$="'"
670 PRINTC$;A$;"●■";
680 L=L+1:IFL=6THENL=0:GOTO690
685 GOTO550
690 PRINT"    ...LINE NUMBER"W+1
692 W=W+1:IFW=50THENPRINT"■■■MAX 50 LINE
S":GOTO700
693 IFZ=1THENW=W-1:GOTO700
694 GOTO540
700 REM PRINT OUT MOVING DISPLAY
710 PRINT
715 PRINT"■■■■■OK. NOW I SHALL DISPLAY Y
OUR MESSAGE
720 PRINT"SCROLLING UP THE SCREEN IN VER
Y LARGE
```

```
730 PRINT"CHARACTERS. THE MESSAGE WILL K
EEP ON
740 PRINT"REPEATING UNTIL YOU EITHER 'BR
EAK' THE
750 PRINT"PROGRAM OR TURN OFF THE COMPUT
ER!"
770 PRINT"■PRESS ANY KEY"
780 GETA$:IFA$=""THEN780
790 PRINT"■■■
```

```
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
7400 RETURN
7500 REM ******************************
8000 REM INITIAL DATA
8001 REM N$(50,5) ARE THE INPUT LINES
8002 REM CL$(50,5) ARE THE CHARACTER COL
OURS
8004 REM L(X,Y) ARE THE CHARACTER LINES
8005 REM WHERE X IS THE CHARACTER NUMBER
8006 REM WHERE Y ARE THE HORIZONTAL LINE
S FROM 0 TO 4
8007 REM P$(X) ARE THE HORIZONTAL PRINT
LINES
8008 DIM P$(24),L(66,4),N$(50,5),CL$(50,
5)
8010 FORJ=0TO24:READ P$(J):NEXTJ
8020 DATA "▚     ▀","▀     ▀","▚ ▀    ",
"▀    ▚ ▀"
8030 DATA "▚ ▀   ","▀ ▚   ▀","▚   ▀  "
,"▀   ▚ ▀"
8040 DATA "▀ ▚ ▀   ","▀ ▚ ▀  ","▀   ▚ ▀
 "
8050 DATA "▚ ▀ ▚ ▀ ▚ ▀","▚    ▀ ","▀ ▚
  ▀"
8060 DATA "▀ ▚ ▀ ▚ ▀ ","▚ ▀ ▚ ▀  ","▀  ▚
 ▀ ▚ ▀"
8070 DATA "▚ ▀   ▚ ▀","▚ ▀  ▚ ▀ ","▀ ▚ ▀
  ▚ ▀"
8080 DATA "▀ ▚   ▀ ","▀  ▚  ▀ ","▀ ▚  ▀
 "
8090 DATA "▚ ▀  ▚  ▀","▚  ▀  ▚ ▀"
8095 REM CHARACTER LINES DATA
8097 FORM=0TO66:FORN=0TO4
8098 READ L(M,N):NEXTN,M
8100 DATA 1,1,1,1,1
8110 DATA 9,9,9,1,9
```

```
8120 DATA 1,14,1,1,1
8130 DATA 14,0,14,0,14
8140 DATA 0,15,0,16,0
8150 DATA 17,10,9,8,17
8160 DATA 4,7,5,13,0
8170 DATA 1,9,1,1,1
8180 DATA 9,8,8,8,9
8190 DATA 9,10,10,10,9
8200 DATA 1,14,9,14,1
8210 DATA 1,9,20,9,1
8220 DATA 1,1,1,10,9
8230 DATA 1,1,20,1,1
8240 DATA 1,1,1,21,21
8250 DATA 3,10,9,8,2
8260 DATA 0,17,17,17,0
8270 DATA 9,22,9,9,9
8280 DATA 0,3,0,2,0
8290 DATA 0,3,12,3,0
8300 DATA 2,15,12,9,9
8310 DATA 0,2,0,3,0
8320 DATA 0,2,0,17,0
8330 DATA 0,10,9,8,2
8340 DATA 0,17,0,17,0
8350 DATA 0,17,0,3,3
8360 DATA 1,9,1,9,1
8370 DATA 1,9,1,9,8
8380 DATA 10,9,8,9,10
8390 DATA 1,20,1,20,1
8400 DATA 8,9,10,9,8
8410 DATA 12,18,21,1,9
8420 DATA 0,17,11,16,5
8430 DATA 0,17,0,17,17
8440 DATA 0,17,12,17,0
8450 DATA 0,2,2,2,0
8460 DATA 12,17,17,17,12
8470 DATA 0,2,0,2,0
8480 DATA 0,2,12,2,2
8490 DATA 0,2,23,17,0
8500 DATA 17,17,0,17,17
8510 DATA 20,9,9,9,20
8520 DATA 20,9,9,9,22
8530 DATA 17,18,6,18,17
8540 DATA 2,2,2,2,0
8550 DATA 0,11,11,17,17
```

```
8560 DATA 17,24,11,23,17
8570 DATA 20,17,17,17,20
8580 DATA 0,17,0,2,2
8590 DATA 20,17,17,23,13
8600 DATA 0,17,0,18,18
8610 DATA 13,2,0,3,12
8620 DATA 0,9,9,9,9
8630 DATA 17,17,17,17,0
8640 DATA 17,17,17,14,9
8650 DATA 17,11,11,11,0
8660 DATA 17,14,9,14,17
8670 DATA 17,14,9,9,9
8680 DATA 0,10,9,8,0
8690 DATA 5,9,9,9,5
8700 DATA 13,8,6,8,0
8710 DATA 6,9,9,9,6
8720 DATA 9,20,11,9,9
8730 REM END OF ASCII CHARACTERS
8790 REM START OF SPECIAL FUNCTION CHARA
CTERS
8800 REM SOLID BLOCK
8805 DATA 0,0,0,0,0
8810 REM LINE
8815 DATA 1,1,0,1,1
8820 REM ZIG ZAG
8825 DATA 11,14,11,14,11
8830 REM DIAMOND
8835 DATA 9,20,0,20,9
8900 REM COLOUR KEY PRESSED CHECK
8910 DIM C(15)
8920 FORM=0TO15:READC(M):NEXTM
8930 DATA 144,5,28,159,156,30,31,158,129
,149,150,151
8940 DATA 152,153,154,155
8990 RETURN
```

Invaders

How could we write a Bumper Book of programs without including the classic Invaders game ? Well, here it is complete with shields and Mothership and a screen full of the dreaded Aliens.

```
1 REM         *** INVASION ***
3 REM ***BY PAUL ROPER (C) 1983  ***
4 REM *                          *
5 REM * 20,RECTORY CLOSE,        *
6 REM *  ALVERSTOKE,             *
7 REM *   GOSPORT.               *
8 REM ****************************
9 GOTO9000
10 GOSUB1000:PRINT"■"
11 FORA=55296TO56296:POKEA,0:NEXT
12 DEF FNK(X)=X-1023-INT((X-1024)/40)*40
13 POKE49408,0:SC=0:DL=.9:LV=3
20 REM MAIN LOOP
30 GOSUB2000:IFLSTHENLV=1:GOTO7000
40 GOSUB6000
50 B=1145+INT(37*RND(1)+1):IFRND(0)>DLTH
ENPOKEB,36
51 SYS49219:IFPEEK(49408)>252THEN7000
52 GOSUB6000
55 IFQ=60THEN7500
70 GOSUB5000
80 GOSUB6000
85 SYS49219
90 GOTO20
1000 I$(4)="◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜ ◜"
1010 I$(2)="♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥"
1020 I$(3)="| | | | | | | | | | | | |"
1030 I$(1)="_ _ _ _ _ _ _ _ _ _ _ _ _"
1040 I$(0)="● ● ● ● ● ● ● ● ● ● ● ● ●"
1050 FORI=0TO4:I(I)=1:T(I)=12:NEXT:Q=0
1052 C(0)=144:C(1)=158:C(2)=5:C(3)=30:C(
4)=158
1060 P$="■■■■■■■"
1065 V$="■■■■■■■
```

```
1066 C=0:LS=0:O=0
1067 FORA=0TO4:R(A)=0:NEXT
1070 Z$="
          "
1080 G=21:G$="
1090 A$="
1500 RETURN
2000 REM MOVE INVADERS ON
2005 IFQ=60THENRETURN
2010 R=R+1:IFR=5THENR=0:C=C+V:IFC=0 OR C
=12THENGOSUB3000:V=-V
2020 IFI(R)=0THEN2010
2025 R(R)=R(R)+V:IFR+O=16THENLS=1
2030 PRINTP$LEFT$(V$,R+O)Z$
2040 PRINTP$LEFT$(V$,R+O)TAB(R(R))CHR$(C
(R))I$(R)
2050 RETURN
3000 REM MARCH DOWN
3010 FORI=0TO4:IFI(I)THENPRINTP$LEFT$(V$
,I+O)Z$
3020 NEXT:O=O+1:RETURN
5000 REM MOVE GUN
5010 K=PEEK(197):REM IFK=64THENRETURN
5011 IFK=60ANDM=0THENM=1705+G:POKEM,30:R
ETURN
5015 PRINTG$TAB(G)"        "
5020 IFK=47ANDG>1THENG=G-1
5030 IFK=44ANDG<30THENG=G+1
5040 PRINTTAB(G)A$:RETURN
6000 REM MISSILE
6001 IFM=0THENRETURN
6005 IFM<1144THENPOKEM,32:M=0:RETURN
6010 IFPEEK(M)<>30 THEN6030
6020 POKEM,32:M=M-40:IFPEEK(M)=32THENPOK
EM,30:RETURN
6030 IFPEEK(M)=36THENPOKEM,32:M=0:RETURN
6031 IFPEEK(M)=37THENPOKEM,32:M=0:RETURN
6035 IFPEEK(M)=32THEN6020
6040 IF PEEK(M)=160THENPOKEM,32:M=0:RETU
RN
6050 K=FNK(M):H=PEEK(M)-81:T(H)=T(H)-1:Q
=Q+1:IFT(H)=0THENI(H)=0
6055 K=K-R(H):SC=SC+INT((5-H)*10/DL):GOS
UB9600
```

```
6056 PRINT"■SCORE:"SC;"      ";:FORN=1TOL
V:PRINT"■■■┘■       ■■■■■■";:NEXT
6057 IFK=0THENI$(H)="  "+RIGHT$(I$(H),21
):POKEM,36:M=0:RETURN
6058 IFK=23THENI$(H)=LEFT$(I$(H),22)+" "
:POKEM,36:M=0:RETURN
6060 I$(H)=LEFT$(I$(H),K-1)+" "+RIGHT$(I
$(H),23-K):POKEM,36:M=0:RETURN
7000 REM DEATH
7010 REM SOUND
7020 GOSUB3600
7030 FORN=1TO3000:NEXT
7200 LV=LV-1:IFLV<1THEN7300
7202 PRINT"■"Z$
7205 POKE49408,0
7210 GOTO20
7300 PRINT"■■■■■■■■■■■■GAME OVER I - WIN
."
7310 PRINT"■■PRESS SPACE TO TRY AGAIN"
7315 WAIT197,64:POKE198,0
7320 GETA$:IFA$<>" "THEN7320
7330 RUN10
7500 REM NEW FLEET!
7550 GOSUB1000:Q=0:LS=0:PRINT"■"
7560 FORA=55296TO56295:POKEA,0:NEXT
7570 DL=DL/1.2:LV=LV+1:GOTO20
9000 REM SET UP UDGS
9001 PRINT"■■■■■■■■■■■■THE INVADERS ARE
COMING......."
9002 PRINT"■■■■■■■■___  OO●●● ,,,  ♥♥ ♥♥
|||  "
9003 PRINT"■■■DEFEND AT YOUR PERIL ■■■"
9004 PRINT"■■■■■■■■■■┘"
9005 PRINT"■ ',' - LEFT  '.' - RIGHT"
9006 PRINT"■■SPACEBAR - FIRE!"
9031 POKE52,48:POKE56,48:CLR
9032 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251
9033 FORI=0TO512:POKE12288+I,PEEK(53248+
I):NEXT
9034 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1
9035 POKE53272,(PEEK(53272)AND240)+12
9040 READ L:IFL=-1THEN10000
```

```
9050 FORA=0TO7:READD:POKE12288+L*8+A,D:N
EXT:GOTO9040
9060 DATA81,60,66,129,195,126,36,66,129
9070 DATA82,60,66,129,195,126,36,66,129
9080 DATA83,24,24,102,129,189,90,60,231
9090 DATA84,24,36,36,60,126,126,255,153
9100 DATA85,165,165,183,126,60,90,195,19
5
9110 DATA 255,0,0,0,7,7,15,255,255
9120 DATA 254,24,24,60,255,255,255,255,2
55
9130 DATA 253,0,0,0,224,224,240,255,255
9140 DATA 30,24,24,24,24,60,60,60,126
9150 DATA 36,255,60,24,60,102,195,165,66
9160 DATA 37,255,60,24,24,24,60,60,60
9600 POKE54276,128:POKE54296,0
9605 POKE54277,59:POKE54278,13:POKE54296
,15:POKE54273,30:POKE54272,30
9610 POKE54276,129:RETURN
9999 DATA-1
10000 REM BOMB ROUTINE
10010 DATAA2,00,A9,00,95,FB,A9,04,95,FC
10020 DATAE6,FB,D0,02,E6,FC,A5,FB,C9,70
10030 DATAD0,07,B5,FC,C9,07,D0,01,60
10040 DATAA1,FB,C9,24,D0,E7,A9,20,81,FB
10050 DATA18,A5,FB,69,28,85,FD,A5,FC
10060 DATA69,00,85,FE,A1,FD,0D,00,C1,8D,
00,C1,A9,25,81,FD
10071 DATA18,90,C7,AE,3D,C0,AD,20,C0,8D,
3D,C0,8E,20,C0,20,00,C0,60,*
10080 S9=49152
10090 READA$:IFA$="*"THEN10
10100 L$=LEFT$(A$,1):H$=RIGHT$(A$,1)
10110 L=VAL(L$):H=VAL(H$)
10120 IFASC(L$)>64THENL=ASC(L$)-55
10130 IFASC(H$)>64THENH=ASC(H$)-55
10140 POKES9,L*16+H:S9=S9+1:GOTO10090
```

Roots

You are about to see your infallible micro make an unbelievably simple mistake — that even a four year old child would spot!

Computers are happiest in Binary arithmetic but would probably settle for Hexadecimal as a compromise — but if we humans insist that micros communicate with us in the Decimal system then we have only ourselves to blame if the computer seems to get it wrong occasionally.

```
10 REM ** ** ROOTS (C)1983 MICHAEL BEWS
12 REM CONVERTED 11-8-83 RICHARD PARRATT
14 POKE52,48:POKE56,48:CLR
15 POKE53280,4:POKE53281,6:PRINTCHR$(5)
20 GOSUB 1500
50 PRINTCHR$(142):POKE56334,PEEK(56334)A
ND254
52 POKE1,PEEK(1)AND251:FOR I=0 TO 2047:P
OKEI+12288,PEEK(I+53248):NEXT
54 POKE1,PEEK(1)OR4:POKE56334,PEEK(56334
)OR1
55 POKE53272,(PEEK(53272)AND240)+12
56 FOR X=1 TO 9:FOR Y=0 TO 7:READ A:POKE
12800+X*8+Y,A
57 NA=NOT(A)
58 IF NA<0 THEN NA=256+NA
59 POKE 13824+X*8+Y,NA:NEXT Y:NEXT X
100 PRINT"■■     R O O T S  (C)1983 MICH
AEL BEWS"
105 PRINT"    CONVERTED 1983 RICHARD PAR
RATT"
107 PRINT
110 PRINT"■THIS PROGRAM CALCULATES ROOTS
 USING BOTHTHE INTERNAL '↑'FUNCTION IN";
112 PRINT" THE COMPUTER ROM AND THE NEWT
ON/RAPHSON REITERATIVE APPROXIMATION.";
113 PRINT"■                              ";
115 PRINT"■":PRINT"■     ■■  WHEN IS A
'5' NOT A '5' ?? "
120 PRINT"■■THE PROGRAM WILL DEMONSTRATE
```

```
 ONE OF THE  PROBLEMS FACED BY YOUR ";
125 PRINT"COMPUTER WHEN IT TRIES TO";
130 PRINT" CONVERT THE RESULT OF IT'S
 BINARY SYSTEM CALCULATIONS INTO DECIMAL
";
135 PRINT" FOR DISPLAY ON THE SCREEN.
          "
140 PRINT"■ALTHOUGH WE WOULD NEED TO EMP
LOY MACHINE CODE METHODS TO ACTUALLY ";
145 PRINT"SEE THE 'BIT' DIFFERENCE BETWE
EN TWO SEEMINGLY         IDENTICAL";
147 PRINT" NUMBERS WE CAN";
150 PRINT" SHOW YOU THE    'IMPOSSIBLE' A
S YOUR COMPUTER 'FAILS' TO RECOGNISE";
155 PRINT" THE NUMBER FOR WHICH IT IS";
157 PRINT"     SEARCHING!
            "
160 PRINT"            ■PRESS <RETURN>   ";
162 GET X$:IF X$<>CHR$(13) THEN 162
170 PRINT"■■      R O O T S   (C)1983 MICH
AEL BEWS"
175 PRINT:PRINT"■      ANY ROOT CAN BE CA
LCULATED BY";
177 PRINT"             REITERATIVE APPROXI
MATION           "
180 PRINT"■    ─ * ┌ ____─____ + G(R-1)  ┐
            ";
181 PRINT"■    R    └  G─| |╲─             ┘
            ";
185 PRINT"■■──────────────────────────────
──────────";
187 PRINT"■■             WHERE N=ORIGINAL
NUMBER       ";
188 PRINT"                    R=ROOT NUMBER
 REQUIRED ";
189 PRINT"                    G=ANY NUMBER
          ";
190 PRINT"                    A=APPROXIMATI
ON TO ♠N   ";
191 PRINT"                    PRODUCED BY T
HE FORMULA";
192 PRINT"■■──────────────────────────────
──────────"
193 PRINT"■■IF A<>G THEN WE LET G=A AND
```

```
REPEATEDLY  APPLY THE FORMULA";
194 PRINT" MAKING G EQUAL TO THE PRECEDI
NG VALUE OF 'A' UNTIL A=G          ";
195 PRINT"              AT THIS POINT
A=♠N        "
196 PRINT"■■                PRESS <RETURN>"
197 GET X$:IF X$<>CHR$(13) THEN 197
200 PRINT"■■      R O O T S   (C)1983 MICH
AEL BEWS"
201 PRINT:PRINT"■    ─ * ┌ ____─____ + G(R-
1)  ┐               ";
202 PRINT"■    R     └  G─| |╲─              ┘
            ";
204 PRINT"■■──────────────────────────────
──────────";
206 PRINT:PRINT"■■         EXAMPLE TO FIND
|♠16"
208 PRINT"■■          ──────────────────────────"
210 PRINT"■■ LET G=3 (A REASONABLE GUESS
 AS         ";:G=3:N=16
212 PRINT"         |♠16=4 AS YOU KNOW)
              ";
225 GOSUB230
227 GOTO 235
230 LET A=(N/G+G)/2:RETURN
235 PRINT"■■╲G=";G;TAB(16);"GIVES A=";A:
GOSUB 1100
237 PRINT
240 PRINT"        ■■WE NOW LET G=";A;"
242 PRINT"        ■■AND TRY THE FORMULA AG
AIN"
243 PRINT
245 G=A:GOSUB230
250 PRINT"■╲G=";G;TAB(16);"GIVES A=";A:G
OSUB 1100
260 IF A=G THEN GOTO 280
270 GOTO 245
280 PRINT:PRINT"            ■■THEREFORE ♠16
 = ";A:GOSUB 1100
290 PRINT:PRINT"■     LOOK AT THIS EXAMPL
E CAREFULLY"
291 PRINT"■     AND THEN PRESS <RETURN>"
292 GET X$:IF X$<>CHR$(13) THEN 292
300 PRINT"■■      R O O T S   (C)1983 MICH
```

```
AEL BEWS"
305 PRINT:PRINT"■   — * ┌ ____—____ + G(R-
1) ┐              ";
306 PRINT"■   R   └  G—| |╲—              ┘
          ";
307 PRINT"■■———————————————————————————
————————————";
320 PRINT"■          EXAMPLE TO FIND |♠25
"
325 PRINT"■■           ————————————————————
—"
330 PRINT"■■LET G=3 AGAIN(|♠25=5 AS WE K
NOW)          "
340 LET G=3:N=25:GOSUB230
350 PRINT"◣";:GOSUB 1100:PRINT"□■G=";G;T
AB(16);"GIVES A=";A
360 PRINT"■■■■■■■■■■■■WE NOW LET G=";A:PR
INT"          ■■AND TRY THE FORMULA AGAIN"
365 LET LI =PEEK(214)
370 LET G=A:GOSUB 230
380 PRINT"■◣G=";G;TAB(16);"GIVES A=";A:G
OSUB 1100
390 IF A=G THEN GOTO 400
395 GOTO 370
400 PRINT:PRINT"          ■■THEREFORE ♠25
 = ";A:GOSUB 1100
405 PRINT "YOUR COMPUTER ■■FAILED■■ TO S
TOP ON THE 1ST"
406 PRINT"              ■G=5 GIVES A=5■"
407 PRINT"BECAUSE G DOES NOT EQUAL ■■PRE
CISELY■■ 5!!"
410 PRINT:PRINT"■    ENTER ■■'R'■■ TO RE
PEAT EXAMPLES"
412 PRINT"■  OR JUST ■■<RETURN>■■ TO TRY
 YOUR OWN";
414 GET X$:IF X$="R" THEN GOTO 200
416 IF X$<>CHR$(13) THEN 414
440 PRINT"■■     R O O T S  (C)1983 MICH
AEL BEWS"
500 PRINT:INPUT "■■ENTER NUMBER (N): ■■>0
 AND <1000000■";N$
510 IF N$="" THEN GOTO440
515 FOR X=1 TO LEN(N$):XD=ASC(MID$(N$,X,
1)):IF XD<ASC("0") OR XD>ASC("9")THEN440
```

```
520 NEXT X
530 LET N=VAL(N$): IF N<.01 OR N>1000000
 GOTO 440
550 PRINT"■■■■■ENTER NUMBER OF THE DESIR
ED ROOT    "
560 INPUT "■ROOT (>1 AND <100) ■";R$
570 IF R$<>"" THEN 580
575 PRINT"□
          ":GOTO 550
580 FOR X=1 TO LEN(R$):XD=ASC(MID$(R$,X,
1)):IF XD<ASC("0") OR XD>ASC("9")THEN575
590 NEXT X
600 LET R=VAL (R$):IF R<2 OR R>99 THEN G
OTO 575
610 LET G=2*(N↑(1/R)):LET X=1
650 LET A=(N/G↑(R-1)+G*(R-1))/R
660 PRINT "■■■■■■■■■■";X;">  A=";A
670 IF ABS(A-G)<.0001 THEN GOTO 700
680 LET X=X+1:LET G=A:GOTO 650
700 PRINT:PRINT"■ THE";R;"ROOT OF";N;"IS
";TAB(19);A:GOSUB1100
720 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
      ENTER ■■'Q'■■TO QUIT"
730 PRINT"        OR ■■<RETURN>■■ TO TRY
AGAIN";
735 GET X$:IF X$="" THEN 735
740 IF X$="Q" THEN PRINT"■■■":POKE53272,
(PEEK(53272)AND240)+5:END
750 GOTO 440
1000 DATA 31,24,24,24,216,112,96,0
1010 DATA 112,216,48,96,248,0,0,0,102,11
8,126,126,110,102,0,255
1020 DATA 24,56,24,24,24,60,0,255
1028 DATA 48,96,96,96,48,0,0,0,12,6,6,6,
12,0,0,0
1030 DATA 0,88,108,64,64,0,0,0
1040 DATA 0,0,60,0,0,0,0,0,48,112,48,48,
120,0,0,0
1099 GOTO 1099
1100 SL=984+40*PEEK(214):SC=55256+40*PEE
K(214):FOR J=0 TO 39:POKESC+J,PEEK(646)
1110 IF PEEK(SL+J)=32 THEN POKESL+J,160
1120 NEXT J
1130 RETURN
```

```
1500 PRINT"■J     R O O T S  (C)1983 MIC
HAEL BEWS"
1510 PRINT"■■■■■■■■■■    ■■■♠♠♠♠♠♠♠♠♠♠♠♠♠♠
♠♠♠♠♠♠"
1520 FOR QQ=1 TO 4:PRINT"          ♠♠
            ♠♠":NEXT QQ
1530 PRINT"          ♠♠  PLEASE WAIT   ♠
♠"
1540 FOR QQ=1 TO 4:PRINT"          ♠♠
            ♠♠":NEXT QQ
1550 PRINT"          ♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠♠
♠"
1560 RETURN
```

Anagrammatic

This is a simple anagram jumbler. There are few things more infuriating than staring blankly at crossword cluse, unable to de-jumble the letters. This little program will hopefully get the old brain ticking again with some fresh ideas on how to unscramble the problem.

```
10 REM ANAGRAMMATIC......WALWYN
15 REM SIMPLE ANAGRAM SOLVER
20 GOSUB63900
30 POKEUG,UF:POKEUB,U2
35 PRINTU3$;
40 PRINT"■ANAGRAMMATIC"
45 PRINTU7$;
50 PRINT"■IF YOU ARE A CROSSWORD ADDICT,
 THEN
60 PRINT"YOU WILL KNOW THE PROBLEMS OF T
RYING TO
65 PRINT"RE-ARRANGE LETTERS.
70 PRINT"■FOLLOW THE INSTRUCTIONS AND TH
EN
75 PRINT"SIT BACK AND WATCH THE SCREEN A
S EVERY
80 PRINT"POSSIBLE COMBINATION RUNS UP BE
FORE
85 PRINT"YOUR VERY EYES. THE AIM IS NOT
TO LOOK
90 PRINT"AT EVERY WORD-GROUP, BUT SIMPLY
 TO
95 PRINT"GLANCE AT THE SCREEN OCCASIONAL
LY AND
100 PRINT"YOU MAY WELL GET INSPIRATION.
102 PRINT"■ALTERNATIVELY, PUT IN A PRINT
ER
103 PRINT"SUBROUTINE IF YOU HAVE AN OUTP
UT FOR
104 PRINT"'HARD-COPY'."
105 PRINT"■■PRESS ANY KEY TO START"
106 GETA$:IFA$=""THEN106
110 PRINT"■"U9$;TAB(4);"■■■■■■■A N A G R A
 M A T I C■■■■■■■■■"
```

```
130 PRINT"■■■TYPE ONLY THE LETTERS TO BE
 REARRANGED."
144 INPUT "■";A$
150 PRINT
160 L=LEN(A$)
170 PRINT"ARE ANY LETTERS/SPACES KNOWN?
(Y/N)
180 GET Z$:IF Z$="" THEN 180
190 IF Z$="N" THEN 240
200 PRINT"■TYPE IN THE KNOWN ORDER AS PE
R EXAMPLE.
205 PRINT"■E.G.    '---D-F- -EE'"
206 INPUT"■";K$:W=L
210 T=0:FOR J=1TOLEN(K$):IF MID$(K$,J,1)
="-" THEN T=T+1
220 NEXT J:IF T<>L THEN GOSUB1000:GOTO20
0
230 GOTO270
240 K$="":FOR J=1TOL:K$=K$+"-":NEXT J
250 INPUT"■NUMBER OF LETTERS TO BEGIN";W
260 IF W<1 OR W>L OR W<>INT(W) THEN GOSU
B1000:GOTO250
270 DIM B$(L),C$(L),Q(L)
280 PRINT"──────────────────────────────
──────────"
290 GOSUB500
300 FOR J=W TO L
310 K=1
320 Q(K)=1
330 IF B$(Q(K))="" THEN 440
340 C$(K)=B$(Q(K)):B$(Q(K))=""
350 K=K+1
360 IF K<=J THEN 320
370 A=1
380 FOR S=1TOLEN(K$)
390 IF MID$(K$,S,1)="-" THEN PRINT C$(A)
;:A=A+1:GOTO410
400 PRINT MID$(K$,S,1);
410 NEXT S:PRINT,
420 K=J
430 B$(Q(K))=MID$(A$,Q(K),1)
440 Q(K)=Q(K)+1
450 IF Q(K)<=L THEN 330
460 K=K-1
```

```
470 IF K>=1 THEN 430
480 NEXT J
490 PRINT"■■THAT'S ALL THE POSSIBLE ANAG
RAMS WRITTEN"
495 PRINT"■TYPE 'RUN' AND RETURN FOR ANO
THER GO...":END
500 FOR N=1TOL
510 B$(N)=MID$(A$,N,1)
520 NEXT N
530 RETURN
1000 PRINT"■■E R R O R !     PLEASE REDO
.............":RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
="":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Biorhythms

The theory of biorhythms assumes that the physical, emotional and intellectual capacities of an individual are subject to regular cycles of 23, 28 and 33 days respectively. During each cycle the curve will increase to a high point, then sink below the median value, tracing out a sine wave. These cycles commence at birth, and progress at different rates, producing crossovers, considered to signify 'critical' periods (days when the individual is more prone to accident or error of judgment) when the crossover is one involving the low values of the curves. Especially crucial are those days when all three curves meet. Positive high values at crossovers have a good effect.

The program calculates the cycles from the day of birth, and displays a graph of the curves for a period of one month from the chosen date.

```
10 REM ***BIORYTHMS
20 REM ***BY ROBERT ERSKINE***
25 GOSUB9000
30 PRINT"■■BIORYTHMS■■"
35 INPUT"YOU NAME PLEASE";N$
40 PRINT"■THIS PROGRAM WILL COMPUTE YOUR
 PRESENT"
50 PRINT"STATES OF YOUR PHYSICAL,EMOTION
AL AND"
60 PRINT"INTELLECTUAL CYCLES.PLEASE ENTE
R YOUR"
70 PRINT"DATE OF BIRTH AND THE DATE TODA
Y.■■"
80 INPUT"WHAT YEAR WERE YOU BORN";YB:YB=
INT(YB)
90 INPUT"WHAT MONTH (NUMBER)";MB:IFMB<10
RMB>12THEN90
100 INPUT"WHAT DAY IN THE MONTH";DB:IFDB
<1ORDB>M(MB)-M(MB-1)THEN100
110 INPUT"WHAT IS THE YEAR TODAY";TY:IFT
Y<YBTHEN110
120 INPUT"THE PRESENT MONTH";TM:IFTM<1OR
TM>12THEN120
130 INPUT"THE DAY TODAY";TD:IFTD<1ORTD>M
(TM)-M(TM-1)THEN130
```

```
140 PRINT"■■■GREAT.NOW I'LL WORK OUT YOU
R BIORYTHMS."
150 FORT=1TO3000:NEXT
160 T=(YB-1)*365.25
170 T2=(TY-1)*365.25
180 IFMB>1THENT=T+M(MB-1)
190 IFTM>1THENT2=T2+M(TM-1)
200 IFMB>2 AND YB/4=INT(YB/4) THEN T=T+1
:REM LEAP YEAR
210 IF TM>2 AND TY/4=INT(TY/4) THEN T2=T
2+1:REM LEAP YEAR
220 T=T+DB:T2=T2+TD
330 D=T2-T
340 IF TM=MB AND TD=DB THEN GOSUB5000
350 PRINT"■BIORYTHMS FOR "N$:PRINT"DATE:
"TD"/"TM"/"TY
360 PRINT"●-PHYSICAL o-EMOTIONAL *-INTEL
LECTUAL"
365 PRINT"■←TODAY.EVERY POINT SHOWS THE
NEXT DAY"
370 PRINT"■■■■■■■■■■----------------------
----------"
500 P=D-(INT(D/23)*23)
510 E=D-(INT(D/28)*28)
520 I=D-(INT(D/33)*33)
530 FORL=1TO3:O=D-1
540 FORA=0TO33
550 O=O+1:IFO=P(L)THENO=0
560 Y=INT(10*SIN(O*2*π/P(L))):SP=1544-Y*
40+A
570 POKESP,C(L):POKE54272+SP,0
580 NEXTA,L
590 PRINT"■■■■■■■■■PRESS SPACE FOR ANOTH
ER ANALYSIS";
600 GETA$:IFA$<>" "THEN600
700 RUN
999 END
5000 REM PLAY 'HAPPY BIRTHDAY'
5005 PRINT"■HAPPY ■BIRTHDAY "A$"!"
5010 S=54272:FORL=0TO24:POKES+L,0:NEXT:P
OKES+5,9:POKES+6,0:POKES+12,72
5015 POKES+13,0
5020 POKES+24,15
```

```
5030 READH,L,DR:IFH=-1THENFORT=1TO3000:P
OKE54296,0:RETURN
5031 W=(H*256+L)/2:E=INT(W/256):R=W-E*25
6
5040 POKES+7,R:POKES+8,E:POKES+1,H:POKES
,L:POKES+4,17:POKES+11,17
5050 FORT=1TODR/3:NEXT:POKES+4,16:POKES+
11,16
5060 FORT=1TO80:NEXT:GOTO5030
5070 REM TUNE DATA FOLLOWS
9000 REM SETUP
9010 DATA31,59,90,120,151,181,212,243,27
3,304,334,365
9020 DIM M(12)
9030 FORA=1TO12:READM(A):NEXT
9040 C(1)=81:C(2)=87:C(3)=42
9050 P(1)=23:P(2)=28:P(3)=33
9060 RETURN
9070 REM TUNE DATA FOLLOWS
9080 DATA35,75,500,35,75,250,38,126,1000
,35,75,1000,45,138,1000,43,52,2000
9090 DATA35,75,500,35,75,250,38,126,1000
,35,75,1000,51,97,1000,45,198,2000
9100 DATA35,75,500,35,75,250,68,149,1000
,57,172,1000,45,198,1000
9110 DATA43,52,1000,38,126,3500
9120 DATA61,126,500,61,126,250,57,172,10
00,45,198,1000,51,97,1000,45,138,3000
9130 DATA-1,-1,-1
```

Bulls and Cows

Choosing a four digit number, the computer will respond to your guesses (or deductions, we hope) by displaying a bull when you get a correct digit in the right place, and a cow when a number you input also occurs in the computers' number, but not in the same place. You should note that the computer number can have the same digit repeated.

You can choose the number of guesses you're allowed, making it more difficult for yourself as you get more practiced.

```
0 REM***64 VERSION***
1 REM BULLS AND COWS BY ROBERT ERSKINE ,
ADAPTED BY DAVID BUCK
5 PRINT"■■■ETTING UP..."
6 POKE 52,48:POKE 56,48:CLR
7 POKE 53281,6:POKE 53280,14
10 GOSUB 9000
15 DIM A(4),H(4),J(4),N(4)
20 GOSUB 8000
26 FOR X=1 TO 4
100 R=RND(-TI):INPUT" |OW MANY GUESSES DO
 YOU WANT";T
110 GOSUB 1000
120 PRINT "┐ HAVE CHOSEN A NUMBER":FOR A
=1 TO 1000:NEXT A
130 GOSUB 2000
135 FOR Q=1 TO T
140 INPUT "ENTER YOUR GUESS NOW (4 DIGIT
S)";G
150 GOSUB 200
160 GOSUB 3000
170 IF BLACK<4 THEN NEXT Q
180 FOR A=1 TO 1000:NEXT A:GOSUB 4000
190 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■PRESS A
NY KEY TO RESTART"
195 GET A$:IF A$="" THEN 195
196 GOTO 100
200 LET BLACK=0:LET WHITE=0
205 FOR R=1 TO 4:LET A(R)=0:LET H(R)=0:L
ET J(R)=0:NEXT R
```

```
210 LET G$=MID$(STR$(G),2)
215 FOR X=1 TO 4
216 LET A(X)=VAL(MID$(G$,X,1))
217 NEXT X
220 FOR X=1 TO 4
230 IF A(X)=N(X) THEN LET BLACK=BLACK+1:
LET H(X)=1:LET J(X)=1
240 NEXT X
260 FOR X=1 TO 4
270 FOR Y=1 TO 4
280 IFA(X)=N(Y)ANDH(Y)=0ANDJ(X)=0THENLET
WHITE=WHITE+1:LETH(Y)=1:J(X)=1:GOTO 310
290 NEXT Y
310 NEXT X
320 PRINT Q;
330 RETURN
1000 FOR X=1 TO 4
1010 LET N(X)=INT(RND(TI)*9)+1
1020 NEXT X
1030 RETURN
2000 POKE 53280,14:POKE 54281,6:PRINT"■
";
2010 POKE 53272,(PEEK(53272) AND 240)+12
:PRINT"GUESSES      BULLS      COWS"
2020 PRINT
2030 RETURN
3000 IF BLACK=0 THEN 3070
3010 LET F=13
3020 FOR X=1 TO BLACK
3030 PRINT TAB(F);"■■";
3040 GOSUB 10000
3050 LET F=F+1
3060 NEXT X
3070 IF WHITE=0 THEN 3130
3080 LET F=22
3085 FOR X=1 TO WHITE
3090 PRINT TAB(F);"■■";
3100 GOSUB 10000
3110 LET F=F+1
3120 NEXT X
3130 PRINT
3160 RETURN
4000 POKE 53272,23:IF BLACK<4 THEN 4030
4010 PRINT"■■■■■ |OU ARE CORRECT.|HE NUMB
ER ↖ CHOSE WAS  ";
4020 GOTO 4040
```

```
4030 PRINT"■HAT WAS NOT VERY GOOD.|HE N
UMBER ┐      CHOSE WAS ";
4040 FOR X=1 TO 4
4050 PRINTN(X);
4060 NEXT X
4070 PRINT:PRINT:PRINT "AND YOU GUESSED
";
4080 FOR X=1 TO 4
4090 PRINT A(X);
4100 NEXT X
4110 PRINT
4120 RETURN
8000 PRINT"■■■
```

```
9100 POKE S+5,9:POKE S+6,0:POKE S+24,15
9110 RETURN
10000 POKE S+1,33:POKE S,135
10010 POKE S+4,33
10020 FOR T=1 TO 100:NEXT T
10030 POKE S+4,32
10040 RETURN
```

Endings

Here's a textual game which is designed to make you delve the depths of your geographical knowledge. (And I do mean depths. Did you know that Ruteng was a town in Indonesia? Oh well . . .) Players must think of a geographical name which starts with the last letter of the name offered up by the player who went before. So it's you against the computer, who from time to time will try to cheat by offering you fictitious names. Challenge if you dare! Of course if you're pushed you can try to cheat too, but the computer may well challenge your entry.

```
5 REM ENDINGS.........WALWYN
10 GOSUB7000
40 M1=0:M2=0
50 DIM G$(500),C(500),K$(500),X(500)
55 PRINT"■
60 PRINT"THERE IS A GAME OF 'GEOGRAPHY E
NDINGS'"
65 PRINT"WHERE EACH PLAYER IN TURN HAS T
O NAME"
70 PRINT"A COUNTRY,TOWN,RIVER,MOUNTAIN O
R OTHER"
72 PRINT"GEOGRAPHICAL PLACE-NAME WHICH
       "
74 PRINT"STARTS WITH THE ■LAST LETTER■ O
F THE "
76 PRINT"PREVIOUS PLACE-NAME."
78 PRINT"■I SHALL TAKE YOU ON....I MAY C
HALLENGE
80 PRINT"YOU IF I DON'T THINK YOU ARE GI
VING ME"
82 PRINT"A REAL PLACE-NAME. YOU CAN CHAL
LENGE ME"
84 PRINT"IF YOU THINK I AM MAKING SOMETH
ING UP."
86 PRINT"■WHEN IT IS YOUR GO, YOU PRESS
EITHER"
88 PRINT"■RETURN■ IF YOU ACCEPT MY NAME
  OR"
90 PRINT"■ * ■ IF YOU WISH TO CHALLENGE
ME."
```

```
92 PRINT"■I SHALL LEARN AS WE GO. NO PLA
CE-NAME"
94 PRINT"MAY BE USED MORE THAN ONCE."
100 DIM C$(10)
101 REM C$=TYPE OF GEOGRAPHICAL DATA FRO
M 0-8
102 C$(0)="A CONTINENT":C$(1)="A COUNTRY
 IN"
103 C$(2)="A RIVER IN":C$(3)="A MOUNTAIN
 IN"
104 C$(4)="A LAKE IN":C$(5)="A TOWN IN"
105 C$(6)="A DESERT IN":C$(7)="AN ISLAND
 IN"
106 C$(8)="AN OCEAN":C$(9)="A SEA"
107 C$(10)="A DISTRICT IN"
110 REM START OF DATA
111 REM DATA IS STORED AS.....
112 REM 1) G$=GEOGRAPHICAL NAME
113 REM 2) C=SUBSCRIPT NUMBER TYPE OF C$
114 REM 3) K$=COUNTRY INVOLVED
115 REM FIRSTLY FIND OUT HOW MANY ENTRIE
S IN DATA...
117 N=0
118 READG$(N),C(N),K$(N):IFG$(N)="ZZZ"TH
EN1000
119 N=N+1:GOTO118
120 DATA AACHEN,5,W.GERMANY
121 DATA ABERFAN,5,WALES
122 DATA ABBEVILLE,5,FRANCE
123 DATA ABU DHABI,1,THE GULF
124 DATA ACAPULCO,55,MEXICO
125 DATA ADDIS ABABA,5,ETHIOPIA
126 DATA ASIA,0,""
127 DATA AFRICA,0,""
128 DATA AUSTRALIA,0,""
129 DATA AUSTRALASIA,0,""
130 DATA AMERICA,0,""
131 DATA ARCTIC,0,""
132 DATA ANTARCTICA,0,""
133 DATA ANAN,5,JAPAN
134 DATA AMADI,5,SUDAN
135 DATA AMUR,2,THE USSR
136 DATA ANGLESEY,7,BRITAIN
137 DATA ANGERS,5,FRANCE
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```
138 DATA ARDLUI,5,SCOTLAND
139 DATA ARNHEM,5,HOLLAND
140 DATA AVON,2,BRITAIN
141 DATA ARRAN,7,BRITAIN
142 DATA AYR,5,SCOTLAND
143 DATA ASCENSION,7,THE ATLANTIC OCEAN
144 DATA ATLANTIC,8,""
145 DATA AFGHANISTAN,1,ASIA
146 DATA ARLES,5,FRANCE
147 DATA AXMINSTER,5,BRITAIN
148 DATA ARNO,2,ITALY
149 DATA BRITAIN,1,EUROPE
150 DATA BOLIVIA,1,SOUTH AMERICA
151 DATA BARCELONA,5,SPAIN
152 DATA BALI,7,INDONESIA
153 DATA BANFF,5,SCOTLAND
154 DATA BOTSWANA,1,AFRICA
155 DATA BASILDON,5,ENGLAND
156 DATA BELIZE,1,CENTRAL AMERICA
157 DATA BOSTON,5,THE UNITED STATES
158 DATA BELGIUM,1,EUROPE
159 DATA BRUSSELS,5,BELGIUM
160 DATA BULGARIA,1,EASTERN EUROPE
161 DATA BULAWAYO,5,ZIMBABWE
162 DATA BURY,5,ENGLAND
163 DATA BERLIN,5,GERMANY
164 DATA BAYEUX,5,NORTHERN FRANCE
165 DATA BOURNEMOUTH,5,ENGLAND
166 DATA BRAZIL,1,SOUTH AMERICA
167 DATA BEN NEVIS,3,SCOTLAND
168 DATA BIARRITZ,5,FRANCE
169 DATA BLOIS,5,FRANCE
170 DATA BIU,5,NIGERIA
171 DATA CADIZ,5,SPAIN
172 DATA CAIRO,5,EGYPT
173 DATA CAMBRIDGE,5,ENGLAND
174 DATA CASPIAN,9,""
175 DATA CATERHAM,5,ENGLAND
176 DATA CHAD,1,AFRICA
177 DATA CHINA,1,ASIA
178 DATA CHILE,1,SOUTH AMERICA
179 DATA CORFU,7,THE MEDITERRANEAN
180 DATA CONGO,2,AFRICA
181 DATA CORINTH,5,GREECE
182 DATA CYPRUS,1,THE MEDITERRANEAN
```

```
183 DATA CUENCA,5,SPAIN
184 DATA CROWBOROUGH,5,ENGLAND
185 DATA COSTA RICA,1,CENTRAL AMERICA
186 DATA CRACOW,5,POLAND
187 DATA CORDOBA,5,SPAIN
188 DATA COPENHAGEN,5,DENMARK
189 DATA CRATI,5,ITALY
190 DATA CRES,7,YUGOSLAVIA
191 DATA CUZCO,5,PERU
192 DATA DENMARK,1,EUROPE
193 DATA DART,2,ENGLAND
194 DATA DATIA,5,INDIA
195 DATA DEVIZES,5,ENGLAND
196 DATA DILI,5,INDONESIA
197 DATA DON,2,THE USSR
198 DATA DNIEPER,2,THE USSR
199 DATA DEE,2,WALES
200 DATA DONDO,5,ANGOLA
201 DATA DERBY,5,ENGLAND
202 DATA DORES,5,SCOTLAND
203 DATA DUNKIRK,5,FRANCE
204 DATA DURBAN,5,SOUTH AFRICA
205 DATA DUNGU,5,ZAIRE
206 DATA DEAL,5,ENGLAND
207 DATA DOVER,5,ENGLAND
208 DATA DOON,2,SCOTLAND
209 DATA DOUGLAS,5,THE ISLE OF MAN
210 DATA DRAU,2,AUSTRIA
211 DATA DEJ,5,ROMANIA
212 DATA DALOA,5,IVORY COAST
213 DATA ELBE,2,GERMANY
214 DATA ELBA,7,THE MEDITERRANEAN
215 DATA ELY,5,ENGLAND
216 DATA EL SALVADOR,1,CENTRAL AMERICA
217 DATA ELMALI,5,TURKEY
218 DATA ENGLAND,1,EUROPE
219 DATA EUROPE,0,""
220 DATA ESTEPONA,5,SPAIN
221 DATA ETHIOPIA,1,AFRICA
222 DATA ERIE,4,CANADA
223 DATA EVEREST,3,ASIA
224 DATA EXE,2,ENGLAND
225 DATA ELAT,5,ISRAEL
226 DATA EDHESSA,5,GREECE
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227 DATA EL QASR,5,EGYPT
228 DATA ETON,5,ENGLAND
229 DATA ELDORADO,5,ARGENTINA
230 DATA ELEPHANT,7,THE ATLANTIC
231 DATA EASTBOURNE,5,ENGLAND
232 DATA EKSJO,5,SWEDEN
233 DATA ETTRICK,2,SCOTLAND
234 DATA FRANCE,1,EUROPE
235 DATA FINLAND,1,EUROPE
236 DATA FORFAR,5,SCOTLAND
237 DATA FUXIN,5,CHINA
238 DATA FORT GEORGE,5,CANADA
239 DATA FARNBOROUGH,5,ENGLAND
240 DATA FAXE,2,SWEDEN
241 DATA FARSUND,5,NORWAY
242 DATA FIJI,7,THE PACIFIC
243 DATA FROME,2,ENGLAND
244 DATA FRAY BENTOS,5,URUGUAY
245 DATA FORST,5,EAST GERMANY
246 DATA FINDHORN,2,SCOTLAND
247 DATA FUJIYAMA,3,JAPAN
248 DATA FOX,2,THE UNITED STATES
249 DATA FENIT,5,IRELAND
250 DATA FAO,5,IRAQ
251 DATA FEIRA,5,BRAZIL
252 DATA GABON,1,WEST AFRICA
253 DATA GANGES,2,INDIA
254 DATA GDANSK,5,POLAND
255 DATA GUATEMALA,1,CENTRAL AMERICA
256 DATA GOKSUN,5,TURKEY
257 DATA GIRONDE,2,FRANCE
258 DATA GIFU,5,JAPAN
259 DATA GOBI,6,ASIA
260 DATA GORING,5,ENGLAND
261 DATA GRETNA GREEN,5,BRITAIN
262 DATA GUINEA,1,AFRICA
263 DATA GUNGU,5,ZAIRE
264 DATA GREAT DUNMOW,5,ENGLAND
265 DATA GRAZ,5,AUSTRIA
266 DATA HUNGARY,1,EUROPE
267 DATA HEBI,5,CHINA
268 DATA HATTON,5,ENGLAND
269 DATA HAMBURG,5,WEST GERMANY
270 DATA HARWICH,5,ENGLAND
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271 DATA HOBART,5,AUSTRALIA
272 DATA HEREFORD,5,ENGLAND
273 DATA HONDURAS,1,CENTRAL AMERICA
274 DATA HONOLULU,5,HAWAII
275 DATA HONG KONG,7,ASIA
276 DATA HUDSON,2,THE UNITED STATES
277 DATA HUAI HO,2,CHINA
278 DATA HUE,5,VIETNAM
279 DATA HYDERABAD,5,INDIA
280 DATA HOLYHEAD,5,WALES
281 DATA INDIA,1,ASIA
282 DATA IMATRA,5,FINLAND
283 DATA INA,5,POLAND
284 DATA IRAQ,1,THE MIDDLE EAST
285 DATA IPOH,5,MALAYSIA
286 DATA IWO,5,NIGERIA
287 DATA ISLAMABAD,5,PAKISTAN
288 DATA ICELAND,1,EUROPE
289 DATA INDUS,2,PAKISTAN
290 DATA IONA,7,BRITAIN
291 DATA IONIAN,9,""
292 DATA INDIAN,8,""
293 DATA ISCHIA,5,ITALY
294 DATA ITALY,1,EUROPE
295 DATA JAPAN,1,ASIA
296 DATA JAMESTOWN,5,THE UNITED STATES
297 DATA JERICHO,5,JORDAN
298 DATA JORDAN,2,PALESTINE
299 DATA JAMICA,7,THE CARRIBEAN
300 DATA JOS,5,NIGERIA
301 DATA JERUSALEM,5,ISRAEL
302 DATA JACKSON,5,THE UNITED STATES
303 DATA JOMBANG,5,INDONESIA
304 DATA JOINVILLE,5,BRAZIL
305 DATA JIMMAN,5,ETHIOPIA
306 DATA KARACHI,5,PAKISTAN
307 DATA KEFLAVIK,5,ICELAND
308 DATA KAZUMBA,5,ZAIRE
309 DATA KIRKBY,5,ENGLAND
310 DATA KENYA,1,AFRICA
311 DATA KOM,2,CAMEROON
312 DATA KYOTO,5,JAPAN
313 DATA KUWAIT,1,THE MIDDLE EAST
314 DATA KRISHNA,2,INDIA
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315 DATA KHARTOUM,5,SUDAN
316 DATA LAUNCESTON,5,ENGLAND
317 DATA LANCASTER,5,ENGLAND
318 DATA LIMA,5,PERU
319 DATA LAMAR,5,THE UNITED STATES
320 DATA LOS ANGELES,5,THE UNITED STATES
321 DATA LOTUKE,3,SUDAN
322 DATA LUCKNOW,5,INDIA
323 DATA LUANDA,5,ANGOLA
324 DATA LANGON,5,FRANCE
325 DATA LUXEMBOURG,1,EUROPE
326 DATA LUNE,2,ENGLAND
327 DATA MAFEKING,5,SOUTH AFRICA
328 DATA MANCHESTER,5,ENGLAND
329 DATA MARTINIQUE,1,CENTRAL AMERICA
330 DATA MAJORCA,7,THE MEDITERRANEAN
331 DATA MOBILE,5,THE UNITED STATES
332 DATA MEKONG,2,ASIA
333 DATA MONROVIA,5,LIBERIA
334 DATA MANONO,5,ZAIRE
335 DATA MOMBASA,5,KENYA
336 DATA MURMANSK,5,THE USSR
337 DATA MOSKOW,5,THE USSR
338 DATA NEWFOUNDLAND,7,CANADA
339 DATA NEWPORT,5,ENGLAND
340 DATA NETO,2,ITALY
341 DATA NIGERIA,1,WEST AFRICA
342 DATA NYANGA,2,GABON
343 DATA NEW ZEALAND,1,AUSTRALASIA
344 DATA NALUT,5,LIBYA
345 DATA NAIRN,5,SCOTLAND
346 DATA NORTH,9,""
347 DATA NORTHAMPTON,5,ENGLAND
348 DATA NICOSIA,5,CYPRUS
349 DATA OSAKA,5,JAPAN
350 DATA ORMSKIRK,5,ENGLAND
351 DATA OVIEDO,5,SPAIN
352 DATA OTTER,2,ENGLAND
353 DATA ORONSAY,7,SCOTLAND
354 DATA OFFENBACH,5,WEST GERMANY
355 DATA OHIO,2,THE UNITED STATES
356 DATA OSLO,5,NORWAY
357 DATA ORRIN,2,SCOTLAND
358 DATA OLDHAM,5,ENGLAND
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359 DATA PEKING,5,CHINA
360 DATA PANAMA,1,CENTRAL AMERICA
361 DATA PARAGUAY,1,SOUTH AMERICA
362 DATA POOLE,5,ENGLAND
363 DATA PORTLAND,5,THE UNITED STATES
364 DATA PORTSMOUTH,5,ENGLAND
365 DATA POPOCATEPETL,3,MEXICO
366 DATA PHILLEPINES,1,ASIA
367 DATA PORTUGAL,1,EUROPE
368 DATA PUTAO,5,BURMA
369 DATA PUNJAB,10,INDIA
370 DATA QATAR,1,THE MIDDLE EAST
371 DATA QATIF,5,SAUDI ARABIA
372 DATA QUEBEC,5,CANADA
373 DATA QUITO,5,ECUADOR
374 DATA QUIMPER,5,FRANCE
375 DATA QOM,5,IRAN
376 DATA RED,9,""
377 DATA RESOLUTION,7,THE PACIFIC
378 DATA RAGLAN,5,WALES
379 DATA RYDE,5,ENGLAND
380 DATA RUHR,10,WEST GERMANY
381 DATA ROTHERHAM,5,ENGLAND
382 DATA RAZAN,5,IRAN
383 DATA RAMA,5,NICARAGUA
384 DATA RIOSUCIO,5,COLOMBIA
385 DATA RUTENG,5,INDONESIA
386 DATA ROYSTON,5,ENGLAND
387 DATA RAPID CITY,5,THE UNITED STATES
388 DATA ST HELENA,7,THE ATLANTIC
389 DATA ST HELENS,5,ENGLAND
390 DATA SANTIAGO,5,CHILE
391 DATA SPAIN,1,EUROPE
392 DATA SALON,5,FRANCE
393 DATA SAPRI,5,ITALY
394 DATA SKOPJE,5,YUGOSLAVIA
395 DATA SLEDMERE,5,ENGLAND
396 DATA SEVASTOPOL,5,THE USSR
397 DATA SWITZERLAND,1,EUROPE
398 DATA SOMERSET,10,ENGLAND
399 DATA SPANDAU,5,WEST GERMANY
400 DATA STORD,7,NORWAY
401 DATA SWANSEA,5,WALES
402 DATA SUTTON,5,ENGLAND
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403 DATA SWEDEN,1,EUROPE
404 DATA SPA,5,BELGIUM
405 DATA SUEZ,5,EGYPT
406 DATA SULTANABAD,5,IRAN
407 DATA TURKEY,1,EUROPE
408 DATA TAMPERE,5,FINLAND
409 DATA TAY,2,SCOTLAND
410 DATA TASHKENT,5,THE USSR
411 DATA TEIGNMOUTH,5,ENGLAND
412 DATA THAILAND,1,ASIA
413 DATA THAMES,2,ENGLAND
414 DATA TAIWAN,1,ASIA
415 DATA TONBRIDGE,5,ENGLAND
416 DATA TOLEDO,5,SPAIN
417 DATA TOWYN,5,WALES
418 DATA TULI,5,ZIMBABWE
419 DATA TSU,5,JAPAN
420 DATA TRIPOLI,5,LIBYA
421 DATA TOULON,5,FRANCE
422 DATA ULLAPOOL,5,SCOTLAND
423 DATA UDAIPUR,5,INDIA
424 DATA USACK,5,TURKEY
425 DATA ULM,5,WEST GERMANY
426 DATA UTTOXETER,5,ENGLAND
427 DATA UYUNI,5,BOLIVIA
428 DATA UYO,5,NIGERIA
429 DATA VENEZUELA,1,SOUTH AMERICA
430 DATA VAAL,2,SOUTH AFRICA
431 DATA VERSAILLES,5,FRANCE
432 DATA VIGO,5,SPAIN
433 DATA VICTORIA,10,AUSTRALIA
434 DATA VOLTA,2,GHANA
435 DATA VOUGA,2,PORTUGAL
436 DATA WAAL,2,HOLLAND
437 DATA WEST GERMANY,1,EUROPE
438 DATA WOLVERHAMPTON,5,ENGLAND
439 DATA WYE,2,ENGLAND
440 DATA WHITCHURCH,5,ENGLAND
441 DATA WAREHAM,5,ENGLAND
442 DATA WEMBLEY,5,ENGLAND
443 DATA WUHAN,5,CHINA
444 DATA WILDSPITZE,3,AUSTRIA
445 DATA WHAKATANE,5,NEW ZEALAND
446 DATA WILSON,3,THE UNITED STATES
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447 DATA XIAMEN,5,CHINA
448 DATA XAI XAI,5,MOZAMBIQUE
449 DATA XINGU,2,BRAZIL
450 DATA XINXIANG,5,CHINA
451 DATA XAU,4,BOTSWANA
452 DATA YORK,5,ENGLAND
453 DATA YUCATAN,10,MEXICO
454 DATA YUGOSLAVIA,1,EUROPE
455 DATA YOKOHAMA,5,JAPAN
456 DATA YVETOT,5,FRANCE
457 DATA YEO,2,ENGLAND
458 DATA YELLOWKNIFE,5,CANADA
459 DATA ZIMBABWE,1,AFRICA
460 DATA ZWOLLE,5,HOLLAND
461 DATA ZONGO,5,ZAIRE
462 DATA ZAIRE,1,AFRICA
463 DATA ZAPALA,5,ARGENTINA
464 DATA ZHOB,2,PAKISTAN
465 DATA ZAHLE,5,LEBANON
999 DATA ZZZ,0,ZZZ
1000 REM START OF GAME
1002 PRINT"■■■PRESS ANY KEY TO START"
1003 GETA$:IFA$=""THEN1003
1005 G$(N)="":C(N)=0:K$(N)=""
1010 POKEUG,UF:POKEUB,U5:PRINTUU$;
1020 PRINT"■+++++++++++++++ENDINGS+++++
++++++++++++"
1030 PRINTUR$;"■■■DO YOU WANT TO GO FIRS
T (Y/N)?"
1040 GETA$:IFA$=""THEN1040
1045 P$=""
1050 IFA$="N"THEN2000
1060 IFA$="Y"THEN3000
1070 GOTO1040
2000 REM COMPUTER GO
2010 L5=0:B$=RIGHT$(P$,1)
2020 IFB$=""THEN2100
2025 IFRND(1)>.9THEN2200
2030 Q=INT(RND(1)*N)
2035 W=0
2040 IFL$>B$THENQ=INT(Q*RND(1))
2041 IFL$<B$THENQ=INT(Q/RND(1))
2042 IFQ>NTHENQ=INT(RND(1)*N)
2044 L$=LEFT$(G$(Q),1):IFL$=B$ANDX(Q)<>1
THENP$=G$(Q):GOTO2500
```

```
2050 W=W+1:IFW>100THEN2200
2060 GOTO2040
2100 REM FIRST GO
2105 IFRND(1)>.85THEN2200
2110 Q=INT(RND(1)*N)
2120 IFX(Q)=1THEN2110
2125 P$=G$(Q)
2130 GOTO2500
2200 REM COMPUTER MAKES ONE UP!
2210 IFB$=""THENB$=CHR$(INT(RND(1)*26)+6
5)
2220 Q=INT(RND(1)*N)
2225 L$=LEFT$(G$(Q),1)
2230 IFL$=B$THENP$=LEFT$(G$(Q),INT(RND(1
)*3+1)):GOTO2240
2235 GOTO2220
2240 Q=INT(RND(1)*N):R=INT(LEN(G$(Q))/2)
2245 P$=P$+MID$(G$(Q),R,INT(RND(1)*R+1))
2250 Q=INT(RND(1)*N)
2255 P$=P$+RIGHT$(G$(Q),INT(RND(1)*3+1))
2260 L5=1:GOTO2500
2500 REM COMPUTER PRINTOUT NAME
2510 PRINTU7$;"■"P$
2520 GETA$:IFA$=""THEN2520
2530 A=ASC(A$)
2540 IFA=13THEN2800
2550 IFA=42THEN2700
2560 GOTO2520
2700 REM COMPUTER CHALLENGED!
2705 PRINTU5$;"■YOU DARE TO CHALLENGE ME
!"
2710 FORJ=1TO500:NEXTJ
2720 IFL5=1THEN2750
2730 PRINTU7$;"■YOU ARE WRONG. MY NAME I
S"
2735 PRINTU7$;C$(C(Q));" ";K$(Q)
2740 PRINT"■IF YOU DON'T BELIEVE ME, LOO
K IT UP!"
2742 M1=M1+1
2745 PRINTUR$;"■THE SCORE IS NOW"M1"TO M
E AND"M2"TO YOU."
2746 X(Q)=1:P$=""
2747 PRINT"■YOU START NEXT.....":GOTO300
0
```

```
2750 PRINTU7$;"■I OWN UP. YOU ARE RIGHT.
 I MADE IT UP!"
2752 M2=M2+1:P$=""
2755 PRINTUR$;"■THE SCORE IS NOW"M1"TO M
E AND"M2"TO YOU."
2757 PRINT"■I'LL START AGAIN....":GOTO020
00
2800 REM COMPUTER'S GO ACCEPTED
2810 X(Q)=1:GOTO3000
3000 PRINTU9$;"■";
3010 INPUTQ$
3020 IFP$=""THEN3100
3030 B$=RIGHT$(P$,1)
3040 IFB$=LEFT$(Q$,1)THEN3100
3060 PRINT"■ILLEGAL ENTRY. WRONG INITIAL
 LETTER"
3070 GOTO3000
3100 REM CHECKED AND OK
3120 FORJ=0TON
3130 IFG$(J)=Q$ANDX(J)=1THEN3150
3135 IFG$(J)=Q$THENX(J)=1:GOTO3300
3140 NEXTJ:GOTO3200
3150 PRINTUR$;"■NOT ACCEPTABLE. IT'S BEE
N USED BEFORE."
3160 GOTO3000
3200 REM DOES THE COMPUTER CHALLENGE?
3210 IFRND(1)>.8THEN3230
3220 GOTO3300
3230 PRINTUU$;"■CHALLENGE!"
3240 PRINTUU$;"I DON'T BELIEVE YOU."
3245 PRINTUR$;"■NOW YOU WILL HAVE TO BE
HONEST WITH ME."
3250 PRINTUR$;"BECAUSE IT IS NOT IN MY D
ATA BANK."
3260 PRINTU7$;"■IS IT A REAL PLACE? (Y/N
)
3265 GETA$:IFA$=""THEN3265
3270 IFA$="Y"THEN3500
3275 IFA$="N"THEN3600
3280 GOTO3265
3300 P$=Q$:G$(N)=P$:K$(N)="OR SOMETHING.
 I'VE NO IDEA."
3310 K$(N)=K$(N)+" BUT YOU USED IT SO IT
 MUST EXIST!"
```

```
3320 C(N)=0:X(N)=1:N=N+1
3330 GOTO2000
3500 PRINTU7$;"■OK. I BOW TO YOUR GREATE
R KNOWLEDGE!"
3510 M2=M2+1
3520 PRINTUR$;"■THE SCORE IS NOW"M1"TO M
E AND"M2"TO YOU."
3525 P$=""
3530 PRINT"■I'LL START NOW.....":GOTO20
00
3535 P$=Q$:G$(N)=P$:K$(N)="OR SOMETHING.
 I'VE NO IDEA."
3540 K$(N)=K$(N)+" BUT YOU USED IT SO IT
 MUST EXIST!"
3550 C(N)=0:X(N)=1:N=N+1
3560 GOTO2000
3600 PRINT"■YOU ARE VERY HONEST. THANKYO
U."
3610 M1=M1+1
3620 PRINTUR$;"■THE SCORE IS NOW"M1"TO M
E AND"M2"TO YOU."
3630 P$=""
3640 PRINT"■YOU START NEXT.....":GOTO300
0
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
```

```
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7300 REM SOUND 'POKE' CODES FOR 64.
7310 UV=54296:REM VOLUME FOR 3 VOICES
7320 UA=54277:REM ATTACK FOR VOICE 1
7330 UD=54278:REM SUSTAIN FOR VOICE 1
7340 UH=54273:REM HIGH BYTE FOR VOICE 1
7350 UL=54272:REM LOW BYTE FOR VOICE 1
7360 UW=54276:REM WAVEFORM FOR VOICE 1
7400 RETURN
7500 REM ******************************
9999 END
```

Omnicalendar

You probably never realised that you needed this program, and may well continue to reside in ignorance until you key it in and give it a whirl. Let's say you want to remind yourself what day of the week you were born on or whether the battle of El Alamein was on a Friday or Saturday, well this is the program for you. Whatever the year and month, the screen will throw up the appropriate calendar in an easy-to-read fashion. Who says that computers can't be useful around the home?

```
5 REM OMNICALENDAR.......WALWYN
10 GOSUB7000
20 DIM M$(12),M(12)
30 FORJ=1TO12:READM$(J),M(J):NEXTJ
35 DATA JANUARY,31,FEBRUARY,28,MARCH,31
36 DATA APRIL,30,MAY,31,JUNE,30
37 DATA JULY,31,AUGUST,31,SEPTEMBER,30
38 DATA OCTOBER,31,NOVEMBER,30,DECEMBER,
31
40 Y1=1983:D1=6
42 REM Y1 IS THE 'BASE YEAR'
44 REM D1 IS THE DAY NUMBER (6..SATURDAY
) FOR JAN. 1ST IN BASE YEAR
50 SY$="[redacted]
[redacted]"
55 SX$="[redacted]
[redacted]"
100 POKEUB,U7:POKEUG,UR:PRINTU4$;"
       OMNICALENDAR"
110 PRINT"          ──────────────────────────
──"
115 PRINTU2$
120 INPUT"YEAR REQUIRED (1900-2000)";Y$
130 IFLEN(Y$)<4ORLEN(Y$)>4THEN100
140 Y=VAL(Y$):IFY<1900ORY>2000THEN100
150 PRINTUF$
160 FORJ=1TO12:PRINTJ;TAB(6)M$(J):NEXTJ
170 PRINT
180 INPUT"MONTH NUMBER";M$
185 IFLEN(M$)>2ORLEN(M$)<1THEN180
```

```
190 M=VAL(M$):IFM>12ORM<1THEN180
195 PRINTU4$;"OK, PLEASE WAIT WHILE I
CALCULATE THE"
197 PRINTU4$;"MONTHLY CALENDAR FOR "M$(M
);Y
200 REM CALCULATE AND DRAW CALENDAR
210 D=D1:IFY<Y1THEN250
220 IFY>Y1THEN300
230 IFY=Y1THEN350
250 REM GOING BACK....
255 FORJ=Y1-1TOYSTEP-1
260 D=D-1
270 IFINT(J/4)=J/4THEND=D-1
280 IFD<1THEND=D+7
290 NEXTJ:GOTO400
300 REM GOING FORWARD.....
305 FORJ=Y1TOY-1
310 D=D+1
320 IFINT(J/4)=J/4THEND=D+1
330 IFD>7THEND=D-7
340 NEXTJ:GOTO400
350 REM THIS YEAR.....
360 D=D1:GOTO400
400 FORJ=1TOM:IFJ=MTHEN440
410 D=D+M(J)-28
420 IFJ=2ANDINT(Y/4)=Y/4THEND=D+1
430 IFD>7THEND=D-7
440 NEXTJ
500 REM PRINT OUT CALENDAR
510 POKEUB,U6:POKEUG,UF:PRINTUR$"";
520 PRINT"          CALENDAR FOR "M$(M);Y
530 PRINT
532 IFY/4=INT(Y/4)ANDM=2THENM(M)=29
533 IFD+M(M)=29THENN5=4:GOTO540
534 IFD+M(M)<37THENN5=5:GOTO540
535 N5=6
540 PRINTU3$;"    MON | TUE | WED | THU | F
RI |";
545 PRINTU7$;" SAT | SUN |"
550 PRINT
555 FORJ=1TON5:FORK=1TO2
560 PRINTU3$;"          |     |     |     |
   |";
565 PRINTU7$;"     |     |":NEXTK
```

```
566 PRINTU3$;"    ┌────┬────┬────┬────┬──
──┐";
567 PRINTU7$;"└────┴────┴────┘"
570 NEXTJ
580 PRINTUR$;"   PRESS ANY KEY FOR ANOTH
ER CALENDAR■"
600 REM PRINT OUT DAY NUMBERS
610 N=0:NN=0:FORJ=1TON5:FORK=1TO7:IFK=DT
HENNN=1
620 IFN=0THEN680
630 NN=NN+1:IFNN>M(M)THEN680
640 PRINTU3$;:IFK>5THENPRINTU7$;
645 X2=4:IFNN>9THENX2=3
650 PRINTLEFT$(SY$,J*3+3);LEFT$(SX$,(K-1
)*5+X2);
660 PRINT"■"NN
680 NEXTK,J
700 GETA$:IFA$<>""THEN700
710 GETA$:IFA$=""THEN710
720 RUN
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="■":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7400 RETURN
7500 REM ******************************
```

Moonlander

This is an up-market real-time lander program which gives you an opportunity to grapple with the problems which face a space-lagged cruiser commander returning home after a long haul. The object to the exercise is to land your craft on the chillingly small landing-pad at the bottom of the screen. Precision is the name of the game, because if your rate of descent is greater than -5 you and your crew are gonners. A word of warning: if you over-fire your rockets you'll disappear into hyperspace until returning back on screen, plummeting to your doom unless you've been doing some nifty blind flying to slow your descent.

```
10 REM ***MOON-LANDER BY ROBERT ERSKINE
11 REM TIDIED,CORRECTED AND CONVERTED
12 REM      ***BY PAUL ROPER***
13 REM
15 GOTO10000
16 DEF FNR(X)=INT(X*RND(1)+1)
17 DEF FNP(Q9)=1024+CL+(23-INT(H/87))*40
18 DEF FNC(Q9)=1024+C1+(23-INT(H1/87))*4
0
19 E(1)=253:E(2)=252:E(3)=251:E(0)=252
20 GOSUB8000
80 GOSUB9000
85 DE(0)=249:DE(1)=250
90 IF F<=0THENPRINT"■■■■■■■OUT OF FUEL."
:F=0:E=0:POKE54296,0
95 IFE=0 THEN150
100 M=M1:M1=M-F1
105 L=L+1
110 H1=H:H=(H+V)-.81
120 V=V+((T/F1)*LOG((M/M1)))-1.62
130 F=F-F1
140 GOTO175
150 M1=M
160 H1=H:H=(H+V)-.81
170 V=V-1.62
175 C1=CL
180 IF CL>0 AND RND(1)>.95THEN CL=CL-1
185 IF CL<39 AND RND(1)>.95THEN CL=CL+1
190 PRINT"■■■HEIGHT              ■■■■■■■■■■
■■:";INT(H)
```

```
200 PRINT"■VELOCITY                ■■■■■■■■■■■:
";INT(V)
210 PRINT"■FUEL                    ■■■■■■■■■■■:
";F
220 GETA$
225 IFA$="Q"THEN E=1:POKE54296,15
230 IFA$="A"THEN E=0:POKE54296,0
232 IFA$="+"ANDCL>0THENCL=CL-1
234 IFA$="-"ANDCL<39THENCL=CL+1
240 IF H>2000 OR H<1 THEN 270
241 OS=1
245 IFINT(FNC(0))=INT(FNP(0))THEN260
250 POKEFNC(0),32:POKEFNC(0)+40,32:POKEF
NP(0),2G55
260 IFE=1THENPOKEFNP(0)+40,E(LAND3)
270 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■■■■■
```

```
3050 GOTO2030
8000 PRINT"■           ■M O O N   L A N D
 E R■■■"
8010 PRINT"■THIS IS AN UPMARKET REAL-TIM
E LANDER"
8020 PRINT"PROGRAM WHICH GIVES YOU AN OP
PORTUNITY"
8030 PRINT"TO GRAPPLE WITH THE PROBLEMS
WHICH"
8040 PRINT"FACE A SPACE-LAGGED CRIUSER C
OMMANDER"
8050 PRINT"RETURNING HOME AFTER A LONG H
AUL."
8060 PRINT"THE OBJECT OF THE THE EXERCIS
E IS TO"
8070 PRINT"LAND YOUR CRAFT ON THE CHILLI
NGLY SMALL"
8080 PRINT"PAD AT THE BOTTOM OF THE SCRE
EN."
8090 PRINT"PRECISION IS THE NAME OF THE
GAME,AS IF"
8091 PRINT"YOU HIT THE PAD AT OVER -5,TH
EN YOU AND"
8092 PRINT"YOUR CREW ARE GONNERS (!!)."
8093 PRINT"A WORD OF WARNING:"
8100 PRINT"IF YOU OVER-FIRE YOUR ROCKETS
 YOU'LL GO"
8110 PRINT"INTO SPACE - TRICKY TO CONTRO
L WHEN YOU"
8120 PRINT"CAN'T SEE YOUR PLUMMETING SHI
P."
8130 PRINT"■■■PRESS SPACE TO CONTINUE"
8140 GETA$:IFA$<>" "THEN8140
8150 PRINT"■USE THE FOLLOWING COMMAND KE
YS:-■■"
8160 PRINT"       '+' - MOVE LEFT
8170 PRINT"       '-' - MOVE RIGHT
8180 PRINT"       'Q' - FIRE ENGINES
8190 PRINT"       'A' - STOP ENGINES
8200 PRINT"■REMEMBER YOU HAVE A LIMITED
AMOUNT OF"
8210 PRINT"FUEL.PRESS SPACE TO START DES
CENT"
8220 GETA$:IFA$<>" "THEN8220
```

```
8230 RETURN
9000 H=2000
9010 V=-20
9020 M=1378:M1=M
9030 T=4000
9040 F1=2
9050 F=200
9060 E=0
9080 CL=20
9090 Y=8
9100 REM SOUND HERE
9110 SC=54272:FORA=0TO24:POKEA+SC,0:NEXT
9120 POKESC+5,9:POKESC+6,240:POKESC,10:P
OKESC+1,10:POKESC+4,129
9200 PRINT"■"
9205 FORA=55296TO56295:POKEA,1:NEXT
9210 FORX=1TO24:PRINTTAB(FNR(38))"■■■":N
EXT
9220 TI$="000000":RETURN
10000 REM UDGS DONE HERE
10001 PRINT"■■■■■■■■M O O N■L A N D E R
■■■■"
10002 PRINT"PLEASE WAIT WHILE YOUR SHIP
IS BUILT."
10010 POKE52,48:POKE56,48:CLR
10020 POKE56334,PEEK(56334)AND254
10030 POKE1,PEEK(1)AND251
10040 FORI=0TO2048:POKEI+12288,PEEK(I+53
248):NEXT
10050 POKE1,PEEK(1)OR4:POKE56334,PEEK(56
334)OR1
10060 DATA 255,60,34,195,66,60,36,66,231
10065 POKE53272,(PEEK(53272)AND240)+12
10070 DATA 254,255,255,126,60,24,60,66,2
31
10080 DATA253,36,24,0,0,0,0,0,0
10081 DATA250,2,2,18,9,146,98,73,140
10082 DATA249,18,8,136,96,96,97,137,138
10090 DATA252,66,66,36,36,24,0,0,0
10100 DATA251,129,129,129,66,66,36,36,24
10110 DATA -1
10120 READL:IFL=-1THENRUN16
10130 FORA=0TO7:READCD:POKE12288+L*8+A,C
D:NEXT:GOTO10120
```

Alien

The alien ship passes overhead, razing the ground below with its power beam, and dropping swarms of deadly Veepods. Moving swiftly across your territory you fire your missiles as long as the power holds out. When a recharge is necessary, your base changes shape, and you must ride out the dangers undefended. As an added difficulty, you can choose to have an invisible alien, only identifiable when it fires, and providing minimal guidance for your missile positioning.

```
1 REM ********** ALIEN **********
2 REM * WRITTEN FOR ZX SPECTRUM *
3 REM * BY P.STANLEY. CONVERTED *
4 REM * TO COMMODORE 64 BY GEOFF*
5 REM * AMABILINO. USER DEFINED *
6 REM * GRAPHIC CHARACTERS ARE  *
7 REM *      # $ % & ' ( ) * +   *
8 REM * TO RESTORE NORMAL SCREEN*
9 REM * FROM DIRECT MODE TYPE   *
10 REM* 'GOSUB5100 '             *
11 REM*************************
12 POKE52,64:POKE56,64:CLR:GOSUB7000:PRI
NT"■";:POKE54296,15
15 X=0:Y=0:Z=20:HS=0:S=0:SW=40:C=0:AS=16
504:CM=55416:BA=37
35 GOSUB7500:POKE54278,128:POKE54277,240
:POKE54276,0:POKE54276,129
37 POKE54273,4:POKE54272,73
40 GOSUB300:IFC=3GOTO1000
45 IFBMGOTO65
50 IFRND(0)>.97THENGOSUB400
60 IFRND(0)<.08THENGOSUB600
65 IFBH=1GOTO1000
70 DZ=0:K=PEEK(KB)
80 IFK=251ORK=12THENDZ=-1
90 IFK=247ORK=23THENDZ=1
100 IFF1=0AND(K=239ORK=60)THENGOSUB900:G
OTO40
120 POKE17264+Z,32
125 Z=Z+DZ:IFZ<1THENZ=1
130 IFZ>39THENZ=39
```

```
140 POKE17264+Z,BA:POKE56176+Z,8
150 IFF1=0GOTO40
155 POKEAS+L,32
160 L=L-SW+DZ:IFL<0THENF1=0:GOTO50:REM M
ISSILE AT TOP OF SCREEN
170 IFL=OSORL=OS+1THENGOSUB700:REM ALIEN
 HIT
180 POKEAS+L,41:POKECM+L,1:GOTO40
299 REM ** MOVE ALIEN SHIP **
300 POKEAS+OS,32
310 X=X+1:IFX=39THENX=0:POKEAS+OS+1,32:Y
=Y+1:IFY=16THENY=0:C=C+1:IFC=3THENRETURN
320 OS=SW*Y+X
330 POKEAS+OS,L1:POKEAS+OS+1,L2:POKECM+O
S,4:POKECM+OS+1,4
340 IFBM=0THENRETURN
349 REM ** MOVE BOMBS **
350 FORA=1TO4:POKEBS-A,32:NEXT:IFBS>1726
4THENBM=0:BA=37:RETURN
360 BS=BS+40:BC=BC+40:FORA=1TO4
365 IFBS>17264THENIFPEEK(BS-A)=BATHENBH=
1:A=4:GOTO380
370 POKEBS-A,40:POKEBC-A,5
380 NEXTA:RETURN
399 REM ** SET UP ALIEN BOMBS **
400 BM=1:BS=AS+OS+SW+3:BC=CM+OS+SW+3:BA=
39:FORA=1TO4:POKEBS-A,40:POKEBC-A,5:NEXT
410 RETURN
599 REM ** ALIEN LASER BLAST **
600 POKE54279,172:POKE54280,57:POKE54284
,0:POKE54285,249:POKE54283,33
640 LP=AS+OS:LC=CM+OS:FORY1=YTO18:LP=LP+
SW:LC=LC+SW
645 IFY1=18ANDX=ZTHENY1=20:NEXTY1:BH=1:G
OTO660:REM HIT BASE
650 POKELP,106:POKELC,1:NEXTY1
660 LP=AS+OS:FORY1=YTO18:LP=LP+SW:POKELP
,32:NEXTY1
670 POKE54283,32:POKE54283,0:POKE54285,0
:POKE54284,0:RETURN
699 REM ** ALIEN SHIP HIT! **
700 POKEAS+L,38:F1=0:S=S+20-Y:IFS>HSTHEN
HS=S
710 GOSUB7510:B1=2:B2=6:HI=5:LO=75:GOSUB
2000:RETURN
```

```
899 REM ** SET UP YOUR MISSILE **
900 IFBA=39THENRETURN
910 L=17264+Z-40-AS:POKEAS+L,41:POKECM+L
,1:F1=1:RETURN
999 REM ** ITS THE END OF YOUR BASE! **
1000 POKE54276,128:POKE54276,8:POKE54276
,0:POKE54277,0:POKE54278,0:
1010 IFC3=3THENC3=0:GOSUB7500:PRINT"■■■W
ELL DONE!YOU SURVIVED!":GOTO1060
1050 POKE17264+Z,42:POKE17264+Z+1,43:B1=
1:B2=0:HI=4:LO=184
1055 POKE56176+Z,1:POKE56176+Z+1,1:GOSUB
2000
1060 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■ANOTHER GAME?
"
1070 GETQ$:IFQ$=""GOTO1070
1080 IFQ$="N"THENGOSUB5100:END
1090 IFQ$<>"Y"GOTO1070
1100 PRINT"■■■■■■■■■■■■■■■■■■■WANT A VISIBLE A
LIEN?"
1110 GETQ$:IFQ$=""GOTO1110
1120 IFQ$="N"THENL1=32:L2=32:GOTO1150
1130 IFQ$<>"Y"GOTO1110
1140 L1=35:L2=36
1150 PRINT"■■■■■■■■■■■■■
      ■":X=0:Y=0:S=0:BA=37:Z=20:C=0:F1=0
1160 BH=0:GOTO35
1999 REM ** LIGHTS AND SOUND! **
2000 POKE54279,LO:POKE54280,HI:POKE54284
,16:POKE54285,249
2010 POKE54283,129
2020 FORA=1TO30:POKE53280,B1:POKE53281,B
2:POKE53280,B2:POKE53281,B1:NEXT
2025 FORA=1TO500:NEXT
2030 POKE53280,0:POKE53281,0
2040 POKE54283,128:POKE54283,8:POKE54283
,0:POKE54285,0:POKE54284,0:RETURN
4999 REM ** MOVE CHARS. TO NEW LOCATION
**
5000 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251:REM K/B & I/O OFF
5010 FORA=0TO127:FORA1=0TO7
5020 POKE20480+A*8+A1,PEEK(53248+A*8+A1)
:NEXTA1,A
```

```
5030 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1:RETURN:REM K/B & I/O ON
5049 REM ** USER DEFINED CHARS 35-43 **
5050 FORA=35TO43:BT=0:FORA1=0TO7:READB:B
T=BT+B
5055 POKE20480+(8*A)+A1,B:NEXTA1:READB
5060 IFB<>BTTHENCH=A:A=132:NEXTA:GOTO600
0
5065 NEXTA
5069 REM ** SWITCH IN USER CHARS. **
5070 POKE648,64:POKE56576,(PEEK(56576)AN
D252)OR2:REM POINT VIC AND SCR EDIT
5075 POKE53272,(PEEK(53272)AND15):REM PO
INT VIC AT SCREEN
5077 POKE53272,(PEEK(53272)AND240)OR4:RE
M SET CHAR POINTER TO 20480
5080 RETURN
5099 REM ** RESTORE NORMAL CHAR. SET **
5100 POKE648,4:POKE56576,(PEEK(56576)AND
252)OR3:POKE53272,21:PRINT"■";
5110 POKE54296,0:RETURN
5999 REM ** USE CHECKSUM TO DEBUG DATA S
TATEMENTS **
6000 PRINT"CHECKSUM ERROR IN CHAR "CH:ST
OP
6999 REM ** INSTRUCTIONS AND INITIALISAT
ION **
7000 POKE53280,0:POKE53281,0:PRINT"■■■■■
■■■■■
```

```
7090 PRINT"──────────────────────────────
──────────";
7100 PRINT"──┐■■■■■■■└──{■DO YOU WANT JO
YSTICKS (Y/N)■──────────";
7110 GETQ$:IFQ$=""GOTO7110
7120 IFQ$="Y"THENKB=56321:GOTO7180
7130 IFQ$<>"N"GOTO7110
7140 PRINT"■■■■■■■
```

```
10030 DATA1,68,136,16,160,0,4,84,469
10040 DATA129,255,165,36,60,60,126,255,1
086
10050 DATA0,130,198,108,124,56,16,16,648
10060 DATA8,8,8,8,28,0,0,68
10070 DATA1,9,5,35,27,69,35,255,436
10080 DATA128,136,146,164,200,178,196,25
5,1403
```

OXO

The classic game, played against the computer. But in our version the computer can be beaten!

```
10 REM     *************************
15 REM     *    NOUGHTS & CROSSES    *
16 REM     *  BY MICHAEL BEWS        *
17 REM     *      CONVERTED          *
20 REM     *  BY  DAVID GRISTWOOD    *
25 REM     *          FOR THE        *
30 REM     *      COMMODORE  64      *
35 REM     *************************
40 REM
45 GRID=1024+4+8*40:CD=55296-1024
50 BLANK$="
          "
55 DEF FN PO(X)=GRID+(INT((X-1)/3)*160)+
((X-(INT((X-1)/3)*3))*4)
60 FOR T=1 TO 9: G(T)=0: NEXT T
65 FINISH=0:TURNS=0
70 CL(1)=1:CL(2)=9:CL(3)=3:CL(4)=7
90 GOTO 1600:REM * MAIN PROGRAM *
100 REM * PRINT SCREEN *
105 REM
120 POKE 53281,5:POKE 53280,5
160 PRINT"■■■
```

```
320 PRINT:PRINT:PRINT TAB(12)"■THE SCORE
 SO FAR":PRINT
330 PRINT BLANK$
340 PRINT TAB(5)"□ME:";ME;"GAMES"
360 PRINT TAB(23)"□YOU:";YOU;"GAMES"
370 FOR T=1 TO 9
380 :C=FN PO(T):POKE C,48+T:POKEC+CD,2
390 NEXT T
395 RETURN
400 REM * YOU TO GO *
410 REM
420 PRINT"■■■■■■":PRINT BLANK$
440 PRINT"□■ YOUR TURN TO GO. WHICH SQUA
RE (1-9) ?"
460 FOR T=1 TO 10:GETA$:NEXT T
480 GET A$:IF A$="" THEN 480
500 VA=VAL(A$):IF VA<1 OR VA>9 THEN 480
520 IF G(VA)<>0 THEN 480
540 G(VA)=1:T=FN PO(VA)
560 POKE T,86:POKE T+CD,0
580 REM * CHECK FOR WIN *
620 FOR T=0 TO 2
640 :IF G(T*3+1)=1 AND G(T*3+2)=1 AND G(
T*3+3)=1 THEN FINISH=1
660 :IF G(1+T)=1 AND G(4+T)=1 AND G(7+T)
=1 THEN FINISH=1
680 NEXT T
700 IF G(1)=1 AND G(5)=1 AND G(9)=1 THEN
 FINISH=1
720 IF G(3)=1 AND G(5)=1 AND G(7)=1 THEN
 FINISH=1
740 IF FINISH=1 THEN YOU=YOU+1:RESULT$="
YOU WIN"
790 RETURN
800 REM * MY TURN *
820 PRINT"■■■■■■":PRINT BLANK$
830 PRINT"□■ MY TURN TO GO."
840 FOR T=1 TO 700:NEXT T
850 GOTO 1200
860 REM * CHECK FOR BLOCK OR WIN *
870 MOVED=0:L=0
900 FOR T=0 TO 2
910 :IF G(T*3+1)+G(T*3+2)+G(T*3+3)=C THE
N L=1:GOSUB 970
```

```
920 :IF G(1+T)+G(4+T)+G(7+T)=C THEN L=2:
GOSUB 970
930 NEXT T
940 IF G(1)+G(5)+G(9)=C THEN L=3:GOSUB 9
70
950 IF G(3)+G(5)+G(7)=C THEN L=4:GOSUB 9
70
960 RETURN
970 IF MOVED>0 THEN RETURN
990 ON L GOTO 1000,1020,1040,1100
1000 FOR U=T*3+1 TO T*3+3:IF G(U)=0 THEN
 MOVED=U
1010 NEXT U:RETURN
1020 FOR U=T+1 TO T+9 STEP 3:IF G(U)=0 T
HEN MOVED=U
1030 NEXT U:RETURN
1040 IF G(1)=0 THEN MOVED=1:RETURN
1060 IF G(9)=0 THEN MOVED=9:RETURN
1080 MOVED=5:RETURN
1100 IF G(3)=0 THEN MOVED=3:RETURN
1120 IF G(7)=0 THEN MOVED=7:RETURN
1140 MOVED=5:RETURN
1200 C=-2:GOSUB 860:REM * WIN *
1220 IF MOVED>0 THEN ME=ME+1:RESULT$="I
WIN":FINISH=1:GOTO 1450
1250 C=2:GOSUB 860:REM * BLOCK *
1280 IF MOVED>0 THEN 1450
1290 REM * GET CORNER ? *
1320 FOR T=1 TO 2
1330 :IF G(CL(T))=0 AND G(CL(3-T))=1 THE
N MOVED=CL(T)
1340 :IF G(CL(T+2))=0 AND G(CL(5-T))=1 T
HEN MOVED=CL(T+2)
1345 NEXT T:IF MOVED>0 THEN 1450
1350 FOR T=1 TO 4
1355 :IF G(CL(T))=0 THEN MOVED=CL(T)
1360 NEXT T
1370 IF MOVED>0 THEN 1450
1380 REM * ANY SQUARE *
1400 FOR T=1 TO 9
1410 :IF G(T)=0 THEN MOVED=T
1420 NEXT T
1450 REM * END MY MOVE *
```

```
1460 T=FN PO(MOVED):POKE T,87:POKE T+CD,
1
1480 G(MOVED)=-1:RETURN
1500 REM * END OF GAME *
1510 PRINT"[redacted]":PRINT BLANK$
1520 PRINT"[redacted]      ";RESULT$;". PLAY AGAI
N (Y/N) ?"
1530 FOR T=1 TO 10:GET A$:NEXT T
1540 GET A$:IF A$<>"Y" AND A$<>"N" THEN1
540
1550 IF A$="Y" THEN 20
1560 PRINT"[redacted]THANK YOU":END
1600 REM ** MAIN PROGRAM **
1605 REM
1610 GOSUB 100
1650 WT=INT(RND(TI)*2+1)
1660 ON WT GOSUB 400,800
1670 IF FINISH=1 THEN 1500
1680 TURNS=TURNS+1:IF TURNS=9 THEN RESUL
T$="A DRAW":GOTO 1500
1690 WT=3-WT:FOR T=1 TO 1    :NEXT T
1700 GOTO 1660
```

Picture Pairs

This is one for the kids, testing their powers of observation and memory. There are ten pictures of various objects displayed on the screen for a few seconds. They are then hidden from view. When you choose one of the squares the picture is revealed and you must then identify the square behind which the corresponding image is hidden. If the two pictures chosen do not form a pair, they are once again hidden and no points are scored.

```
10 REM
15 REM     **********************
20 REM     *      PAIRS  BY      *
21 REM     *  MICHAEL BEWS       *
22 REM     *  CONVERTED BY       *
25 REM     *  DAVID GRISTWOOD    *
30 REM     *       FOR THE       *
35 REM     *   COMMODORE  64     *
40 REM     **********************
45 REM
50 SCREEN=51200:CHAR=49152:UDG=128:S=0
60 TRIES=0:GRID=SCREEN+9*40+6:CD=55296-S
CREEN
70 BLANK$="
          "
100 POKE 53281,1:POKE 53280,1
110 PRINT"■"
120 IF PEEK(2)=2 THEN 250:REM * SKIP THI
S SECTION IF RE-RUNNING PROGRAM *
140 POKE 56576,4:REM * SET BANK *
150 POKE 53272,32:REM * SCREEN + CHAR SE
T *
160 POKE 648,200:REM * SET BASIC *
170 PRINT"■■■
```

```
220 POKE 49152+T,X
230 NEXT T
240 POKE 2,2
250 REM * SCREEN NOW AT 51200-52223 *
260 REM * CHAR SET NOW AT 49152-51199 *
270 REM
280 REM * READ U.D.G. *
290 FOR T=0 TO 9
300 :FOR U=0 TO 7
310 ::FOR W=0 TO 8
320 :::READ D:POKE CHAR+UDG*8+T*72+W*8+U
,D
330 ::NEXT W
340 :NEXT U
350 NEXT T
380 REM * DATA FOR U.D.G. *
400 REM 1 SHIP
420 DATA 0,0,0,0,0,8,15,225, 224,0,0,0,3
,128,8,0, 0,0,0,0,0,3,128,8
440 DATA 0,0,0,0,0,0,15,255, 8,0,0,0,0,0
,0,15, 255,8,0,0,0,0,0,0
460 DATA 63,255,252,0,0,0,0,0, 8,63,255,
248,0,0,0,0, 0,8,31,255,240,0,0,0
480 REM 2 HELICOPTER
500 DATA 0,0,0,0,7,128,0,255, 252,0,0,0,
0,12,192,0, 0,0,0,0,0,96,24,96
520 DATA 0,0,0,0,0,0,127,240, 112,0,0,0,
0,0,0,111, 255,224,0,0,0,0,127,240
540 DATA 3,255,192,0,0,0,0,2, 0,0,127,12
8,0,0,0,0, 2,0,0,6,4,0,0,0
560 REM 3 BUS
580 DATA0,0,0,0,0,0,60,1, 224,0,0,0,63,2
55,252,24, 0,192,0,0,0,36,16,84
600 DATA 0,0,0,0,0,0,36,16, 84,0,0,0,0,0
,0,36, 16,84,0,0,0,0,0,0
620 DATA 63,255,214,0,0,0,0,0, 0,63,255,
214,0,0,0,0, 0,0,127,255,214,0,0,0
640 REM 4 RAILWAY ENGINE
660 DATA 0,0,0,12,3,128,7,131, 192,0,0,0
,12,195,128,3, 1,128,0,0,0,31,255,128
680 DATA 0,0,0,0,0,0,31,255, 240,0,0,0,0
,0,0,31, 255,240,0,0,0,0,3,240
700 DATA 31,255,240,0,0,0,0,2, 128,15,25
5,240,0,0,0,12, 2,128,31,255,240,0,0,0
```

```
720 REM 5 TREE
740 DATA3,15,0,127,255,252,0,60,0,3,255,
192,63,255,188,0
750 DATA 60,0,15,255,240,55,247,248
760 DATA 0,60,0,15,255,248,31,63,248,0,6
0,0,126,255,126,31
770 DATA 60,240,0,60,0,127,255,240
780 DATA 24,60,48,0,60,0,255,255, 252,0,
60,0,0,60,0,127, 223,252,0,60,0,0,60,0
800 REM 6 CAR
820 DATA 0,0,0,0,127,0,12,0, 24,0,0,0,0,
132,128,0, 0,0,0,0,0,1,4,64
840 DATA 0,0,0,0,0,0,2,4, 32,0,0,0,0,0,0
,127, 255,255,0,0,0,0,0,0
860 DATA 63,255,255,0,0,0,0,0, 0,127,255
,254,0,0,0,0, 0,0,30,0,60,0,0,0
880 REM 7 GOOSE
900 DATA 0,0,0,0,120,0,1,0, 0,0,0,0,0,12
4,0,3, 0,0,0,0,0,0,124,240
920 DATA 0,0,0,0,0,0,96,125, 216,0,0,0,1
,224,0,127, 255,252,0,0,0,0,248,0
940 DATA 127,255,255,0,0,0,0,248, 0,15,2
55,128,0,0,0,0, 248,0,7,255,0,0,0,0
960 REM 8 TANK
980 DATA 0,0,0,64,3,0,51,51, 48,0,0,0,64
,255,0,63, 255,240,0,0,0,65,255,128
1000 DATA 12,204,192,0,0,0,67,0, 255,0,0
,0,64,0,0,79, 255,192,0,0,0,64,0,0
1020 DATA 255,255,240,0,0,0,64,0, 0,255,
255,248,0,0,0,64, 0,0,127,255,252,0,0,0
1040 REM 9 CLOCK
1060 DATA 0,0,0,9,64,144,8,66, 16,0,0,0,
8,32,16,8, 24,16,0,0,0,8,16,16
1080 DATA 8,0,16,15,255,240,10,15, 80,15
,255,240,8,0,16,8, 0,16,0,0,0,8,24,16
1100 DATA 8,0,16,0,0,0,8,66, 16,9,0,144,
0,0,0,8, 0,16,8,0,16,0,0,0
1120 REM 10 APPLE
1140 DATA 0,0,0,1,255,128,3,255, 192,0,0
,0,3,255,192,1, 255,128,0,192,0,3,159,19
2
1160 DATA 0,255,0,0,32,0,7,255, 224,0,60
,0,0,16,0,7, 255,224,0,0,0,0,16,0
```

```
1180 DATA 7,255,224,0,0,0,0,60, 0,7,255,
224,0,0,0,0, 255,0,3,255,192,0,0,0
1200 FOR T=51192 TO 51199:POKE T,255:NEX
T
1210 DIM COLOUR(11)
1220 FOR T=1 TO 11:READ COLOUR(T):NEXT T
1240 REM * DATA FOR COLOUR OF OBJECTS *
1260 DATA 11,5,2,8,9,7,4,13,14,10,14
1300 DIM A(5,4)
1320 REM * SHUFFLE CARDS *
1340 FOR T=1 TO 5
1360 :FOR U=1 TO 4
1380 ::A(T,U)=0
1400 :NEXT U
1420 NEXT T
1440 FOR T=1 TO 10
1460 :FOR U=1 TO 2
1480 ::X1=INT(RND(TI)*5+1)
1490 ::Y1=INT(RND(TI)*4+1)
1500 ::IF A(X1,Y1)=0 THEN A(X1,Y1)=T:GOT
O 1540
1520 ::GOTO 1480
1540 :NEXT U
1560 NEXT T
1990 GOTO 9000:REM * GOTO MAIN PROGRAM *
2000 REM * PRINT SCREEN *
2020 PRINT"■■PICTURE PAIRS BY MICHAEL BE
WS"
2040 GOSUB 2900:TYPE=11
2080 FOR T1=1 TO 5
2100 :FOR T2=1 TO 4
2120 ::GOSUB 3000
2140 :NEXT T2
2160 NEXT T1
2200 PRINT"■■■■■■■■"
2220 PRINTTAB(7)"A      B      C      D
 E■■"
2240 FOR T=1 TO 4
2260 :PRINTTAB(3);T
2270 IF T<4 THEN PRINT:PRINT:PRINT
2280 NEXT T
2890 PRINT"■":RETURN
2900 REM * PRINT SCORE *
2920 PRINT"■■";BLANK$
```

```
2940 PRINT"■■       RIGHT:";S
2960 PRINT"■";TAB(25)"WRONG:";TRIES
2980 RETURN
3000 REM * PRINT CARD 'TYPE' AT T1,T2 *
3020 PX=(T1-1)*6:PY=(T2-1)*4
3060 LOC=GRID+PX+40*PY
3080 SYMBOL=128+((TYPE-1)*9):IF TYPE=11
THEN SYMBOL=255
3090 IF TYPE=0 THEN SYMBOL=32
3100 FOR C=0 TO 2
3120 :FOR D=0 TO 2
3140 ::POKE LOC+C*40+D,SYMBOL
3160 ::POKE LOC+C*40+D+CD,COLOUR(TYPE)
3180 ::IF TYPE<>11 AND TYPE<>0 THEN SYMB
OL=SYMBOL+1
3200 :NEXT D
3220 NEXT C
3990 RETURN
4000 REM * DISPLAY CARDS INITIALLY *
4020 PRINT"■■■■":PRINT"■ HOW LONG DO YOU
WISH TO SEE THE CARDS"
4040 PRINT" (0 TO 9 SECONDS) ?"
4060 FOR T=1 TO 10:GET A$:NEXT T
4080 GET A$:IF A$="" THEN 4080
4090 IFA$<"0" OR A$>"9" THEN 4080
4100 TD=1000*VAL(A$):PRINT"■■■■";BLANK$:
PRINTBLANK$
4110 IF TD=0 THEN RETURN
4120 FOR T1=1 TO 5
4140 :FOR T2=1 TO 4
4160 ::TYPE=A(T1,T2):GOSUB 3000:REM * DI
SPLAY *
4180 :NEXT T2
4200 NEXT T1
4240 FOR T= 1 TO TD:NEXT:REM * DELAY *
4260 TYPE=11:REM * BLANK *
4280 FOR T1=1 TO 5
4300 :FOR T2=1 TO 4
4320 ::GOSUB 3000
4340 :NEXT T2
4360 NEXT T1
4990 RETURN
5000 REM * INPUT GUESS *
5020 PRINT"■■■■"
```

```
5040 PRINT"■  WHERE IS THE FIRST PICTURE
 "
5060 GOSUB 6000
5100 T1=G1:T2=G2
5120 TYPE=A(T1,T2):GOSUB 3000
5140 PRINT"■■■"
5160 PRINT"■  WHERE IS THE SECOND PICTUR
E "
5170 GOSUB 6000
5180 IF G1=T1 AND G2=T2 THEN 5140
5190 REM * COMPARE PICTURES *
5200 L1=T1:L2=T2:T1=G1:T2=G2
5220 TYPE=A(T1,T2):GOSUB 3000
5230 FOR T=1 TO 1000:NEXT T
5240 IF A(L1,L2)=A(G1,G2) THEN 5500
5260 REM * WRONG GUESS *
5280 TYPE=11:GOSUB 3000:T1=L1:T2=L2:GOSU
B3000
5300 TRIES=TRIES+1
5320 PRINT"■■■■  ■";TAB(14)"W R O N G !"
5330 FOR T=1 TO 1500:NEXT
5340 RETURN
5500 REM * RIGHT GUESS *
5520 TYPE=0:GOSUB 3000:A(T1,T2)=0:T1=L1:
T2=L2:GOSUB3000:A(T1,T2)=0
5560 S=S+1
5570 PRINT"■■■■  ";TAB(15)"R I G H T"
5580 FOR T=1 TO 1500:NEXT
5600 RETURN
6000 REM * CHECK VALID GUESS *
6020 FOR T=1 TO 10:GET A$:NEXT T
6040 PRINT" ITS LETTER (A TO E) ?"
6060 GET A$:IF A$="" THEN 6060
6080 IF A$<"A" OR A$>"E" THEN 6060
6100 G1=ASC(A$)-64
6140 PRINT" ITS NUMBER (1 TO 4) ?"
6160 GET A$:IF A$="" THEN 6160
6180 IF A$<"1" OR A$>"4" THEN 6160
6200 G2=VAL(A$)
6240 PRINT"■■■■":PRINT BLANK$:PRINT BLAN
K$
6260 IF A(G1,G2)=0 THEN PRINT"□□□":GOTO
6000
6280 PRINT"■■■":PRINT BLANK$
```

```
6400 RETURN
9000 REM * MAIN PROGRAM *
9020 GOSUB 2000
9040 GOSUB 4000
9060 GOSUB 5000
9080 GOSUB 2900
9100 IF S<10 THEN 9060
9120 PRINT"[redacted] THANK YOU VERY MUCH FOR
 THE GAME-BYE."
```

Bricklayer

You are in control of a small aircraft which flies across the top of the screen. From the bottom of the screen, a large wall is being built up which will eventually fill the whole of the playing area. The object of the game is to drop men out of the aircraft, aiming to plummet them through gaps in the wall to the bottom of the screen. If a man should hit any part of the wall then a life will be lost. In order to create gaps for the men to drop through and to prevent the wall advancing too far up the screen, you also have the option of dropping bombs which blow sections of the wall away.

```
1 REM ***64 VERSION***
2 REM***BRICKLAYER***
5 POKE 53280,2:POKE 53281,3:PRINT"■■■
```

```
0:IFPEEK(((I+1)*40)+Q+1024)<>32THENGOSUB
160
70 IF L=21 THEN PRINTLEFT$(D$,L+1);TAB(K
)" ":LET T=0
75 IF I=21 THEN S=S+B*2:DU=.1:HI=26:LO=1
56:GOSUB2000:PRINTLEFT$(D$,I+1);TAB(Q)"
"
76 IF I=21 THEN LET I=0:LET Z=0
110 LET A=A+C
115 PRINTLEFT$(D$,B+1);TAB(A);MID$("■[K=]
■",RND(1)*5+1,1);"[■"
120 IF A<3 OR A>35 THEN LET C=-C:LET B=B
-1
125 IF B=3 THEN 1000
130 GOTO 20
140 PRINTLEFT$(D$,L+1);TAB(K)" ":PRINTLE
FT$(D$,L+2);TAB(K-2);"      ":LET T=0
141 IF L<20 THEN PRINTLEFT$(D$,L+3);TAB(
K-1)"    "
150 RETURN
160 PRINTLEFT$(D$,I+1);TAB(Q);"■*■":LET
LIVES=LIVES-1:DU=.1:HI=2:LO=90:GOSUB 200
0
161 DU=.1:HI=3:LO=35:GOSUB2000:Z=0:PRINT
LEFT$(D$,I+1);TAB(Q)" ";LEFT$(D$,I+2);TA
B(Q-1)"    "
162 IF LIVES=0 THEN 1000
166 RETURN
180 DATA 0,126,126,126,126,126,126,126
181 DATA 0,24,118,219,255,110,24,0
182 DATA 231,126,60,60,60,60,60,24
183 DATA 28,28,8,62,8,8,20,34
190 PRINT"■";
191 POKE 56334,PEEK(56334)AND254
192 POKE 1,PEEK(1)AND 251
193 FOR I=0 TO 215:POKE I+12288,PEEK(I+5
3248):NEXT
194 FOR I=216 TO 247:READ A:POKE I+12288
,A:NEXT
195 FOR I=248 TO 511:POKE I+12288,PEEK(I
+53248):NEXT
196 POKE 1,PEEK(1)OR4
197 POKE 56334,PEEK(56334)OR1
```

```
199 LET A=35:LET B=22:LET C=-.6:LET T=0:
LET L=1:LET Z=0:LET I=1:LET X=0:LET F=1
200 LET S=0:LET LIVES=10:RETURN
1000 IF LIVES=0 THEN PRINTTAB(30)"0"
1010 FOR O=0 TO 255 STEP 4
1020 DU=.01:HI=O:LO=128:GOSUB 2000
1025 NEXT O
1030 PRINT"■■■
```

```
4022 GET A$:IF A$="" THEN 4022
4025 PRINT"■";:POKE 53272,28
4030 S=54272
4040 FOR XX=S TO S+24:POKE XX,0:NEXT XX
4050 POKE S+5,9:POKE S+6,0:POKE S+24,15
4060 RETURN
```

Drag Racer

This is a simulation of a drag race. The object of the game is to complete the quarter mile course in the shortest possible time. You have four gears and must determine the optimum moment for changing up. If you change too early, your revs will fall too low and you will lose valuable time; if you spend too much time in high revs you'll probably blow your engine. The rear end ratio of the car is progressively increased with each succeeding game, and the right moment to change gear becomes increasinly hard to judge.

```
0 REM***64 VERSION***
1 REM DRAG RACER BY R.ERSKINE 1983 MODIF
IED I.FROST
5 GOSUB 4000
10 GOSUB 9000
15 GOSUB 9150
20 G=1
100 GETI$:I=VAL(I$)
120 IFI>0ANDI<5THENG=I
125 IFT<3THENRPM=FNA(X):GOTO140
130 RPM=FNB(X)
140 IFRND(I)>(RPM-6000)/1000THEN160
150 GOTO3000
160 OS=NS
170 OP=NP
180 TQ=FNC(X)
190 TR=17
200 NS=FND(X)
210 NP=FNE(X)
240 T=T+1
250 FORJ=0TO50:NEXT:REM DELAY
280 REM * STRING FUNCTIONS FOR REV CO.+S
PEEDO DISPLAY
285 PRINTDN$;"[redacted]";"[redacted]";LEFT$((LEFT$
(BA$,NS/4+3)+BB$),32)
330 IFRPM<1500THEN3500
340 PRINTDN$;"[redacted]";LEFT$((LEFT$(BA$,RPM
/150-10)+BB$),32)
399 REM MOVE SPRITE
400 CO=CO+T*2:IFCO>255THENCF=CF+1:CO=CO-
255
```

```
410 POKEV,CO:POKEV+16,CF
500 IFNP<1320THEN100
2000 T=FNH(X)
2005 IFBT=0THENBT=T
2010 IFT<BTTHENBT=T
2030 PRINT"■TIME ";T;"■■ SECONDS          "
2040 PRINT"BEST TIME: ";BT;"■■ SECONDS"
2050 PRINT"□MAXIMUM SPEED: ";NS;"■■ MPH"
2055 FORX=1TO2000:NEXT
2060 PRINT"PRESS ANY KEY TO RESTART"
2070 GETA$:IFA$=""THEN2070
2090 GR=GR+.1:IFGR>4.1THENGR=4.11
2095 GOSUB9005
2096 GOSUB9310
2100 GOTO20
3000 POKE2040,193:POKEV+23,1:REM EXPLOSI
ON SPRITE
3010 FORI=1TO20:PRINT"ENGINE BLOWS□":FOR
J=0TO50:NEXT
3020 PRINT"■ENGINE BLOWS■□":FORJ=0TO50:N
EXT
3030 NEXTI
3040 GOTO2055
3500 PRINT"■ENGINE STALLS -LOW REVS■□"
3510 GOTO2055
4000 PRINT"■"
4010 PRINT"■■■■■■■■■■■■■ DRAG RACER ■■"
4030 PRINT"IN THIS DRAG RACING SIMULATIO
N YOU MUST
4032 PRINT"TRY TO COVER THE QUARTER MILE
 IN THE
4034 PRINT"SHORTEST POSSIBLE TIME.  THE
ONLY
4036 PRINT"CONTROLS YOU NEED ARE THE GEA
RS WHICH
4038 PRINT"MUST BE CHANGED AT THE OPTIMU
M MOMENT
4040 PRINT"■AT THE START YOU ARE IN FIRS
T GEAR AND
4042 PRINT"YOU MUST WATCH THE RPM COUNTE
R AND
4044 PRINT"DECIDE WHEN TO CHANGE INTO SE
COND.
4046 PRINT"AT OVER 6000 RPM THERE IS A H
IGH
```

```
4048 PRINT"PROBABILITY OF THE ENGINE BLO
WING.
4050 PRINT"■WITH EACH SUCCEEDING ATTEMPT
 THE GEAR
4052 PRINT"END RATIO IS INCREASED SLIGHT
LY ■HICH
4054 PRINT"MAKES THE GAME PROGRESSIVELY
MORE       DIFFICULT
4060 PRINT"■ TRY NOT TO CHANGE GEAR TOO
LATE OR TOO
4062 PRINT"EARLY.  THE GEAR KEYS ARE 1,2
,3 AND 4.  GOOD LUCK.
4070 FORX=1TO2000:NEXT
4080 PRINT"■PRESS ANY KEY TO START"
4090 GETA$:IFA$=""THEN4090
4095 RETURN
8000 PRINT"■":FORX=0TO7
8010 PRINT"■■■
```

```
9150 DEFFNA(X)=4200*(G(G)/G(1))
9160 DEFFNB(X)=NS*GR*G(G)*CN/CI
9170 DEFFNC(X)=(C1*RPM↑3)+(C2*RPM↑2)+(C3
*RPM)
9180 DEFFND(X)=OS+(TQ/TR)
9190 DEFFNE(X)=OP+NS*(5280/60↑2)
9220 DEFFNH(X)=T+(1320-OP)/(NP-OP)-1
9250 CN=63360
9260 CI=4523.893421
9270 C1=-1.8953E-9
9280 C2=1.02157E-5
9290 C3=.015752
9300 BT=0:GR=3
9310 CO=0:CF=0
9315 RESTORE
9320 FORX=0TO62:READD:POKE12288+X,D:NEXT
9330 FORX=0TO62:READD:POKE12352+X,D:NEXT
9340 V=53248:POKE2040,192:POKEV+39,6:POK
EV,CO:POKEV+1,70:POKEV+16,CF
9350 POKEV+29,1:POKEV+21,1:POKEV+23,0
9360 RETURN
49999 REM ** DATA FOR SPRITES
50000 DATA0,0,0,0,0,0,0,0,0
50001 DATA0,0,0,30,0,0,63,0,0
50002 DATA 127,128,0,127,192,0,255,192,0
50003 DATA241,224,0,238,224,0,238,224,0
50004 DATA223,96,0,238,224,0,238,229,64
50005 DATA238,242,160,241,243,224,127,21
9,228
50006 DATA127,223,238,63,191,251,31,0,14
62010 DATA136,16,34,68,56,68,102,56,204
62011 DATA55,57,216,59,187,184,31,187,24
0
62012 DATA207,255,230,127,255,252,63,255
,248
62013 DATA7,255,192,255,255,254,7,255,19
2
62014 DATA63,255,248,127,255,252,207,255
,230
62015 DATA31,187,240,59,187,184,55,57,21
6
62016 DATA102,56,204,68,56,68,136,16,34
```

Exocet

A group of enemy ships randomly make their way across the horizon, and it's up to you to sink as many of them as possible by firing missiles using the space bar. A mobile sight is printed slightly below the line of the horizon. There are three sizes of enemy ships, and the smaller the target the more points you score for a hit. Occasionally the enemy's electronic defence system will succeed in confusing your missile and deflecting it from its course.

```
1 REM EXOCET @ ROBERT ERSKINE 1983
2 REM MODIFIED FOR 64 BT I.FROST '83
3 POKE46,80:POKE48,80:POKE50,80:REM PROT
ECT NEW CHARACTER GEN
5 GOSUB9000
10 GOSUB4000
15 GOSUB1000
20 GOSUB1100
30 HS=0
100 FORX=1TOLEN(S$)
105 GOSUB570
110 PRINTLEFT$(DN$,14);:IFX<39THENPRINTL
EFT$(AC$,39-X);
120 IFX<39THENPRINTMID$(S$,1,X):GOTO140
130 PRINTMID$(S$,X-38,39);
140 IFX>LEN(S$)THENPRINTLEFT$(Q$,X-LEN(S
$));
150 REM GET FIRE STATUS
160 GETA$
170 GOSUB570
195 IFFLAG=1THEN220
200 IFA$<>"0"THEN240
209 REM PO=POSITION SIGHTS AT FIRE
210 PO=((UP-16)+(255ANDHI=1))/8+13*40+10
24:SU=PO+40*9:FL=1:R=70
211 EX=EX-1
215 POKESO+4,128:POKESO+4,129
220 POKESU,93:POKESU+40,102:SU=SU-40
230 POKESO+1,R:R=R-8:REM MISSILE SOUND
235 IFSU=POTHENGOSUB255
240 GOSUB570
243 IFFL=0THENFORI=0TO10:NEXT
```

```
245 IFEX<0ANDFL=0THEN3000
246 NEXTX:GOTO3000
250 EX=EX-1:FL=0
255 POKESU+40,102:POKESO+4,128:M=PEEK(PO
):F2=0:FL=0
259 REM: M = WHAT HIT
260 IFM=65THENSC=SC+30:F2=1
270 IFM=66ORM=67THENSC=SC+20:F2=1
280 IFM=68ORM=69ORM=70THENSC=SC+20:F2=1
290 IFF2=0THENRETURN
299 REM SOUND+SPRITE
300 POKESO+11,128:POKESO+11,129
310 POKEW+2,UP:POKEW+21,3
315 POKEW+16,(3ANDHI=1)
320 FORI=1TO1000:NEXT:POKEW+21,1
325 POKEW+16,(1ANDHI=1)
329 REM TAKE OUT BLOWN SHIP
330 KO=X+((UP-16)+(255ANDHI=1))/8-40
335 IFKO<2THENKO=2
340 S$=LEFT$(S$,KO-1)+"      "+MID$(S$,KO
+5,LEN(S$))
400 RETURN
569 REM LOC. 197 HOLDS VAL KEY HELD
570 IFPEEK(197)=64THENRETURN
574 IFPEEK(197)=23THENUP=UP+4:IFUP>70AND
HI=1THENUP=70
575 IFUP>255ANDHI=0THENUP=UP-255:HI=1
580 IFPEEK(197)=12THENUP=UP-4:IFUP<20AND
HI=0THENUP=20
585 IFUP<0ANDHI=1THENUP=UP+255:HI=0
590 POKEW,UP:POKEW+16,HI:REM SPRITE CO-O
RDINATES
595 RETURN
1000 POKE53281,6:PRINT"■":POKE53281,14
1005 PRINT"■":POKE53280,6
1010 DN$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■"
1020 AC$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■"
1030 SEA$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■■"
1040 PRINTLEFT$(DN$,15);:FORI=1TO10:PRIN
TSEA$;:NEXT:PRINTLEFT$(SEA$,39);
1050 POKE2023,102:RETURN
```

```
1100 S$="":UP=20:HI=0:EX=15
1110 G$(1)="♠     ":REM SHIFT A
1120 G$(2)="|—    ":REM  - BC
1130 G$(3)="—¯_   ":REM  - DEF
1140 FORX=4TO10:G$(X)="      ":NEXT
1150 Q$="
        "
1160 FORX=1TO50
1170 S$=S$+G$(RND(X)*10+1)
1180 NEXT:P$=S$
1190 SC=0:POKEW+21,1 :  RETURN
2000 GOTO2000
3000 POKEW+21,0:PRINT"■":POKE53281,6:POK
E53280,0:POKES+4,128
3010 PRINT"■                  ■GAME OVER"
3020 PRINT"■■■■■■■ YOUR SCORE WAS";SC
3030 IFSC>HSTHENHS=SC
3040 PRINT"■ THE HIGH SCORE IS";HS
3050 PRINT"■■■■■■■■■■■■■■■PRESS ANY KEY TO
RESTART"
3060 WAIT197,64:GETA$:IFA$=""THEN3060
3080 GOSUB1000:GOSUB1100:GOTO100
4000 POKE53280,6:POKE53281,7:PRINT"■■■
            EXOCET■"
4010 PRINT"■   THE OBJECT OF THIS GAME I
S TO SINK
4020 PRINT" THE ENEMY SHIPS WITH EXOCET
MISSILES
4030 PRINT" AS THEY CROSS THE HORIZON
4040 PRINT"        ■Z = MOVE SIGHT LEFT
4050 PRINT"        ■X = MOVE SIGHT RIGHT
4060 PRINT"        ■0 = FIRE MISSILE
4070 PRINT"        ■HIT ON —¯_ SCORES 10
4080 PRINT"        ■HIT ON |—  SCORES 20
4090 PRINT"        ■HIT ON ♠   SCORES 30
4100 PRINT"■■■■■ PRESS ANY KEY TO START"
4110 GETA$:IFA$=""THEN4110
4120 RETURN
9000 PRINT"■PLEASE WAIT ONE MINUTE"
9003 REM READ CHAR GEN
9010 POKE56334,PEEK(56334)AND254
9020 POKE1,PEEK(1)AND251
9030 FORI=0TO128:FORJ=0TO7
9040 POKE10240+I*8+J,PEEK(53248+I*8+J)
9050 NEXTJ,I
```

```
9060 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1
9070 POKE53272,(PEEK(53272)AND240)OR10
9079 REM READ IN NEW CHARS
9080 FORI=65 TO70 :FORJ=0TO7:READD:POKE1
0240+I*8+J,D:NEXTJ,I
9090 DATA0,0,0,0,0,0,16,255,0,0,0,0,1,39
,255,127,0,0,0,0,128,230,255,254
9100 DATA0,0,0,0,1,255,127,63,0,24,60,63
,255,255,255,255,0,0,0,0
9110 DATA192,255,254,252
9120 SO=54272:W=53248
9130 FORI=0TO62:READD:POKE12288+I,D:NEXT
9140 FORI=0TO62:READD:POKE12352+I,D:NEXT
9149 REM W=VIDEO, SO=SOUND
9150 POKEW,16:POKEW+1,228:POKEW+28,2:POK
EW+3,130:POKEW+23,2:POKEW+29,2
9160 POKEW+37,2:POKEW+38,7:POKEW+39,0:PO
KE2040,192:POKE2041,193
9170 POKESO+5,15:POKESO+12,11:POKESO+24,
15:POKESO+8,15
9180 RETURN
9299 REM SIGHT SPRITE
9300 DATA0,24,0,0,24,0,0,24,0,0,24,0,0,2
4,0,240,24,15,240,24,15
9310 DATA192,24,3,192,24,3,192,24,3,192,
24,3,192,24,3,192,24,3,192,24,3
9320 DATA194,24,67,194,24,67,194,24,67,1
94,24,67,194,24,67,194,24,67
9330 DATA255,255,255
9399 REM BOOM SPRITE
9400 DATA136,16,34,68,56,68,102,56,204
9410 DATA55,57,216,59,187,184,31,187,240
9420 DATA207,255,230,127,255,252,63,255,
248
9430 DATA7,255,192,255,255,254,7,255,192
9450 DATA63,255,248,127,255,252,207,255,
230
9460 DATA31,187,240,59,187,184,55,57,216
9470 DATA102,56,204,68,56,68,136,16,34
```

Numbers

If you're a Roman who doesn't understand numbers to base 3, then this is the program for you. Convert between binary, hexadecimal, decimal and Roman numerals, plus any other number systems (to different bases) you care to invent. 7 fingered aliens catered for!

```
10 REM ************************
20 REM *       NUMBERS          *
30 REM * ORIGINAL BY M. BEWS    *
40 REM *                        *
50 REM * CBM 64 VERSION BY      *
60 REM * GEOFF A., WITH FULL    *
70 REM * HEX <> DEC & BIN<>DEC*
80 REM * CONVERSION             *
90 REM ************************
100 :POKE52,64:POKE56,64:CLR:POKE53280,4
:POKE53281,6
110 DIMK(10),C(25),A$(10),RN$(8),RN(8),H
E$(16,2)
120 DATA1000,500,100,50,10,5,1
130 DATA0,0000,1,0001,2,0010,3,0011,4,01
00,5,0101,6,0110,7,0111
140 DATA8,1000,9,1001,A,1010,B,1011,C,11
00,D,1101,E,1110,F,1111
150 RN$="MDCLXVI":FORA=1TO7:RN$(A)=MID$(
RN$,A,1):READRN(A):NEXT
160 FORA=0TO15:READHE$(A,1),HE$(A,2):NEX
T
200 PRINTCHR$(14)"■"TAB(4)"■■* |♠♥¯¯ ⌐/.
...  /╱|¯_ ♥ |♥| ¯\♥ *■■■"
210 PRINT"  |HIS PROGRAM EXAMINES A FEW
OF THE"
220 PRINT"MANY COUNTING SYSTEMS, AND ENA
BLES YOU"
230 PRINT"TO INVESTIGATE SOME OF YOUR OW
N!■■"
240 PRINTTAB(10)"■ ¯LEASE WAIT ..... ■":
GOSUB5000:PRINTCHR$(142);
250 POKE53280,5:POKE53281,6:PRINT"■■"TAB
(15)"■■* MENU *■■■■"
```

```
260 PRINTTAB(5)"■ 1 ■  ROMAN NUMBERS■"
270 PRINTTAB(5)"■ 2 ■  DECIMAL SYSTEM■"
280 PRINTTAB(5)"■ 3 ■  BINARY SYSTEM■"
290 PRINTTAB(5)"■ 4 ■  HEXADECIMAL SYSTE
M■"
300 PRINTTAB(5)"■ 5 ■  INVENT YOUR OWN!■
"
310 PRINTTAB(5)"■ 6 ■  ■ EXIT FROM PROGR
AM ■"
320 PRINTTAB(10)"■■■■■ PRESS 1-6 TO GO ■
"
330 GETQ$:IFQ$<"1"ORQ$>"6"GOTO330
340 ONVAL(Q$)GOTO400,800,1200,1600,2200,
4000
350 GOSUB5100:END
399 REM *** ROMAN NUMBERS ***
400 POKE53280,5:POKE53281,2:PRINT"■"TAB(
10)"■■* ROMAN NUMBERS *■■"
410 PRINT"■            IN THE ROMAN SYSTEM
          ■";
420 PRINT"■
          ■";
430 PRINT"■ M=1000 D=500 C=100 L=50 X=10
 V=5 I=1    ■"
440 PRINT"■ A LOWER VALUE LETTER IMMEDIA
TELY"
450 PRINT"PRECEDING A LETTER OF HIGHER V
ALUE IS"
460 PRINT"SUBTRACTED INSTEAD OF BEING AD
DED SO"
470 PRINT"THAT, FOR EXAMPLE, LX=60 AND X
L=40■"
480 PRINT"ENTER A COMPLETE ROMAN NUMBER"
:PRINT"(E.G. MCMLXXXIV)"
490 PRINT"OR PRESS ■RETURN■ FOR MENU"
495 PRINT"                ■■■■■■■■■■■■■■■*■■
■■■";:INPUTT$
500 IFT$="*"GOTO250
510 FORA=1TOLEN(T$):FORA1=1TO7:C(A)=C(A)
+(RN(A1)AND(MID$(T$,A,1)=RN$(A1)))
520 NEXTA1
530 IFC(A)<1THENPRINTT$" IS NOT A ROMAN
NO.□□□□□":A=LEN(T$):NEXTA:GOTO480
540 NEXTA:T=0:FORA=1TOLEN(T$):IFC(A+1)>C
(A)THENC(A)=-C(A)
```

```
550 T=T+C(A):C(A)=0:NEXTA:PRINT"
                "
555 PRINT"■                □":PRINTT$" =
";T
560 PRINT"■■■■■■■■■■■■■■■■";:GOTO480
799 REM ** DECIMAL SYSTEM **
800 POKE53280,6:POKE53281,7:PRINT"■■"TAB
(6)"■* DECIMAL SYSTEM (BASE 10) *■■■"
810 PRINT"■ ORIGIN ■ TEN FINGERS AND THU
MBS MAKE■"
820 PRINT"IT CONVENIENT TO COUNT IN GROU
PS OF TEN!"
830 PRINT"■■ALL COUNTING SYSTEMS NEED EN
OUGH SYMBOLS■TO REPRESENT THE COUNT";
840 PRINT" FROM ZERO UP TO  ■ONE LESS TH
AN THE BASE NUMBER."
850 PRINT"■THIS MEANS THAT SYMBOLS 0 1 2
 3 4 5 6 7 ■8 9 ARE NEEDED FOR ■DECIMAL"
860 PRINT"■THERE IS NO SEPARATE SYMBOL F
OR THE BASE■(TEN IN THIS CASE).
870 GOSUB5200:PRINT"■■"TAB(6)"■* DECIMAL
 SYSTEM (BASE 10) *■■■"
880 PRINT"■THE BASE IS REPRESENTED BY 1
0 TO INDI- ■CATE 1 COMPLETE GROUP OF";
890 PRINT" TEN PLUS 0 REM-■AINDER. '1 0
0' THEREFORE MEANS TEN■"
900 PRINT"GROUPS OF TEN, OR 10 X 10, OR
10| (10 TO■THE POWER OF TWO).■"
910 PRINT"10↑ 10| 10| 10↓ 10↑ 10↑ 10↑ 10
| 10↑ 10↖ ■";
920 PRINT"                                1
   0   0■"
930 PRINT"■■ NOTE:■ ANY NUMBER RAISED TO
 THE POWER OF■ 1 (EG 10↑) IS ITSELF.■"
940 PRINT"AND ANY NUMBER RAISED TO THE P
OWER 0 IS ■ALWAYS 1 (EG 10↖ = 1)
950 GOSUB5200:PRINT"■■"TAB(6)"■* DECIMAL
 SYSTEM (BASE 10) *■■■"
960 PRINT"■USING THIS CONVENTION, RELATI
NG ASCEND- ■ING POWERS OF THE BASE";
970 PRINT"■VALUE, YOU CAN  ■CREATE A CO
UNTING SYSTEM TO ANY BASE YOU■ WISH!"
980 GOSUB5190:GOTO250
1190 REM **  BINARY (-> DECIMAL   **
```

```
1191 REM **  THIS SECTION IS VERY **
1192 REM **  USEFUL FOR BUDDING   **
1193 REM **  GRAPHICS PROGRAMMERS!**
1194 REM **  CONVERSION USES HEXA-**
1195 REM **  DECIMAL AS AN INTER  **
1196 REM **  -MEDIATE STEP
1200 POKE53280,8:POKE53281,10:PRINT"■■"T
AB(7)"■* BINARY SYSTEM (BASE 2) *■■■"
1210 PRINT"■   HI! I CONSIST OF A VAST N
UMBER OF    ";
1220 PRINT"SWITCHES. EACH SWITCH CAN BE
■ON■ OR ■OFF■. ";
1230 PRINT"(WELL, I HAVE A FEW CONFUSED
ONES THAT  ";
1240 PRINT"GET STUCK HALF WAY,BUT IGNORE
 THOSE!!)  ";
1250 PRINT"  FROM THE NOTES ON THE DECIM
AL SYSTEM, ";
1260 PRINT"YOU CAN SEE THAT BINARY NEEDS
 ONLY TWO  SYMBOLS, '0' AND '1'";
1270 PRINT", TO COUNT UP TO ANYNUMBER. U
SING MY 'OFF' STATES TO REPRE- SENT";
1280 PRINT" '0' AND 'ON' TO REPRESENT '1
', I   CAN HOLD A DECIMAL NUMBER USING";
1290 PRINT" A CHAIN OF SIMPLE SWITCHES.
                    ■"
1300 PRINT"■■I CAN ALSO:■"
1310 PRINT"CONVERT DECIMAL TO BINARY ■(P
RESS 1 )■
1320 PRINT"■     OR BINARY TO DECIMAL ■(
PRESS 2 )■"
1330 PRINT"■     OR ■RETURN■ TO MENU!"
1340 GETQ$:IFQ$=""GOTO1340
1350 IFQ$=CHR$(13)GOTO250
1360 IFQ$="1"GOTO1500
1370 IFQ$<>"2"GOTO1340
1379 REM ** BINARY TO DECIMAL **
1380 PRINT"■■■■ENTER A BINARY NO.( < 17
 DIGITS)■"
1390 PRINT"DO NOT LEAVE ANY SPACES! ('RE
TURN' FOR  MENU)"
1395 INPUT"                 ■■■■■■■■■■■■■■
*■■■■";L$
1400 IFL$="*"GOTO250
```

```
1405 IFLEN(L$)>16GOTO1380
1410 FORA=1TOLEN(L$):IFMID$(L$,A,1)<"0"O
RMID$(L$,A,1)>"1"GOTO1560
1420 NEXTA
1425 JL=LEN(L$):IFJL/4=INT(JL/4)GOTO1440
1430 L$="0"+L$:GOTO1425
1440 HE$="":FORA=1TOJLSTEP4:FORA1=1TO15
1450 IFMID$(L$,A,4)=HE$(A1,2)THENHE$=HE$
+HE$(A1,1)
1460 NEXTA1,A
1470 IFLEN(HE$)<4THENHE$="0"+HE$:GOTO147
0
1480 N$=L$:T$=HE$:BIN=1:GOSUB2080:GOSUB5
190:GOTO1380
1500 PRINT"■■■■■ENTER A DECIMAL NO.( < 6
5535)■"
1510 PRINT"('RETURN' FOR  MENU)"
1520 INPUT"              ■■■■■■■■■■■*■■■■";L
$:IFL$="*"GOTO250
1525 FORA=1TOLEN(L$):JL$=MID$(L$,A,1)
1527 IFJL$<"0"ORJL$>"9"THENA=LEN(L$):NEX
TA:GOTO1560
1530 NEXTA:L=VAL(L$):IFL<0ORL>65535GOTO1
700
1535 T$=L$:HE$="":BN$="":BIN=1:GOSUB1830
1540 FORA=1TO4:FORA1=0TO15
1550 IFMID$(HE$,A,1)=HE$(A1,1)THENBN$=BN
$+HE$(A1,2)+" ":A1=15
1555 NEXTA1,A:PRINT"■"T$" = "BN$:GOSUB51
90:GOTO1500
1560 PRINT"■ I DON'T UNDERSTAND ■'"L$:L$
=Q$:GOSUB5190:ONVAL(L$)GOTO1500,1380
1570 GOTO250
1597 REM ** HEX <-> DECIMAL **
1598 REM ** NOTE USEFUL ROUTINES **
1599 REM ** FOR MACHINE CODE MANIACS **
1600 POKE53280,7:POKE53281,6:PRINT"■■
■* HEXADECIMAL NUMBERS (BASE 16) *■■■"
1610 PRINT"      ■COMPUTERS WORK BEST IN
BINARY■       ";
1620 PRINT"■
            ■";
1630 PRINT"      ■UNFORTUNATELY HUMANS DO
 NOT!!■"
```

```
1640 PRINT"■THIS COMPUTER USES 8 BIT 'WO
RDS' (BYTES)"
1650 PRINT"EACH BYTE CAN HOLD AN INTEGER
 NUMBER IN THE RANGE 0 - 255"
1660 PRINT"(I.E.11111111 IN BINARY.)
1670 PRINT"■A HEX. NUMBER IS EQUIVALENT
TO A FOUR   BIT BINARY NO."
1680 PRINT"E.G. 1111 = F    0111 = 7"
1690 PRINT"          |   ♠—      |   ♠—"
1700 PRINT"THIS IS AN EASY WAY OF REPRES
ENTING     BINARY NUMBERS FOR YOU & ME!"
1710 PRINT"E.G. 010000001111 = 40F  = 10
39"
1720 PRINT"                    |      ♠—
  ♠↘":GOSUB5200
1721 PRINT"■■  ■*  HEXADECIMAL NUMBERS (
BASE 16)  *■■■"
1722 PRINT"   DECIMAL      HEXADECIMAL■"
1723 FORA=0TO15:PRINTTAB(6);A;TAB(22)HE$
(A,1):NEXT:GOSUB5200
1730 PRINT"■■■DO YOU WANT TO CONVERT:■"
1740 PRINTTAB(10)"DECIMAL TO HEX (PRESS
■1■)■"
1750 PRINTTAB(7)"OR HEX TO DECIMAL (PRES
S ■2■)?"
1755 GETQ$:IFQ$<"1"ORQ$>"2"GOTO1755
1760 IFQ$="2"GOTO2000
1770 PRINT"■■■ENTER A DECIMAL NUMBER (0
- 65535)"
1780 PRINT"OR ■RETURN■ FOR MENU"
1790 INPUT"  *■■■■";T$
1800 IFT$="*"GOTO250
1810 L=VAL(T$):IFL>65535ORL<0THENPRINT"O
UT OF RANGE. TRY AGAIN!":GOTO1790
1820 PRINTT$" = ";:BIN=0
1829 REM ** DEC - HEX CONVERT ROUTINE
1830 L=L/4096:FORA=1TO4:L%=L:L$=CHR$(48+
L%-(L%>9)*7):IFBIN=0THENPRINTL$;
1840 IFBIN=1THENHE$=HE$+L$
1850 L=16*(L-L%):NEXT:IFBIN=0THENPRINT:G
OSUB5190:GOTO1770
1860 RETURN
2000 PRINT"■■■ENTER A HEX NUMBER (E.G. 1
A5D)
```

```
2010 PRINT"OR RETURN FOR MENU"
2020 INPUT"        ******";T$
2030 IFT$="*"GOTO250
2040 FORA=1TOLEN(T$):T1$=MID$(T$,A,1)
2050 IFT1$>="0"ANDT1$<="9"GOTO2070
2060 IFT1$<"A"ORT1$>"F"THENPRINTT$" IS N
OT A HEX NO.".A=LEN(T$):NEXT:GOTO1790
2070 NEXTA:N$=T$:BIN=0
2079 REM HEX - DEC CONVERT ROUTINE
2080 L=0:FORA=1TOLEN(T$):L%=ASC(T$):L%=L
%-48+(L%>64)*7:T$=MID$(T$,2)
2090 L=16*L+L%:NEXT:PRINTN$" = ";L:IFBIN
=0THENGOSUB5190:GOTO2000
2100 RETURN
2199 REM ** VARIBASE CALCULATOR **
2200 POKE53280,13:POKE53281,11:PRINT"
TAB(7)"* VARIBASE CALCULATOR *"
2210 PRINT"YOU MAY CHOOSE ANY BASE BETWE
EN 2 AND 24"
2220 PRINT"(DECIMAL). WE SHALL USE LETTE
RS 'A' TO  'N' FOR THE EXTRA SYMBOLS";
2230 PRINT" UP TO ONE LESS THAN THE CHOS
EN BASE VALUE."
2240 INPUT"ENTER YOUR BASE (2 - 24)
***";L$:IFL$="*"GOTO250
2250 B=VAL(L$):IFB<2ORB>24THENPRINT"  ";
:GOTO2240
2255 BP=4-(B<10)*4
2260 PRINT"TAB(7)"* VARIBASE CALCULA
TOR *"
2270 PRINTTAB(14)" BASE ";B
2280 PRINT" YOUR BASE              DECIM
AL          EQUIVALENT
2290 PRINT"TAB(4);B;"  ";TAB(24)"1"
2300 FORA=1TO9:PRINTTAB(4);B;" "CHR$(96+
A);TAB(23);INT(B↑A):NEXTA
2310 GOSUB5190
2315 PRINT"TAB(7)"* VARIBASE CALCULA
TOR *"
2320 PRINT"INPUT A DECIMAL NUMBER FOR C
ONVERSION TO BASE";B;"( < ";B↑BP;")"
2330 INPUT"(OR RETURN FOR MENU
*******";L$:IFL$="*"GOTO250
```

```
2340 JL=LEN(L$):FORA=1TOJL:JL$=MID$(L$,A
,1)
2350 IFJL$<"0"ORJL$>"9"GOTO2315
2360 L=VAL(L$):IFL>B↑BPORL<0GOTO2315
2365 HE$="":NA=L:FORA=1TO8
2370 I=INT(NA/B):HE$=CHR$(48+(NA-B*I)+(7
AND(NA-B*I)>9))+HE$
2380 IFI>=BTHENNA=I:NEXTA
2383 HE$=CHR$(48+I+(7ANDI>9))+HE$:A=8
2385 NEXT
2400 PRINT"■■";L$;"■■ ↰■ = "HE$" (BASE";B
;")■"
2410 IFB>9THENFORA=10TOB-1:PRINTCHR$(55+
A)" =";A;" ";:GOTO2415
2412 GOTO2430
2415 IFA=14ORA=19THENPRINT"■";
2420 NEXTA
2430 PRINT:GOTO2310
4000 GOSUB5100:END
4999 REM ** SET UP USER DEFINED CHARS
5000 POKE56334,PEEK(56334)AND254:POKE1,P
EEK(1)AND251:REM K/B & I/O OFF
5005 CS=20480:C1=53248:C2=1024
5010 FORA=0TO63:FORA1=0TO7:OS=A*8+A1
5020 POKECS+OS,PEEK(C1+OS):POKECS+OS+C2,
PEEK(C1+OS+C2):NEXTA1,A
5030 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1:REM K/B & I/O ON
5040 POKE53272,(PEEK(53272)AND240)OR4
5045 PRINT"■";
5050 FORA=65TO74:FORA1=0TO7:READB
5055 POKECS+(8*A)+A1,B:NEXTA1
5060 NEXTA
5070 POKE648,64:POKE56576,(PEEK(56576)AN
D252)OR2
5075 POKE53272,(PEEK(53272)AND15)
5080 RETURN
5099 REM ** RETURN TO NORMAL CHAR. SET
5100 POKE648,4:POKE56576,(PEEK(56576)AND
252)OR3
5110 POKE53272,21:PRINT"■";:POKE54296,0:
RETURN
5190 PRINTTAB(5)"■PRESS ■RETURN■ TO CONT
INUE":GOTO5210
```

```
5200 PRINTTAB(5)"■■PRESS ■RETURN■ FOR NE
XT PAGE□"
5210 GETQ$:IFQ$<>CHR$(13)GOTO5210
5220 RETURN
10000 DATA32,96,32,32,248,0,0,0,240,16,3
2,64,240,0,0,0
10010 DATA240,16,112,16,240,0,0,0,128,12
8,160,240,32,0,0,0
10020 DATA240,128,240,16,240,0,0,0,192,1
28,240,144,240,0,0,0
10030 DATA240,16,32,64,128,0,0,0,240,144
,96,144,240,0,0,0
10040 DATA96,144,112,16,240,0,0,0,96,144
,144,144,96,0,0,0
```

Championship Boxing

Although we say it ourselves, this program is very close to being a masterpiece. Let's face it, you're never going to make it into the ring, but the hours you spend keying-in programs amount to a great deal of repressed aggression. So here's your chance to take on the boxing champions of the world without stirring from your armchair. The program offers you a bird's eye view of a boxing ring and the opportunity to go three rounds with an opponent of your choice. You only score points if you manage to connect with the head, and a KO is possible if your strategy's slick enough.

```
1 REM***] BOXER ***
2 REM *** 64 VERSION ***
5 S1=0:S2=S1:V=53248:POKEV,0:POKEV+1,0:P
OKEV+2,0:POKEV+3,0
8 GOSUB7000:POKE53280,10:POKE53281,10
10 GOSUB2500
15 ROUND=1:PRINTCHR$(8);:POKEV+21,3
20 GOSUB9500
62 PRINT"[redacted]"TAB(33)RO
63 POKES0+15,37:POKES0+4,21
70 X=32:Y=60:TM=3:TS=1:F=224:G=220:E=0:P
OKE2040,195:POKE2041,192:POKES0+4,20
100 POKEV,X:POKEV+1,Y:POKEV+2,F:POKEV+3,
G
130 TS=TS-1:IFTS=0THENTM=TM-1:TS=60:IFTM
=-1THENGOTO8500
150 PRINT"[redacted]";:PRINTTAB(30)TM;":";:I
FTS<10THENPRINT"0";
160 PRINTTS
400 IFPEEK(653)=2THENGOSUB1000
410 IFPEEK(653)=1THENGOSUB1100
450 IFF<X+20THENIFRND(1)>SKTHENGOSUB2000
500 KE=PEEK(197)
505 Y=Y-8*((KE=23ANDY<220)-(KE=12ANDY>60
))
510 X=X-8*((KE=44ANDX<224)-(KE=47ANDX>32
))
550 F=F+8*INT(RND(1)*2.5)*-((F<X+4)-(F>X
+4))*(F>32)*(F<232)
```

```
552 IFF<X+6THENF=X+6
560 G=G+8*INT(RND(1)*2.5)*-((G<Y)-(G>Y))
563 IFG=YTHENG=Y+8*(INT(RND(1)*3)-1)
565 IFG>220THENG=220
570 IFE=0THENIFX>210THENE=1
580 IFE>0THENE=E+(X<100)+1:IFE=10THENGOS
UB3000
690 REM SOUND
700 GOTO100
1000 POKE2040,197:POKESO+8,10
1020 IFY<G+12ANDY>G+4THENIFX>F-12ANDX<F+
4THENS1=S1+1:GOSUB1200:POKESO+11,33
1030 IFS1=K2THENGOTO6000
1040 FORT=1TO40:NEXT
1050 POKE2040,195:POKESO+11,0
1090 RETURN
1100 POKE2040,196:POKESO+8,10
1120 IFY<G-4ANDY>G-12ANDX>F-12ANDX<F+4TH
ENS1=S1+1:GOSUB1200:POKESO+11,33
1130 IFS1=K2THENGOTO6000
1140 FORT=1TO40:NEXT
1150 POKE2040,195:POKESO+11,0
1190 RETURN
1200 PRINT"[REVERSE]                    "TAB(32)S1
1210 RETURN
2000 IFG>YTHENGOTO2100
2010 POKE2041,194:POKESO+8,12
2020 IFG>Y-12ANDG<Y-4THENIFF>XANDF<X+8TH
ENS2=S2+1:GOSUB2200:POKESO+11,33
2035 IFS2=K1THENGOTO6500
2040 FORT=1TO40:NEXT
2050 POKE2041,192:POKESO+11,0
2090 RETURN
2100 POKE2041,193:POKESO+8,12
2130 IFG>Y+4ANDG<Y+12THENIFF>XANDF<X+8TH
ENS2=S2+1:GOSUB2200:POKESO+11,33
2135 IFS2=K1THENGOTO6500
2140 FORT=1TO40:NEXT
2150 POKE2041,192:POKESO+11,0
2190 RETURN
2200 PRINT"[REVERSE]                          "TAB(3
2)S2
2210 RETURN
2500 REM SOUNDS
```

```
2505 SO=54272:FORT=0TO28:POKESO+T,0:NEXT
T
2510 POKESO+1,146:POKESO+5,7:POKESO+6,12
3:POKESO+15,19:POKESO+24,15
2520 POKESO+8,10:POKESO+12,9:POKESO+13,1
23
2550 RETURN
3000 REM UP AGAINST THE ROPES
3010 FORT=200TO150STEP-1:POKEV,T:NEXTT
3040 E=0:X=T:RETURN
6000 X=X-10:F=F+10:POKEV+2,F:POKE2041,19
8 :POKEV,X:POKESO+11,0
6010 POKESO+15,19:FORT=1TO10:POKESO+4,21
:FORDL=1TO100:NEXTDL:POKESO+4,20
6020 FORDL=1TO100:NEXTDL:NEXTT
6050 PRINT"■■■■■■■■■■■■"TAB(10)"WELL BOXED
- A K.O."
6060 POKE2040,199:FORDL=1TO5000:NEXT
6100 GOTO6625
6500 X=X-10:F=F+10:POKEV,X:POKE2040,198
:POKEV+2,F:POKESO+11,0
6510 POKESO+15,19:FORT=1TO10:POKESO+4,21
:FORDL=1TO100:NEXTDL:POKESO+4,20
6520 FORDL=1TO100:NEXTDL:NEXTT
6550 PRINT"■■■■■■■■■■■■  BAD LUCK- A K.O.
!!"
6600 POKE2041,199:FORDL=1TO5000:NEXT
6625 POKEV+21,0:PRINT"■";:IFK1=S2ORS2>S1
THEN6700
6630 PRINT" WELL DONE!! ":PRINT" YOU BEA
T "B$(XX)" IN "RO" ROUNDS"
6640 PRINT"■THE RESULT IN POINTS WAS "S1
" FOR YOU":PRINT"AND "S2" FOR "B$(XX)
6650 PRINT"■ I SUGGEST THAT YOU TRY A TO
UGHER          OPPONENT"
6660 GOTO6780
6700 PRINT" ■BAD LUCK!!":PRINT" ■YOU WER
E BEATEN IN "RO" ROUNDS"
6710 PRINT"■THE RESULT IN POINTS WAS "S1
" FOR YOU":PRINT"AND "S2" FOR "B$(XX)
6720 PRINT"■I SUGGEST THAT YOU TRY A WEA
KER OPPONENT"
6780 PRINT"■ HERE'S YOUR CHOICE:-"
6790 FORF=1TO10:PRINTF"...";:IFF<>10THEN
PRINT".";
```

```
6795 PRINTB$(F):NEXTF:POKE198,0
6797 INPUT"ENTER YOUR OPPONENTS NO. OR 0
 TO END";XX:IFXX<>0THEN6810
6800 PRINT"■■■■■ NEXT TIME YOU WANT A FI
GHT I WILL BE "
6805 PRINT"■■■■■■ FOR YOU■■■■■":END
6810 PRINT"■■■■ OK- YOU SHALL FIGHT "B$(
XX):PRINT"■PRESS ANY KEY TO START THE BO
UT"
6820 GETW$:IFW$=""THEN6820
6830 S1=0:S2=0:SK=(11-XX)/12:K2=10+XX+IN
T(RND(1)*6):K1=16-XX+INT(RND(1)*10)
6840 GOTO15
7000 RESTORE:REM TITLES ETC.
7100 PRINT"■■■■■■■■■    ENTER YOUR NAME(M
AX 6 LETTERS)
7150 INPUTC$:IFLEN(C$)>6THEN7100
7200 PRINT"■";
7500 DATA"HENRY HOPELESS","ARNOLD AWFUL"
,"NIGEL NO-GOOD","PHILIP FAIR"
7502 DATA"ANDREW AVERAGE","ROGER RIGHT-H
OOK","BRIAN BRICKWALL","SIMON SUPER"
7504 DATA"EDWARD EXCELLENT","FLYNN FANTA
STIC"
7510 PRINT"■        C H A M P I O N S H
I P"
7515 PRINT"■               B O X I N G "
7520 PRINT"■■  SO YOU WANT TO BE A CHAMP
ION DO YOU?"
7522 PRINT"■  IF SO THEN THIS IS THE GAM
E FOR YOU"
7524 PRINT"■  WHICH OPPONENT DO YOU WISH
 TO FIGHT                    FIRST?"
7530 FORF=1TO10:READA$:PRINTF"...";:IFF<
>10THENPRINT".";
7535 PRINTA$:B$(F)=A$:NEXTF
7540 INPUTXX:IFXX<10RXX>10THENPRINT"■■":
GOTO7540
7545 SK=(11-XX)/12
7546 K2=10+XX+INT(RND(1)*6):K1=16-XX+INT
(RND(1)*10)
7550 B$=LEFT$(B$(XX),6)
7560 PRINT"■":PRINT"■     VERY WELL,YOUR
 OPPONENT WILL BE■":PRINTTAB(14)B$(XX)
```

```
7562 PRINT"■ EACH BOUT YOU FIGHT IS ONL
Y 3 ROUNDS"
7564 PRINT"■ MOVE ABOUT THE RING WITH■ <
>XZ ■AND PUNCH";
7566 PRINT"■ WITH ■CBM■(LEFT HAND),■SHIF
T■(RIGHT HAND)
7568 PRINT"■NOTE THAT YOU CAN MOVE AND P
UNCH AT THE":PRINT"■  SAME TIME.■"
7570 PRINT"■ ONLY PUNCHES TO THE HEAD SC
ORE AND ":PRINT"■ KNOCK-OUTS ARE POSSIBL
E"
7575 GOSUB9000
7580 PRINT"■ PRESS ANY KEY TO START THE
BOUT"
7590 GETX$:IFX$=""THEN7590
7595 RETURN
8500 REM END OF ROUND
8505 PRINT"■■■■■■■■"TAB(29)" 0 : 00  "
8510 POKESO+4,21
8520 POKE2040,192:POKE2041,195
8530 FORT=1TO500:NEXT:POKESO+4,20
8540 X=X+4*(X>32):Y=Y+4*(Y>60):F=F-4*(F<
224):G=G-4*(G<220)
8550 POKEV,X:POKEV+1,Y
8560 POKEV+2,F:POKEV+3,G
8565 POKE2040,192:POKE2041,195
8570 IFX<=32ANDY<=60ANDF>=224ANDG>=220TH
EN8580
8575 GOTO8540
8580 ROUND=ROUND+1:IFROUND=4THENROUND=3:
GOTO6620
8585 POKESO+15,19:FORT=1TO10:POKESO+4,21
8590 PRINT"■■■■■■■■■■■■■■"TAB(7)"PREPARE TO
FIGHT":PRINTTAB(7)" THE NEXT ROUND "
8595 FORDL=1TO200:NEXTDL:POKESO+4,20
8600 PRINT"■■■■■■■■■■■■■■"TAB(7)"
     ":PRINTTAB(7)"                  "
8605 FORDL=1TO200:NEXTDL
8610 NEXTT
8620 GOTO62
9000 REM READ IN SPRITES' DATA HERE
9010 FORT=0TO511:READA:POKE192*64+T,A:NE
XTT
```

```
9100 POKE2040,192:POKE2041,195:POKEV+39,
0:POKEV+40,7
9400 RETURN
9500 REM DRAW RING
9510 AA$="▒":BB$=AA$
9520 FORT=1TO27:AA$=AA$+"▒":BB$=BB$+" ":
NEXTT
9530 PRINT"■"TAB(8)"POINTS"TAB(18)"POINT
S"TAB(32)"TIME"
9535 AA$=AA$+"▒":BB$=BB$+"▒"
9540 PRINT"■"AA$:FORT=0TO22:PRINTBB$:NEX
TT:PRINTAA$;
9600 PRINT"■"SPC(152)"TIME"SPC(196)"ROUN
D"SPC(195)"POINTS"SPC(35)LEFT$(C$,6)
9605 PRINT"■■■■"TAB(32)LEFT$(B$(XX),6)
9650 RETURN
20010 REM *** SPRITE BOXER-LEFT  ***
20012 DATA 0, 56, 0, 0, 127, 252, 0, 127
, 254, 0, 167, 2
20013 DATA 0, 127, 2, 0, 56, 63, 0, 0, 1
27, 0, 0, 127
20014 DATA 0, 0, 99, 0, 0, 65, 0, 0, 0,
0, 0, 0
20015 DATA 0, 0, 65, 0, 0, 99, 0, 0, 127
, 0, 56, 127
20016 DATA 0, 127, 63, 0, 127, 2, 0, 127
, 254, 0, 127, 252
20017 DATA 0, 56, 0, 0
20020 REM *** SPRITE LEFT-PUNCH R  ***
18998 DATA 112, 0, 0, 255, 255, 252, 255
, 255, 254, 254, 0, 2
20023 DATA 254, 0, 18, 112, 0, 62, 0, 0,
 127, 0, 0, 99
20024 DATA 0, 0, 65, 0, 0, 65, 0, 0, 1,
0, 0, 65
20025 DATA 0, 0, 65, 0, 0, 99, 0, 0, 126
, 0, 56, 62
20026 DATA 0, 127, 18, 0, 127, 2, 0, 127
, 254, 0, 127, 252
20027 DATA 0, 56, 0, 0
20030 REM *** SPRITE LEFT-PUNCH LEFT  **
*
20032 DATA 0, 56, 0, 0, 127, 252, 0, 127
, 254, 0, 127, 2
```

```
20033 DATA 0, 127, 18, 0, 56, 62, 0, 0,
127, 0, 0, 99
20034 DATA 0, 0, 65, 0, 0, 65, 0, 0, 1,
0, 0, 65
20035 DATA 0, 0, 65, 0, 0, 99, 0, 0, 127
, 112, 0, 62
20036 DATA 254, 0, 18, 254, 0, 2, 255, 2
55, 254, 255, 255, 252
20037 DATA 112, 0, 0, 0
20100 REM *** SPRITE BOXER RIGHT  ***
20102 DATA 0, 56, 0, 63, 252, 0, 127, 25
2, 0, 65, 252, 0
20103 DATA 73, 252, 0, 124, 56, 0, 126,
0, 0, 198, 0, 0
20104 DATA 131, 0, 0, 131, 0, 0, 129, 0,
 0, 131, 0, 0
20105 DATA 171, 0, 0, 198, 0, 0, 254, 0,
 0, 124, 56, 0
20106 DATA 73, 252, 0, 65, 252, 0, 127,
252, 0, 63, 252, 0
20107 DATA 0, 56, 0, 0
20110 REM *** SPRMTE RIGHT-R PUNCH  ***
20112 DATA 0, 28, 0, 63, 254, 0, 127, 25
4, 0, 64, 254, 0
20113 DATA 72, 126, 0, 124, 28, 0, 126,
0, 0, 198, 0, 0
20114 DATA 131, 0, 0, 131, 0, 0, 129, 0,
 0, 131, 0, 0
20115 DATA 131, 0, 0, 198, 0, 0, 126, 0,
 0, 124, 0, 14
20116 DATA 72, 0, 63, 64, 0, 127, 123, 2
55, 255, 63, 255, 255
20117 DATA 0, 0, 14, 0
20120 REM *** SPRITE RIGHT-L PUNCH  ***
20122 DATA 0, 0, 14, 63, 255, 255, 127,
255, 255, 64, 0, 127
20123 DATA 72, 0, 63, 124, 0, 14, 126, 0
, 0, 198, 0, 0
20124 DATA 131, 0, 0, 131, 0, 0, 129, 0,
 0, 131, 0, 0
20125 DATA 131, 0, 0, 198, 0, 0, 126, 0,
 0, 124, 28, 0
20126 DATA 72, 126, 0, 64, 254, 0, 127,
254, 0, 63, 254, 0
```

```
20127 DATA 0, 28, 0, 0
20130 REM *** SPRITE LOSER  ***
20132 DATA 0, 0, 0, 0, 0, 24, 0, 0, 24,
0, 48, 8
20133 DATA 1, 241, 248, 2, 49, 0, 2, 1,
0, 2, 1, 0
20134 DATA 115, 253, 0, 251, 255, 0, 255
, 254, 0, 255, 254, 0
20135 DATA 251, 255, 0, 115, 252, 128, 2
, 0, 64, 2, 0, 126
20136 DATA 98, 0, 2, 124, 0, 6, 96, 0, 6
, 0, 0, 0
20137 DATA 0, 0, 0, 0
20140 REM *** SPRITE WINNER  ***
20142 DATA 112, 0, 224, 112, 0, 224, 32,
 240, 64, 33, 248, 64
20143 DATA 35, 108, 64, 35, 108, 64, 35,
 252, 64, 19, 12, 128
20144 DATA 9, 249, 0, 4, 242, 0, 3, 252,
 0, 3, 252, 0
20145 DATA 3, 252, 0, 1, 248, 0, 0, 240,
 0, 1, 152, 0
20146 DATA 1, 152, 0, 3, 156, 0, 1, 152,
 0, 13, 155, 0
20147 DATA 15, 159, 0, 0
```

Duel

The classic European confrontation, in a high resolution graphics forest! It's just you and your challenger — and all just because you didn't return his joysticks! At least you can shoot first . . . and third . . . if there is a 'third'!

```
5 REM *** D U E L ***    @ MICHAEL BEWS
       *** TRANSLATED BY IAN YATES ***
10 V=53248:X=RND(-TI):POKEV+32,4:POKEV+3
3,5:POKEV+24,23:POKE650,255:M=20
20 Y$="[graphics]":X$="[graphics]
[graphics]"
30 PRINT"[graphics]LEASE WAIT WHILE USER-
DEFINED",,"[graphics]CHARACTERS ARE SET UP.
40 POKE52,48:POKE56,48:POKE56334,PEEK(56
334)AND254:POKE1,PEEK(1)AND251
50 FORX=14336TO15143:POKEX,PEEK(X+40960)
:NEXT:FORX=1TO30:READA:NEXT
60 FORX=15144TO15247:READA:POKEX,A:NEXT:
M$="[graphics]":N$="[graphics]"
70 FORX=15248TO16383:POKEX,PEEK(X+40960)
:NEXT:T$="[graphics]"
80 POKE1,PEEK(1)OR4:POKE56334,PEEK(56334
)OR1:POKEV+24,(PEEK(V+24)AND240)+14
90 FORX=832TO894:POKEX,0:NEXT:POKE834,3:
POKE837,3:POKE2040,13:POKEV+27,1
99 REM ** PRINT SCENE
100 PRINT"[graphics]  @1983 [graphics]
[graphics]"TAB(48)"[graphics]"
110 PRINT"[graphics]":RESTORE:FORA=1TO15:READY,X:
PRINTLEFT$(Y$,Y)LEFT$(X$,X)T$:NEXT
120 PRINTLEFT$(Y$,13)LEFT$(X$,10)M$"[graphics]"TA
B(30)N$"[graphics]"TAB(27)"[graphics]HOTS:    "
130 PRINTLEFT$(Y$,20)"[graphics]     OU ARE THE D
UELLIST ON THE LEFT.    ";
140 PRINT"[graphics]     AKE ALTERNATE SHOTS WITH
 YOUR        ";
150 PRINT"[graphics]     OPPONENT UNTIL ONE SCORES
 A HIT.      ";
```

```
160 PRINT"■     ⁄SE 'A&Z' TO AIM, 'N' TO
FIRE.       ";
170 PRINT"■
          ";
180 PRINTLEFT$(Y$,19)"■■■■■⌐⁄¬└┘┐♥| :    ■■■
■■"DTAB(24)"┌┬┬⁄¯⁄| :    ■■■■"O
199 REM **MAIN GAME ROUTINE
200 A=PEEK(197):IFA<>10ANDA<>12ANDA<>39T
HEN200
210 IFA=10THENM=M+1:GOTO300
220 IFA=12THENM=M-1:GOTO300
230 POKEV+39,2:J=153:K=90:P=-3*M/19:Q=6
240 GOSUB600:S=S+1:PRINT"■■■■■■"TAB(33)S:
IFM<2ANDM>-2THENW=1:GOTO500
250 GOTO400
300 IFM<-20THENM=-20
310 IFM>20THENM=20
320 GOTO200
399 REM **OPPONENT FIRE RTN
400 FORX=1TO800:NEXT:Y=INT(RND(1)*50)-25
:POKEV+39,6:J=153:K=240:P=2*Y/19:Q=-6
410 GOSUB600:S=S+1:PRINT"■■■■■■"TAB(33)S:
IFY<3ANDY>-3THENW=0:GOTO500
420 GOTO200
499 REM ****END OF GAME
500 IFW=1THEND=D+1:PRINTLEFT$(Y$,19)TAB(
13)"■■■"DLEFT$(Y$,15)TAB(11)"o┐//¯_!
510 IFW=0THEND=D+1:PRINTLEFT$(Y$,19)TAB(
34)"■■■"DLEFT$(Y$,15)TAB(30)"o┐//¯_!
520 S=0:M=20:POKE198,0:INPUT"■PRESS [_¬
⁄_⁄]";Z$:GOTO100
599 REM *** SHOOTING ROUTINE
600 FORC=1TO27:POKEV,K:POKEV+1,J:POKEV+2
1,1:K=K+Q:J=J+P:NEXT:POKEV+21,0:RETURN
699 REM*TREE POSITIONS + CHARACTER DATA
700 DATA3,8,4,10,5,15,3,19,4,22,5,26,7,3
2,8,24,8,18,7,4,8,6,11,31,13,4,15,7,15
800 DATA33,3,3,15,15,126,127,255,127,15,
255,255,255,255,255,255,223,,192,240
810 DATA248,126,254,252,252,127,63,55,31
,31,24,,,255,255,247,63,60,60,60,60,255
820 DATA188,248,248,240,48,,,,,,,,,,60,
60,60,60,60,60,60,60,8,,138,40,138,162
```

```
830 DATA160,32,248,112,112,119,38,250,25
4,112,112,112,112,80,80,80,80,120
840 DATA31,14,14,238,100,95,127,14,14,14
,14,10,10,10,10,30
```

Fall Guy

This is a game for two, in which each player directs a small figure down a vertical maze so that it can drop through a hole in the moving floor at the bottom. The figure is manoeuvred through the maze by directing markers up and down the outer walls and shifting horizontal sections of the maze to the left or right, allowing the figures to drop through to lower levels. The trick is to alter the internal pattern of the maze in order to move your own figure without at the same time opening up advantages for the opposition.

```
1 REM*** 64 VERSION ***
2 REM*** FALL GUY ***
10 DIMA$(18)
20 C=55296:H=.97:M=.7
30 GOSUB590
40 T=-1:F=0
50 GOSUB500
60 S=1024
70 A1=123:A2=156:T1=88:T2=108
80 I1=1:I2=1:P1=T1:P2=T2:G1=0:G2=0
90 RL=875
100 PRINT"□"TAB(10)"HIT ANY KEY TO GO"
110 GETZ$:IFZ$=""THEN110
120 PRINT"□"
130 PRINTL$TAB(30)R$:PRINT
140 GOSUB740
150 FORI=1TO18
160 PRINTTAB(5)A$(I)
170 NEXT
180 GETZ$
190 IFZ$="A"THENLR=I1:GOSUB830
200 IFZ$="D"THENLR=I1:GOSUB830
210 IFZ$="Z"ANDI1<18THENI1=I1+1:POKES+A1
,32:A1=A1+40:POKES+A1,62:POKEC+A1,3
220 IFZ$="Q"ANDI1>1THENI1=I1-1:POKES+A1,
32:A1=A1-40:POKES+A1,62:POKEC+A1,3
230 IFZ$="L"THENLR=I2:GOSUB830
240 IFZ$=";"THENLR=I2:GOSUB830
250 IFZ$="="ANDI2<18THENI2=I2+1:POKES+A2
,32:A2=A2+40:POKES+A2,60:POKEC+A2,3
```

```
260 IFZ$="£"ANDI2>1THENI2=I2-1:POKES+A2,
32:A2=A2-40:POKES+A2,60:POKEC+A2,3
270 POKES+RL,160:RL=RL-1:IFRL<845THENRL=
RL+30
280 POKES+RL,32
290 IFPEEK(S+P1+40)=81THENPOKES+P1,32:P1
=T1:G1=0
300 IFPEEK(S+P2+40)=81THENPOKES+P2,32:P2
=T2:G2=0
310 POKES+P1,90:POKEC+P1,7:POKES+P2,87:P
OKEC+P2,7
320 IFPEEK(S+P1+40)=32THENPOKES+P1,32:P1
=P1+40:POKES+P1,90:POKEC+P1,7:G1=G1+1
330 IFPEEK(S+P2+40)=32THENPOKES+P2,32:P2
=P2+40:POKES+P2,87:POKEC+P2,7:G2=G2+1
340 IFP1>840ORP2>840THEN360
350 GOTO180
360 PRINT"■":PRINT
370 IFP1>840THENW$=L$:GOTO390
380 W$=R$
390 PRINT" ◣"W$"◢ ";
400 PRINT"WAS THE BEST FALL GUY...."
410 PRINT:PRINT
420 PRINT" HIT 'N' FOR A NEW GRID"
430 PRINT:PRINT" HIT 'S' TO STOP PLAYING
"
440 PRINT:PRINT" ANY OTHER KEY FOR THE S
AME GRID"
450 GETZ$:IFZ$=""THEN450
460 IFZ$="S"THENEND
470 IFZ$="N"THENPRINT:PRINTTAB(10)"MAKIN
G NEW GRID...":GOTO50
480 PRINT
490 GOTO60
500 FORI=1TO18
510 A$(I)=""
520 FORJ=1TO30
530 X=RND(1)
540 IFX>HTHENA$(I)=A$(I)+"●":GOTO570
550 IFX>MTHENA$(I)=A$(I)+" ":GOTO570
560 A$(I)=A$(I)+"▒"
570 NEXT:NEXT
580 RETURN
590 PRINT"■"TAB(15)"FALL  GUY ":PRINTTAB
(15)"──────────"
```

```
600 PRINT:PRINT
610 PRINT" THIS IS A GAME FOR TWO PLAYER
S,"
620 PRINT"WHO HAVE TO GUIDE THEIR PLAYER
 TO THE "
630 PRINT"BOTTOM OF THE GRID BEFORE THE
OPPONENT."
640 PRINT"■AVOID■ MINES '●' AS LANDING O
N ONE "
650 PRINT"WILL TAKE YOU TO THE TOP AGAIN
.■"
660 PRINT:PRINT"ENTER YOUR NAMES":PRINT
670 INPUT"FIRST THE LEFT PLAYER";L$
680 INPUT"NOW THE RIGHT PLAYER";R$
690 PRINT:PRINT"■CONTROLS: UP  DOWN  LEF
T  RIGHT"
700 PRINT:PRINT"PLAYER 1:  Q    Z    A
    D"
710 PRINT"■PLAYER 2:  £    =    L      ;
"
720 PRINT:PRINT:PRINTTAB(10)"PLEASE WAIT
.....■"
730 RETURN
740 FORI=1TO32
750 POKES+I+83,98:POKEI+83+C,3
760 POKES+I+843,160:POKEC+I+843,4
770 NEXT
780 FORI=124TO804STEP40
790 POKES+I,160:POKEC+I,3:POKES+I+31,160
:POKEC+I+31,3
800 NEXT
810 POKES+A1,62:POKEA2+S,60:POKEC+A1,7:P
OKEC+A2,7
820 RETURN
830 F1=F:F2=F:F3=T:F4=F:F5=F:F6=F:F7=F
840 IFLR<>G1ANDG2<>LRTHEN1000
850 IFZ$<>"A"ANDZ$<>"L"THEN930
860 IFPEEK(S+P1-1)<>160 AND PEEK(S+P1+1)
=102THENF1=T
870 IFPEEK(S+P2-1)<>160 AND PEEK(S+P2+1)
=102THENF2=T
880 IFPEEK(S+P1-1)=160 AND(Z$="D"OR Z$="
;")THENF6=T
```

```
890 IFPEEK(S+P2-1)=160 AND (Z$="D" OR Z$
=";")THENF7=T
900 IF PEEK(S+P1-1)=160 AND PEEK(S+P1+1)
=102 AND LR=G1THENF3=F
910 IF PEEK(S+P2-1)=160 AND PEEK(S+P2+1)
=102 AND LR=G2THENF3=F
920 GOTO1000
930 IFZ$<>"D"ANDZ$<>";"THEN1000
940 IFPEEK(S+P1+1)<>160 AND PEEK(S+P1-1)
=102THENF4=T
950 IFPEEK(S+P2+1)<>160 AND PEEK(S+P2-1)
=102THENF5=T
960 IFPEEK(S+P1+1)=160 AND (Z$="A"OR Z$=
"L")THEN F6=T
970 IFPEEK(S+P2+1)=160 AND (Z$="A" OR Z$
="L")THEN F7=T
980 IFPEEK(S+P1+1)=160 AND PEEK(S+P1-1)=
102 AND LR=G1 THENF3=F
990 IFPEEK(S+P2+1)=160 AND PEEK(S+P2-1)=
102 AND LR=G2THENF3=F
1000 IF NOT F3THENRETURN
1010 IFF6THENPOKES+P1,32:P1=T1:G1=0:RETU
RN
1020 IFF7THENPOKES+P2,32:P2=T2:G2=0:RETU
RN
1030 IFF1ANDLR=G1THENPOKES+P1,32:P1=P1-1
:POKES+P1,90
1040 IFF2ANDLR=G2THENPOKES+P2,32:P2=P2-1
:POKES+P2,87
1050 IFF4ANDLR=G1THENPOKES+P1,32:P1=P1+1
:POKES+P1,90
1060 IFF5ANDLR=G2THENPOKES+P2,32:P2=P2+1
:POKES+P2,87
1070 PRINT"■■":FORI=1TOLR:PRINT"■";:NEXT
1080 IF Z$="A" ORZ$="L"THEN A$(LR)=RIGHT
$(A$(LR),29)+LEFT$(A$(LR),1)
1090 IF Z$="D" ORZ$=";"THEN A$(LR)=RIGHT
$(A$(LR),1)+LEFT$(A$(LR),29)
1100 PRINTTAB(5)A$(LR)
1110 RETURN
```

Radiopower

This is a multi-player game, with each player running a radio station in competition with other players' stations. After registering your station you then get the choice of show presenters to hire. Some are high priced, some are cheap, and the expensive ones are better audience "draws". The choice of presenters will effect how well your station will produce the type of show you want, since the presenters near the beginning of the alphabet (Aarvark, Boulder, etc.) are great for talk shows and news, but no good for music. Those in the middle are OK for all sorts of shows in an average way, so that Jetsetter and Ricky Radio can handle general shows, with say 50% music, but the ace DJs you need for a pop radio station are to be found near the end of the alphabet, and you need these for high percentages of music on your programs.

The percentage of music you are going to have on your station has to be entered, and this is followed by the number of radio cars you want to run, to be used for covering local events and thus typifying your community spirit.

Your station is funded by advertising, so you have to spend money on promotion, to get the populace listening, and hence make advertising on your station desirable.

The computer then displays the broadcast area for all the stations, spreading the call-sign of the stations over the map. Another annual review comes up and you get the chance to alter the composition of your station to get a greater edge. Play continues until someone conquers the airwaves over the South Coast, stations with no listeners dropping out of the game.

```
2 REM RADIOPOWER***64 VERSION***WALWYN
5 GOSUB63900
10 D(1)=-39:D(2)=1:D(3)=41:D(4)=40:D(5)=
39:D(6)=-1:D(7)=-41:D(8)=-40
20 G=US
30 DIM N$(25),S$(25),P1(25),P2(25),P5(25
),P6(25),T(25),T$(25),TP(25),PR(25)
40 DIM B$(22),BM(22),BP(22),BN(22)
```

```
50 FOR I=0TO22:READ B$(I),BM(I),BP(I):NE
XT I
60 DATA ARNOLD AARVARK,1,50000
61 DATA BRIAN BOULDER,2,30000
62 DATA CLARA CUTHROAT,5,45000
63 DATA DINA DYNAMICK,10,25000
64 DATA EDDIE EEL,15,10000
65 DATA FREDA FOOLISH,20,10000
66 DATA GERRY GULLIBLE,25,10000
67 DATA HARRY HATEFUL,30,15000
68 DATA IZZY IDLETALK,35,10000
69 DATA JOLLY JETSETTER,40,25000
70 DATA KING KNIFE,50,20000
71 DATA MOLLY MUD,50,10000
72 DATA NED NORMAL,50,20000
73 DATA POLLY PERSPEX,60,10000
74 DATA RICKY RADIO,65,25000
75 DATA SALLY SONIX,70,15000
76 DATA TOMMY TAPE,75,30000
77 DATA UNCLE USELESS,80,10000
78 DATA VICTOR VROOM,85,20000
79 DATA WALLY WETLOCK,90,10000
80 DATA XANDRA XEXY,95,40000
81 DATA YALE YESTERYEAR,98,45000
82 DATA ZOOT ZIEGLER,99,50000
100 DIM D$(25)
105 FOR I=0TO25:READ D$(I)
106 P2(I)=100000
107 IF D$(I)="♦" THEN D=I-1:GOTO190
108 NEXT I
109 DATA "++++++++++++++++++++++++++++++
++++++++++"
110 DATA "+           STOCKBRIDGE o
          +"
111 DATA "+
          +"
112 DATA "+SALISBURY o           WINCHEST
ER o      +"
113 DATA "+
          +"
114 DATA "+
          +"
116 DATA "+                          TWYFO
RD o      +"
```

```
117 DATA "+            ROMSEY  o
  P/FLD o+"
118 DATA "+              CHNDLRS/FORD o
         +"
119 DATA "+                   EASTLEIGH o
         +"
120 DATA "+                          B/WALT
HAM o    +"
121 DATA "+F/BRDGE o
         +"
122 DATA "+                TOTTON o ■
         +"
123 DATA "+                          ■■ o S
OTON     +"
124 DATA "+                           ■■WIC
KHAM o   +"
125 DATA "+            LYNDHURST o     ■■
         +"
126 DATA "+ RINGWOOD o                  ■■F
AREHAM o +"
127 DATA "+              B/HURST o      ■■■
■        +"
128 DATA "+                        ■  ■■■■■
■■■      +"
129 DATA "+ C/CHURCH o     ■■■■■■■■■■■■■■■■■
■■P/MTH■o+"
130 DATA "+o B/MTH■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■+"
135 DATA "++++++++++++++++++++++++++++++++
+++++++++"
180 DATA "◆"
190 FOR I=1TO20:READ T(I):NEXT I
191 DATA 183,251,273,393,419,438,466,508
,554,569,622,667,715,741,771,797
192 DATA 821,891,918,921
193 FOR I=1TO20:READ T$(I):NEXT I:FOR I=
0TO19:READ TP(I):NEXT I
194 DATA STOCKBRIDGE,SALISBURY,WINCHESTE
R,TWYFORD,ROMSEY,PETERSFIELD
195 DATA CHANDLERS FORD,EASTLEIGH,BISHOP
S WALTHAM,FORDINGBRIDGE,TOTTON
196 DATA SOUTHAMPTON,WICKHAM,LYNDHURST,R
INGWOOD,FAREHAM,BROCKENHURST
197 DATA CHRISTCHURCH,PORTSMOUTH,BOURNEM
OUTH,1,3,4,2,2,2,1,2,1,1,1
```

```
198 DATA 5,1,1,2,2,1,1,5,5
200 REM MAP DISPLAY
202 POKEUG,U6:POKEUB,UF
205 PRINT"■■■■"
206 POKEUG,U3:PRINTU4$;
210 FOR I=0TOD:PRINTD$(I);:NEXT:PRINT"■"
220 POKE G+999,43:POKEUC+999,U4
250 FOR I=0TO25:IF N$(I)="" THEN 270
255 A=ASC(LEFT$(S$(I),1))+129-65
260 POKE G+T(I),A:POKEUC+T(I),U6
270 NEXT I
300 PRINTU2$;"■■ PRESS SPACE KEY FOR AUD
IENCE REACTION  ";
302 PRINT"■ PRESS ANY OTHER KEY TO SPEAK
 TO ME      "
310 GET A$:IF A$="" THEN 310
315 IF A$=" "THEN 700
320 GOSUB5000
699 GOTO200
700 REM GOSUB DISPLAY REACH ON MAP
701 POKEUG,UF:POKEUB,U4:PRINTUE$;
702 PRINT"■HAS EVERYONE DONE THEIR ANNUA
L PROGRAMMEREVIEW ?(Y/N)
703 GET A$:IF A$="" THEN 703
704 IF A$<>"Y" THEN 200
706 POKEUG,U6:POKEUB,UF
710 PRINT"■■■■"
715 POKEUG,U3:PRINTU4$;
720 FOR I=0TOD:PRINTD$(I);:NEXT:PRINT"■"
730 POKE G+999,43:POKEUC+999,U4
780 FOR I=0TO22:IF N$(I)="" THEN 795
790 POKE G+T(I),218:POKEUC+T(I),U6
795 P5(I)=0:NEXT I
797 QQ=1
800 PP=0:FOR I=0TO22
810 IF N$(I)="" THEN 950
815 IF P1(I)*10<QQ THEN 950
820 PP=1
825 PZ=T(I)
830 DD=INT(RND(1)*8+1)
840 K=PEEK(G+PZ+D(DD))
850 IF K=43 THEN 825
852 IF K=ASC(LEFT$(S$(I),1))+64 THEN 930
855 IF K<87 THEN 900
```

```
860 IF K=102 OR K=87 OR K=218 THEN 930
870 IF K>128 AND K<155 THEN KK=K-129
874 FOR M=0TO22:IF S$(M)="" OR S$(M)=S$(
I) THEN 876
875 IF ASC(LEFT$(S$(M),1))-65=KK THEN 88
0
876 NEXT M:GOTO900
880 P5(M)=P5(M)-1
885 FOR X=1TO5:POKE G+PZ+D(DD),42:POKEUC
+PZ+D(DD),U2
886 FOR Z=1TO50:NEXTZ:POKE G+PZ+D(DD),32
:NEXTX:POKEUC+PZ+D(DD),U3
900 POKE G+PZ+D(DD),ASC(LEFT$(S$(I),1))+
64
902 POKE UC+PZ+D(DD),U0
904 PZ=PZ+D(DD):P5(I)=P5(I)+1
910 GOTO 950
930 PZ=PZ+D(DD):GOTO830
950 NEXT I
960 QQ=QQ+1
970 IF PP=0 THEN GOSUB30000:GOTO1000
980 GOTO800
1000 PRINTUF$;"■THAT'S THE AUDIENCE REAC
H AT THE MOMENT
1005 PRINT"■PRESS ANY KEY FOR STATION DE
TAILS"
1010 GETA$:IFA$=""THEN1010
1100 REM
1114 FOR I=0TO22:IF S$(I)="" THEN 1118
1116 P2(I)=P2(I)+P5(I)*1500
1117 POKEUG,U9:GOSUB2000
1118 NEXT I
1122 PRINT"■PRESS ANY KEY TO RETURN TO T
HE BASIC MAP"
1123 GET A$:IF A$="" THEN 1123
1125 GOTO200
2000 PRINTUF$"■──────────────────────────
──────────"
2010 PRINTU2$"RADIO ";S$(I):PRINTU4$"BAS
ED IN "T$(I)
2020 PRINTUF$"■STATION MANAGER :";N$(I)
2040 PRINTU2$"■■AUDIENCE FIGURES......";
P1(I);"%"
2050 PRINT"AUDIENCE APPRECIATION:";P5(I)
```

```
2060 PRINT"■MONEY NOW AVAILABLE...";P2(I
);" POUNDS
2061 PRINTU4$;
2062 FOR J=0TO22:IF BN(J)=I THEN PRINT"P
RESENTER...."B$(J)
2063 NEXT J
2070 PRINTUF$"————————————————————————
————————————"
2080 PRINT"■PRESS ANY KEY FOR MORE DETAI
LS"
2085 GETA$:IFA$=""THEN2085
2100 RETURN
5000 REM INPUT NEW MOVE
5002 GOSUB30000:PRINTUF$"■IS THIS A NEW
STATION ? (Y/N)
5003 GET A$:IF A$="" THEN 5003
5004 IF A$="Y" THEN 5006
5005 GOTO5030
5006 GOSUB30000:PRINTUF$;:INPUT"■WHAT IS
 YOUR NAME PLEASE";N$
5008 GOSUB30000:INPUT"■THE NAME OF YOUR
STATION...";S$
5010 FOR I=0TO25:IF LEFT$(S$(I),1)=LEFT$
(S$,1) THEN 5013
5012 NEXT I:GOTO5015
5013 PRINT"■SORRY BUT PLEASE CHOOSE ANOT
HER NAME":FORI=0TO2000:NEXT I:GOTO5008
5015 GOSUB30000
5020 PRINTU4$;"■■■■RADIO "S$"■. MANAGER:
"N$
5022 INPUT"■BASED IN WHICH TOWN";T$
5023 GOSUB30000:FOR I=0TO25:IF T$(I)=T$
AND N$(I)<>""THEN 5026
5024 IF T$(I)=T$ THEN 5028
5026 NEXTI:PRINT"■■SORRY BUT THAT PLACE
IS NOT AVAILABLE":FOR I=1TO2500:NEXTI
5027 RETURN
5028 PRINT"■■OK. CONGRATULATIONS ON A NE
W STATION    OPENING.  GOOD LUCK!"
5029 POKEG+T(I),218:POKEUC+T(I),U6:S$(I)
=S$:N$(I)=N$:FORI=1TO3500:NEXTI:RETURN
5030 PRINTUF$;:INPUT"■WHAT IS YOUR NAME
PLEASE■■■-■■■■";N$
5035 IF N$="-" THEN 5030
```

```
5038 FOR I=0TO25:IFN$(I)=N$ THEN 5050
5040 NEXTI:PRINT"■SORRY BUT I HAVE NO RE
CORD OF THAT NAME":FOR I=1TO2000:NEXTI
5045 RETURN
5050 POKEUG,UF:POKEUB,U3:PRINTU7$;
5055 PRINT"■■RADIO "S$(I)"■ - "T$(I)
5060 PRINT"■STATION MANAGER...."N$(I)
5070 PRINTU3$"##############################
###############";
5080 PRINTU7$"MONEY AVAILABLE..."P2(I)"P
OUNDS
5090 PRINTU3$"##############################
###############";
5100 PRINTU9$"■THESE PRESENTERS WANT TO
WORK FOR YOU...";
5105 PRINT"■NO.        NAME
 PRICE      "
5110 FOR J=0TO22:IF BN(J)<>0 THEN 5130
5115 IF RND(1)>.45 THEN 5130
5120 PRINT J,B$(J),TAB(31)BP(J)
5130 NEXT J
5150 PRINT"■DO YOU WANT TO HIRE ONE ?(Y/
N)"
5151 GET A$:IF A$="" THEN 5151
5152 IF A$="N" THEN 5165
5153 PRINT"■■WHICH PRESENTER DO YOU WANT
 (100=NONE)":INPUT"NUMBER...";B
5154 IF B=100 THEN 5165
5155 IF B>22THEN 5150
5156 PRINTU7$;"YOU HAVE"P2(I)"POUNDS
5160 BN(B)=I:PRINT"■■"B$(B)" JOINS RADIO
 "S$(I)" !"
5162 PRINTU3$"————————————————————————
————————————
5165 P=0:PRINTU9$;
5170 PRINT"PRESENTERS ON STATION...■":B=
0:FOR J=0TO22:IF BN(J)=I THEN 5180
5175 NEXT J:GOTO5195
5180 B=1:PRINTJ,B$(J);TAB(31)BP(J)
5185 P=P+BP(J):GOTO5175
5195 IF B=0 THEN PRINT"■NO SPECIAL PRESE
NTERS ON STATION  !      ";
5200 PRINTU7$;"■YOUR WAGE BILL IS"P"POUN
DS
```

```
5202 IF P=0 THEN 5300
5205 PRINT"■DO YOU WISH TO FIRE ANY OF T
HEM (Y/N)"
5210 GET A$:IF A$="" THEN 5210
5220 IF A$="Y" THEN 5230
5225 GOTO5300
5230 INPUT"WHICH ONE...NO.";N
5232 IF N>22 THEN 5230
5235 IFBN(N)<>ITHEN5300
5240 BN(N)=0:P=P-BP(N)
5250 PRINT"■"B$(N)" LEAVES RADIO "S$(I)
5300 P2(I)=P2(I)-P:IF P2(I)<0 THEN 5320
5310 PRINTU3$"──────────────────────────
──────────────"
5311 PRINTU7$"■YOU NOW HAVE"P2(I)"POUNDS
5315 GOTO5350
5320 PRINT"■YOU HAVE BANKRUPTED YOURSELF
 !"
5325 P2(I)=P2(I)+P
5330 PRINT"■YOU THEREFORE MUST FIRE ONE
OF THEM...":GOTO5165
5350 PRINTU3$"──────────────────────────
──────────────"
5355 PRINTUR$"■WHAT PERCENTAGE OF YOUR O
UTPUT IS GIVEN OVER TO MUSIC (0-100)"
5357 INPUT R
5360 PRINTU3$"──────────────────────────
──────────────"
5365 PRINTUU$"■RADIO CARS COST 10000 EAC
H."
5367 IF PR(I)=0 THEN 5370
5368 IF RND(1)>.4 THEN PRINT"■ONE OF YOU
RS HAS FALLEN APART":PR(I)=PR(I)-1
5370 PRINT"YOU HAVE"PR(I)"RADIO CARS ,"N
$(I)
5380 INPUT"HOW MANY MORE DO YOU WANT NOW
";PR
5381 IF PR+PR(I)=0 THEN PRINT"■WHAT HAVE
 YOU GOT AGAINST RADIO CARS?"
5382 IFPR+PR(I)>5THENPRINT"■COME ON NOW.
 NO ONE NEEDS MORE THAN 5":GOTO5380
5385 PRINT"YOU NOW HAVE"PR(I)+PR"RADIO C
ARS ,"N$(I)
5390 P2(I)=P2(I)-PR*10000
```

```
5400 IF P2(I)<0 THEN PRINT"■NOT ENOUGH M
ONEY!":P2(I)=P2(I)+PR*10000:GOTO5380
5402 PR(I)=PR(I)+PR
5405 PRINTU7$"■YOU HAVE"P2(I)"POUNDS LEF
T
5410 PRINTU3$"──────────────────────────
──────────────"
5415 PRINTU5$"■HOW MUCH TO SPEND ON PROM
OTION":INPUT PM
5420 P2(I)=P2(I)-PM:IF P2(I)<0THENPRINT"
■NO CASH!":P2(I)=P2(I)+PM:GOTO5415
5600 PRINTU3$"■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■"
5605 PRINTUE$"■■OK. THANKYOU VERY MUCH "
N$(I)
5700 P1=PM*(1+RND(1))+PR(I)*10000*(2+RND
(1))+20000*RND(1)
5710 FOR J=0TO22:IF BN(J)<>I THEN 5750
5720 PP=ABS(R-BM(J))
5730 P1=P1+BP(J)/10*(100-PP)
5750 NEXT J
5800 PRINTU7$"■YOUR PREVIOUS AUDIENCE FI
GURES WERE....."P1(I)"%"
5810 PRINTUU$"──────────────────────────
──────────"
5815 P1=INT(P1/10000)/10
5820 PRINTU5$"■YOUR CURRENT AUDIENCE FIG
URES ARE......."P1"%"
5830 IF P1>0 THEN 5845
5835 PRINTU1$"■■I'M AFRAID THAT NO ONE A
PPEARS TO LISTEN";
5838 PRINT"■TO YOUR STATION AND THEREFOR
E YOU HAVE  ";
5840 PRINT"■BEEN REMOVED FROM YOUR JOB!
          "
5841 PRINT"■■RADIO "S$(I)" IS OFF THE AI
R!"
5842 PRINT"■SORRY ABOUT THAT ,BUT THAT'S
 SHOW BIZ !
5843 S$(I)="":N$(I)="":P2(I)=100000:P1(I
)=0:GOTO5900
5845 P1(I)=P1
5850 PRINTUU$"──────────────────────────
──────────
```

```
5855 PRINTU5$"■RADIO "S$(I)" IS STILL ON
 AIR..."
5860 PRINT"■YOUR MONEY AVAILABLE IS:"P2(
I)"POUNDS
5870 PRINT"■...WE SHALL HAVE TO SEE WHAT
 HAPPENS TO
5880 PRINT"■YOUR REVENUE WHEN THE NEW FI
GURES ARE
5885 PRINT"■TAKEN INTO ACCOUNT
5900 PRINTU3$"■■PRESS ANY KEY TO RETURN
TO THE MAP"
5910 GET A$:IF A$="" THEN 5910
5920 RETURN
30000 PRINT"■
              ";
30010 FOR I=0TO1:PRINT"
                              ";:NEXT I:RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
="":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Swordsman

Choose your moment, then swiftly thrust your sturdy blade into the gaping jaws of some hideous monster. Beastmaster you'll never be, these nasties are definitively untameable, but swordsman you might just about manage. It's all quite simple. You just have to survive and get as many points as possible before some hideous creature does for you. Maybe the Vampire Cat will get to chew on your jugular. Who can tell? Quick. Lunge and thrust, missed . . . back to the left quickly . . . missed again . . . Aaargh . . .!

```
10 REM.........SWORDSMAN......WALWYN
12 GOSUB7000
30 DD$(0)="YOU ARE UNHARMED AND RARING T
O GO...!  "
31 DD$(1)="YOU ARE SLIGHTLY WOUNDED NOW.
 BE BRAVE!"
32 DD$(2)="YOU HAVE RECEIVED MULTIPLE LA
CERATIONS."
33 DD$(3)="IT'S YOUR LAST CHANCE NOW. GO
OD LUCK..."
100 DIM VL(8)
110 FORJ=0TO8:READVL(J):NEXTJ
120 DATA 3,4,3,4,2,5,2,2,4
150 REM VK=NUMBER OF DEAD MONSTERS
160 REM WK=WOUNDED LEVEL
170 REM PK=POINTS SCORED
180 VK=0:WK=0:PK=0
200 DIM V$(8)
210 FOR K=0TO8:READ V$(K):NEXT
220 DATA "GANGRENE GOAT","NORTH-SEA BOIL
","VAMPIRE CAT"
230 DATA "POLITICAL WORM","MAD METER-MAI
D","SCHOOL SPINACH"
240 DATA "DANDRUFFED BEAR","RAMPANT BANK
ER","PICKLED ALBATROSS"
300 PRINTUE$;"■■SWORDSMAN"
310 PRINTU5$;"■IN THIS GAME, YOU ARE TO
BE PUT AGAINST"
320 PRINT"A HORDE OF TERRIFYING MONSTERS
. YOU ARE"
```

```
330 PRINT"ARMED ONLY WITH A SWORD..."
340 PRINT"■YOUR CONTROLS ARE ■4  MOVE TO
 THE LEFT"
350 PRINT"                    ■6  MOVE TO
THE RIGHT"
360 PRINT"                    ■5  LUNGE WI
TH SWORD"
370 PRINT"■THERE ARE TWO SWORD POSITIONS
."
380 PRINT"THE FIRST TIME YOU PRESS '5',
YOU PUT
390 PRINT"YOUR SWORD 'ON-GUARD'. THE SEC
OND
400 PRINT"KEY-PRESS COMMITS YOU TO A SWO
RD THRUST"
410 PRINT"■SOME MONSTERS ARE HARDER TO K
ILL THAN
420 PRINT"OTHERS. THE DREADED 'SCHOOL SP
INACH' IS"
430 PRINT"PARTICULARLY NASTY TO MEET....
."
440 PRINT"YOU GET MORE POINTS IF YOU KIL
L THE"
450 PRINT"MONSTER FURTHER TO THE RIGHT O
F THE "
460 PRINT"SCREEN. EACH TIME YOU WIN, YOU
R WOUNDS
470 PRINT"ARE SOOTHED JUST A LITTLE."
480 PRINT"  IF YOU ARE WOUNDED MORE THAN
 4 TIMES"
490 PRINT"THEN YOU ARE DEFINITELY  D E A
 D !"
495 PRINT"■PRESS ANY KEY■"
496 GETA$:IFA$=""THEN496
500 DIM D$(1,4),M$(1,4,8)
510 FOR J=0TO1:FOR I=1TO4:READ D$(J,I)
530 NEXT I,J
550 REM THESE DATA LINES CONTAIN COMMODO
RE 64 COLUOR CODES
555 REM SEE LINES 7000- FOR DETAILS
600 DATA "■■O■|■■■■|■■■|))"
602 DATA "■■O■|■■■■|■■■|■■■X"
604 DATA "■■O■ /■■■■■\■■■■■■■X"
606 DATA "■■O■ ■■■■\■■■■■■■■■■/ )"
610 DATA "■  ■■■■   ■■■  "
```

```
612 DATA "▓  ▓▓▓▓▓    ▓▓▓▓ "
614 DATA "▓    ▓▓▓▓▓▓    ▓▓▓▓ "
616 DATA "▓  ▓▓▓▓▓       ▓▓▓▓▓▓▓    "
650 FOR K=0TO8:FOR J=0TO1:FOR I=1TO4
660 READ M$(J,I,K)
680 NEXT I,J,K
700 DATA "▓▓ ●╯▓▓▓▓▓  ▓─▓▓▓▓▓╲ )"
702 DATA "▓  ●╯▓▓▓▓▓,▓▓ ▓▓▓ ▓▓▓▓▓▓╲\\\"
704 DATA "▓ ●╯▓▓▓▓▓  ▓─▓▓▓▓▓╲ \"
706 DATA "▓▓●╯▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓("
710 DATA "▓    ▓▓▓▓    ▓▓▓▓▓    "
712 DATA "     ▓▓▓▓▓       ▓▓▓▓▓▓    "
714 DATA "    ▓▓▓▓    ▓▓▓▓▓    "
716 DATA "▓     ▓▓▓▓▓    ▓▓▓▓▓ "
720 DATA "▓▓***▓▓▓▓▓▓*▓●▓: ▓●▓*▓▓▓▓▓▓▓*▓▓ ▓▓
*▓▓▓▓▓="
722 DATA "▓▓***▓▓▓▓▓▓*▓●▓: ▓●▓*▓▓▓▓▓▓▓*▓▓ ▓
▓*"
724 DATA "▓▓▓***▓▓▓▓▓▓*▓●▓: ▓●▓*"
726 DATA "▓▓***▓▓▓▓▓▓*▓●▓: ▓●▓*▓▓▓▓▓▓▓*▓▓ ▓
▓*"
730 DATA "    ▓▓▓▓▓▓       ▓▓▓▓▓▓▓       ▓▓▓▓▓ "
732 DATA "▓    ▓▓▓▓▓▓       ▓▓▓▓▓▓▓        "
734 DATA "▓▓    ▓▓▓▓▓▓       "
736 DATA "▓    ▓▓▓▓▓▓       ▓▓▓▓▓▓▓       "
740 DATA "▓▓▓●▄╯▓▓▓X"
742 DATA "▓▓▓●▄╯▓▓▓▓ | "
744 DATA "▓▓●▄▄▓▓▓▓\\"
746 DATA "▓▓●▄▄▓▓▓▓▓//"
750 DATA "▓▓    ▓▓▓▓ "
752 DATA "▓▓    ▓▓▓▓  "
754 DATA "▓    ▓▓▓▓  "
756 DATA "▓    ▓▓▓▓▓  "
760 DATA "▓▓▓●▓o   o▓▓▓▓▓oo  o"
762 DATA "▓▓▓●▓   oo▓▓▓▓▓▓oo   o"
764 DATA "▓▓▓ oo  o▓▓▓▓▓▓▓▓▓●▓o   o"
766 DATA "▓▓▓   o   ▓▓▓▓▓▓▓▓▓●▓oo  oo"
770 DATA "▓▓       ▓▓▓▓▓      "
772 DATA "▓▓       ▓▓▓▓▓▓       "
774 DATA "▓▓       ▓▓▓▓▓▓▓▓        "
776 DATA "▓▓       ▓▓▓▓▓▓▓▓         "
780 DATA "▓*$$$$$▓▓▓▓▓▓▓*▓●. ●▓*▓▓▓▓▓▓▓*▓ ╰─╯
▓*▓▓▓▓▓▓▓<<  >>"
782 DATA "▓*$$$$$▓▓▓▓▓▓▓*▓●. ●▓*▓▓▓▓▓▓▓*▓ —
▓*▓▓▓▓▓▓▓ X  X  "
```

```
784 DATA "
786 DATA "
790 DATA "
792 DATA "
794 DATA "
796 DATA "
800 DATA "
802 DATA "
804 DATA "
806 DATA "
810 DATA "
812 DATA "
814 DATA "
816 DATA "
820 DATA "
822 DATA "
824 DATA "
826 DATA "
830 DATA "
832 DATA "
834 DATA "
836 DATA "
840 DATA "
842 DATA "
844 DATA "
846 DATA "
850 DATA "
852 DATA "
854 DATA "
856 DATA "
860 DATA "
862 DATA "
864 DATA "
866 DATA "
```

```
870 DATA "     ■■■■■     ■■■■■  "
872 DATA "■     ■■■■■   "
874 DATA "■     ■■■■■    "
876 DATA "■■     ■■■■■   "
1000 REM START OF GAME
1005 PRINT"■"
1100 GOSUB4000
1900 GOTO1000
2750 FOR DL=1TO2000:NEXT DL:RETURN
2760 PRINTU6$"■■■■■
```

```
4035 IF A$="5" THEN D7=D7+1:IF D7>3 THEN
 D7=4:D8=D8+1:IF D8>35 THEN D8=35
4036 IF A$="5" AND D7=2 THEN D7=3
4037 PRINT"■■■■■■■"TAB(D9)D$(1,D6)
4038 PRINT"■■■■■■■"TAB(D8)D$(0,D7)
4039 D9=D8:D6=D7
4040 IF D7=4 THEN 4060
4050 GOTO4085
4060 Q7=US+282+D8
4062 PRINT"■■■■■■■"TAB(M9)M$(0,M6,MZ)
4065 FOR I7=0TO1
4068 IF PEEK(Q7+I7)=160 OR PEEK(Q7+I7)=8
1 THEN 4090
4070 POKE Q7+I7,42
4072 NEXT I7
4082 D7=2
4085 M7=M7+1:IFM7=5THENM7=1
4086 IF RND(1)>.35 THEN M8=M8-1
4087 PRINT"■■■■■■■"TAB(M9)M$(1,M6,MZ)
4088 PRINT"■■■■■■■"TAB(M8)M$(0,M7,MZ):IF
M8<D8+1 THEN 4100
4089 M9=M8:M6=M7:GOTO4020
4090 PRINTU6$;"■■■■■■■■■■■■■■WELL DONE! YO
U GOT THE "V$(MZ)
4091 P5=INT(VL(MZ)*D8):VK=VK+1:WK=WK-1:I
FWK<0THENWK=0
4092 PRINTUU$;"■POINTS FOR KILL:"P5:PK=P
K+P5:GOSUB2750
4093 GOSUB2800
4094 GET D$:IF D$<>"" THEN 4094
4095 RETURN
4100 WK=WK+1
4102 IF WK<4THENPRINTU5$;"■TRY AGAIN..."
:GOSUB2760:GOSUB2800:GOTO4001
4105 PRINTU7$;"■■■■■■":FOR I=1TO5:PRINTTA
B(I*4)"OH DEAR...."
4107 POKEUB,I:FORJ=1TO200:NEXTJ:NEXTI
4110 PRINTU5$;"□AAAAAAAAAAARGH!"
4120 PRINT"■ANOTHER HERO BITES THE DUST.
"
4125 PRINTU9$;"■YOU KILLED"VK"MONSTERS S
CORING"PK"PTS"
4130 PRINT"■              ANOTHER GO? (Y/N
)          ■"
```

```
4132 GETA$:IFA$<>""THEN4132
4133 GETA$:IFA$=""THEN4133
4134 IFA$="Y"THENRUN
4135 END
7000 REM ******************************
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$=CHR$(129):REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U8$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7200 REM SCREEN 'POKE' CODES FOR 64.
7210 US=1024:REM SCREEN POKE CHARACTER
7220 UC=55296:REM SCREEN POKE COLOUR
7230 UG=53281:REM BACKGROUND COLOUR
7240 UB=53280:REM SCREEN BORDER COLOUR
7250 RETURN
```

Newmarket

This is another game with an equestrian flavour, except this time around you'll require the skills of a budding Lester Piggot. There are eight horses in the race, and two things will happen once you have decided which one you want to ride. Firstly, all the other horses will gallop off at the start, leaving you floundering at half speed. You soon discover that your mount is one of those creatures that only pulls its weight when the finishing line is in sight and then it will go twice as fast as anything else on four legs.

The second problem is that the other horses have a (cleverly computed) desire to crowd you out of the action. They will tend to close up in front of you and even steer straight at you from the side! There's no steward to protect you in this race, so aim for a gap in the field and hope you will be fast enough to avoid trouble. Any horses colliding with each other are flung randomly sideways and backwards, thus losing valuable speed. OK, you're under starter's orders . . .

```
1 REM NEWMARKET***WALWYN***64 VERSION***
2 REM HORSERACE GAME
20 GOSUB2000
50 GOSUB20000
75 REM TURN SCREEN BORDER TO GREY
76 POKE53280,11
80 REM TURN SCREEN BACKGROUND TO WHITE
81 POKE53281,1
85 REM TURN COLLISION SPRITE DETECTOR TO
 ZERO
86 POKEV+30,0
90 PRINT"■"
92 PRINT"■";:FORI=0TO7:PRINT:PRINT:PRINT
"■"I+1:NEXTI
95 FORI=0TO24:POKE1024+31+I*40,90:POKE55
296+31+I*40,13:NEXTI
96 PRINT"■CONTROLS:1=UP A=DOWN ";
97 INPUT"■YOUR HORSE 1-8";N
98 IFN<1ORN>8THEN96
99 N=N-1
100 K=PEEK(197):M=INT(RND(1)*8):IFK=64TH
ENK=10+INT(RND(1)*2)*46:GOTO103
```

```
101 IFK=56ORK=10THENM=N:GOTO105
102 GOTO100
103 IFM=NTHEN105
104 IFX(M)>X(N)-20ANDABS(Y(M)-Y(N))<60TH
ENK=56:IFY(N)>Y(M)THENK=10
105 IFK=56THENY(M)=Y(M)-3:X(M)=X(M)-1:IF
Y(M)<50THENY(M)=50
106 IFK=10THENY(M)=Y(M)+3:X(M)=X(M)-1:IF
Y(M)>225THENY(M)=225
107 IFX(M)<30THENX(M)=30
108 FORI=0TO7:J=INT(RND(1)*4+1):IFI<>NTH
EN112
109 IFC=0THENJ=INT(J*.5):IFX(N)>72THENC=
1
110 IFC=1THENPOKE53280,2:C=2
111 IFC=2THENJ=J*2
112 X(I)=X(I)+J:IFX(I)>255THENX(I)=255
113 IFW=0THEN125
114 IFWAND2↑ITHEN116
115 GOTO125
116 REM HORSE NUMBER 'I' IN COLLISION
117 X(I)=X(I)-INT(RND(1)*5+5):Y(I)=Y(I)+
INT(RND(1)*17)-8
118 IFX(I)<30THENX(I)=30
119 IFY(I)<50THENY(I)=50
120 IFY(I)>225THENY(I)=225
125 NEXTI
150 FORI=0TO7:POKEV+I*2,X(I):POKEV+I*2+1
,Y(I)
160 IFX(I)>=255THEN5000
170 NEXTI
200 REM SET UP CHECK FOR HORSE COLLISION
205 W=PEEK(V+30)
700 GOTO100
999 END
2000 REM INSTRUCTIONS
2010 PRINT "■■NEWMARKET"
2020 PRINT"■IN THIS HORSE-RACE GAME, YOU
 RIDE"
2030 PRINT"ANY HORSE FROM 1-8."
2040 PRINT"YOU HAVE TO STEER A PATH AVOI
DING THE"
2050 PRINT"OTHER HORSES SINCE ANY HORSE
IN A"
```

```
2060 PRINT"COLLISION WITH ANOTHER WILL B
E BLOCKED"
2070 PRINT"AND FORCED SIDEWAYS AND BACKW
ARDS."
2080 PRINT"■'EASY', YOU MIGHT SAY...
2090 PRINT"■BUT■ YOUR HORSE IS A VERY SL
OW STARTER
2100 PRINT"AND WILL ONLY RUN AT SPEED AF
TER THE
2110 PRINT"SCREEN BORDER TURNS 'RED'. TH
IS OCCURS"
2120 PRINT"WHEN YOU HAVE RIDDEN A THIRD
OF THE WAY"
2130 PRINT"DOWN THE TRACK SO YOU WILL AL
WAYS HAVE"
2140 PRINT"OTHER HORSES IN FRONT OF YOU.
"
2150 PRINT"TO MAKE IT HARDER STILL, ALL
HORSES"
2160 PRINT"WITHIN 20 FEET OF YOU WILL AT
TEMPT"
2170 PRINT"TO BLOCK YOUR PATH OR CRASH I
NTO YOU!"
2180 PRINT"■PUSH LETTER 'A' TO MOVE DOWN
 THE SCREEN"
2190 PRINT"PUSH NUMBER '1' TO MOVE UP TH
E SCREEN."
2195 PRINT"BEWARE: ANY COURSE ALTERATION
 WILL "
2197 PRINT"ALSO REDUCE YOUR SPEED!"
2200 PRINT"■GOOD LUCK. PRESS ANY KEY TO
START.■"
2210 GETA$:IFA$=""THEN2210
2220 RETURN
5000 REM WINNER
5002 PRINT"■
            "
5003 IFI=NTHEN5007
5005 PRINT"■WINNER....HORSE NUMBER"I+1"
            "
5006 GOTO5010
5007 PRINT"■YOU WON!   WELL DONE
            "
5009 REM TURN HORSE ON AND OFF
```

```
5010 FORQ=0TO40:POKEV+21,PEEK(V+21)-2↑I
5015 POKEV+21,PEEK(V+21)+2↑I
5020 NEXTQ
5100 PRINT"[redacted]PRESS"
5110 PRINT"[redacted] ANY "
5120 PRINT"[redacted] KEY "
5130 GETA$:IFA$<>""THEN5130
5140 GETA$:IFA$=""THEN5140
5145 POKEV+21,0
5150 RUN
20000 V=53248
20001 REM COMMODORE 64 HORSE SPRITE LOAD
ING
20002 POKEV+21,255
20003 PRINT"[redacted]"
20004 FORI=0TO7:POKE2040+I,13:NEXTI:FORI
=0TO62:READQ:POKE832+I,Q:NEXTI
20005 FORI=0TO7:Y(I)=50+I*25:X(I)=40:NEX
TI
20006 FORI=0TO7:READQ:POKEV+39+I,Q
20007 POKEV+I*2,X(I):POKEV+I*2+1,Y(I):NE
XTI
20010 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0, 0, 0, 0
20020 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 6,
 0, 0, 14, 0, 0, 28
20030 DATA 64, 0, 58, 224, 224, 57, 248,
 63,255, 152, 31, 223, 192, 31,223,192
20040 DATA 27, 239, 0, 40, 3, 0, 72, 2,
128, 72, 2, 64, 144, 2, 32
20045 REM SPRITE COLOURS DATA
20050 DATA 0,2,5,6,8,9,4,11
20060 RETURN
```

Division One

This time around you're a soccer manager whose overall proficiency will be judged at the end of a season. There are details of matches played and goals scored, points awarded, games remaining and a constantly changing league table. The computer will calculate the results according to the relative strengths of the teams, whether the game was played at home or away, and so on.

If things are going badly it could be that you'll have to intervene at the touchline, changing players' positions and generally backseat booting. Is it going to be championship or relegation? It's up to you and the lads. And the DATA statements which can be messed around with if you feel that we've been biased one way or another.

```
5 REM DIVISION ONE.....WALWYN
8 GOSUB63900
9 UM=US+200:G=US:P5=0
10 REM GOSUB 8000 :PRINT PLAYING FIELD
11 REM GOSUB 10000:PLAYER CHECK,BLANK,AD
D,MOVE.
12 REM GOSUB 12000:BALL CHECK,BLANK,ADD,
MOVE
13 GOSUB20000
15 J=0
30 DIM TZ(15,15),T$(15),TA(15),TM(15),TD
(15),TT(15),TP(15),TF(15)
31 REM IF TZ(15,15)=1 THEN THE FIXTURE H
AS ALREADY BEEN PLAYED.
32 REM TA(15),TM(15) AND TD(15) ARE THE
DIFFERENT STRENGTHS
33 REM IN ATTACK, MIDFIELD PLAY AND DEFE
NCE FOR EACH TEAM.
34 REM TT(15) IS THE POINTS TOTAL.
35 FOR I=1TO15:READ T$(I),TA(I),TM(I),TD
(I):NEXT I
36 DATA "LIVERPOOL",9,6,6,"MAN UTD",8,5,
6,"IPSWICH",6,7,6,"ARSENAL",7,6,6
37 DATA "STHMPTON",8,5,5,"A VILLA",6,6,5
,"NOTTM F",9,5,5,"SWANSEA",5,6,5
```

```
38 DATA "WOLVES",5,5,5,"CRYSTAL P",5,6,5
,"TOTTENHAM",8,4,6,"NORWICH",4,5,4
39 DATA "COVENTRY",4,4,4,"LEEDS",4,3,4,"
W BROM",8,3,4
50 FOR X=0TO1:FOR Y=0TO9:D(X,Y)=Y+128-X*
128:NEXT Y,X
70 FOR J=1TO6:READ XS(0,J),YS(0,J):NEXT
72 FOR J=1TO6:READ XS(1,J),YS(1,J):NEXT
75 DATA 1,15,8,10,8,20,15,8,15,14,15,21
76 DATA 38,15,32,10,32,20,24,8,24,14,24,
21
80 GOSUB5000
85 GOSUB6000
100 GOSUB8000
105 R=0:Q=0:TI$="000000"
110 FOR I=0TO1:FORJ=1TO6:X(I,J)=XS(I,J):
Y(I,J)=YS(I,J):NEXT J,I
120 FOR I=0TO1:FOR J=1TO6:POKE G+X(I,J)+
Y(I,J)*40,D(I,J)
125 NEXT J,I
150 X2=0:Y2=0
152 X=0:Y=0:X1=19:Y1=15
155 I=0:J=0
160 ZZ$="A"
300 K=PEEK(197):GET Z$:IF K=64 THEN X=0:
Y=0:MP=0:GOTO340
301 IF Z$<>""ANDVAL(Z$)<=0 THENZZ$=Z$:GO
TO340
303 W=1:I=0:PQ=ASC(ZZ$)-64:IF K=MP THEN
W=INT(RND(1)*S(I,PQ))
304 J=PQ:MP=K:IF J<0 OR J>6 THEN ZZ$="A"
:J=1
305 IF K=27THEN Y=1:X=0:GOTO330
310 IF K=32THEN Y=-1:X=0:GOTO330
315 IF K=56THEN X=-1:Y=0:GOTO330
320 IF K=59 THEN X=1:Y=0:GOTO330
330 I=0
340 FOR L=1TOW:GOSUB10000
342 IF MM THEN MM=0:X2=INT(RND(1)*2):Y2=
INT(RND(1)*3-1):GOTO620
344 NEXT L
348 PRINT"■"Q;TAB(5)T$(Q%)" V "T$(R%)"
 "R
349 PRINT"■"TAB(32)MID$(TI$,4,1)":"MID$(
TI$,5,2)
```

```
350 IF MID$(TI$,3,2)="03" THEN PRINT"■■■
TIME'S UP...":GOTO6700
360 PRINT"■■■■PLAYER TO RE-POSITION=■"ZZ
$
400 REM OPPONENT MOVE
410 W=1:I=1:V=INT(RND(1)*6+1):IF V=MV TH
EN W=INT(RND(1)*S(I,MV))
420 I=1:J=V:MV=J:Y=SGN(Y1-Y(I,J))
422 IF V=1 AND RND(1)>.5 THEN Y=SGN(14-Y
(I,J)):X=1:W=1:GOTO430
424 X=SGN(X1-X(I,J))
430 FOR L=1TOW:GOSUB10000
440 IF MM THEN MM=0:X2=-INT(RND(1)*2):Y2
=INT(RND(1)*3-1):GOTO620
445 NEXT L
600 U=INT(RND(1)*TA(N)*VJ+1)
620 FOR L=1TOU
650 GOSUB12000
660 IF ZZ THEN ZZ=0:FOR I=1TO2000:NEXT I
:GOSUB8000:GOTO110
690 NEXT L
900 GOTO300
999 END
5000 REM START PROCEDURE AND TEAM SET UP
5005 PRINT"■"UE$;:POKEUG,U6
5010 FOR I=1TO15
5020 PRINTI,T$(I)
5030 NEXT I
5040 INPUT"■■YOUR CHOICE OF TEAM";M
5042 IFM<=0ORM>15THEN5040
5045 T$(M)="■"+T$(M)+"■"
5050 PRINT"■
5090 RETURN
6000 REM MATCH DECISION
6005 GOSUB7000
6006 P=0:INPUT "■■HOW MANY AUTO. RESULTS
 (0=MANUAL)■";P1:IF P1=0 THEN 6008
6007 FOR P=1TOP1
6008 IF PL=210 THEN GOSUB7000:PRINT"■■TH
AT'S THE END OF THE SEASON":END
6010 Q%=RND(1)*15+1:R%=RND(1)*15+1
6020 IF Q%=R% OR TZ(Q%,R%)=1 THEN 6010
6025 TZ(Q%,R%)=1:PL=PL+1
6028 PRINT"————————————————————————————
————————————
```

```
6030 PRINT"MATCH #"PL"■■.";
6040 PRINT" "T$(Q%)" HOME TO "T$(R%)
6042 IF Q%=M OR R%=M THEN 6050
6045 IF P>0 THEN 6500
6047 PRINT"PRESS ANY KEY"
6048 GET A$:IF A$="" THEN 6048
6049 GOTO6500
6050 PRINT"DO YOU WISH TO PLAY?(Y/N)"
6060 GET A$:IF A$="" THEN 6060
6070 IF A$="Y" THEN 6100
6080 GOTO 6500
6100 REM SET UP ME TO PLAY
6105 J=Q%:VJ=2:VM=1:IF Q%=M THEN J=R%:VM
=2:VJ=1
6106 N=J
6110 S(1,1)=TD(J)*VJ:S(1,2)=TM(J)*VJ:S(1
,3)=TM(J)*VJ
6115 S(1,6)=TA(J)*VJ:S(1,5)=TA(J)*VJ:S(1
,4)=TA(J)*VJ
6120 S(0,1)=TD(M)*VM:S(0,2)=TM(M)*VM:S(0
,3)=TM(M)*VM
6125 S(0,6)=TA(M)*VM:S(0.5)=TA(M)*VM:S(0
,4)=TA(M)*VM
6180 GOTO100
6500 REM MATCH DECIDED
6510 S%=RND(1)*20+1:T%=RND(1)*20+1:U%=RN
D(1)*20+1
6520 S=0:T=0:U=0
6530 Q=TA(Q%)-TM(R%)+S%-TD(R%)+U%/2.5
6540 R=TA(R%)-TM(Q%)+T%-TD(Q%)
6550 Q=INT(Q/5):R=INT(R/5)
6555 IF Q<1 THEN Q=0
6556 IF R<1 THEN R=0
6570 PRINT"■"T$(Q%)"..."Q,T$(R%)"..."R
6578 TP(Q%)=TP(Q%)+1:TP(R%)=TP(R%)+1:TF(
Q%)=TF(Q%)+Q:TF(R%)=TF(R%)+R
6580 IF Q>R THEN TT(Q%)=TT(Q%)+3
6584 IF R>Q THEN TT(R%)=TT(R%)+3
6586 IF R=Q THEN TT(Q%)=TT(Q%)+1:TT(R%)=
TT(R%)+1
6588 IFTT(Q%)>P5THENP5=TT(Q%)
6589 IFTT(R%)>P5THENP5=TT(R%)
6590 IF P THEN 6598
6595 PRINT"■PRESS ANY KEY WHEN READY"
```

```
6596 GET A$:IF A$=""THEN 6596
6597 GOTO6600
6598 NEXT P:PRINT"■■PRESS ANY KEY WHEN R
EADY"
6599 GET A$:IF A$=""THEN 6599
6600 GOTO6000
6700 FORI=1TO3000:NEXTI
6705 POKEUG,U6:PRINTU7$
6710 PRINT"■IF YOU HAD LET ME DECIDE THE
 MATCH,"
6715 PRINT"THE SCORE WOULD HAVE BEEN....
."
6720 QQ=TA(Q%)-TM(R%)+S%-TD(R%)+U%/2.5
6730 RR=TA(R%)-TM(Q%)+T%-TD(Q%)
6740 QQ=INT(QQ/5):RR=INT(RR/5)
6750 IF QQ<1 THEN QQ=0
6760 IF RR<1 THEN RR=0
6770 PRINTT$(Q%)"..."QQ,T$(R%)"..."RR
6775 IF Q=QQ AND R=RR THEN PRINT"■WHICH
IS EXACTLY RIGHT !":GOTO6578
6776 PRINT"■■PRESS ANY KEY TO CONTINUE"
6777 GETA$:IFA$<>""THEN6777
6778 GETA$:IFA$=""THEN6778
6780 PRINT"■...BUT AS IT IS , THE SCORE
IS..."
6790 GOTO6570
7000 REM TABLE DISPLAY
7003 PRINT"■";U3$;:POKEUG,U6
7005 PRINT"TEAM"TAB(13)"P"TAB(17)"F"TAB(
20)"PTS";TAB(27)"■MATCHES LEFT"
7006 PRINT"———————— ——— ——— ———  "TAB
(27)"■TO PLAY"210-PL
7008 PRINTU7$;
7010 FOR J=(P5+1)TO0STEP -1
7020 FORI=1TO15
7030 IF TT(I)=J THEN 7100
7040 NEXT I
7050 NEXT J
7060 RETURN
7100 PRINTT$(I);TAB(12)TP(I);TAB(16)TF(I
);TAB(20)TT(I)
7150 GOTO 7040
8000 POKEUG,U0:PRINT"■■■■■■■■"U4$;:POKEUG
,U3
```

```
8010 FORI=0TO39:POKEUM+I,102:POKEUM+I+76
0,102:NEXT
8020 FORI=1TO18:POKEUM+I*40,230:POKEUM+3
9+40*I,230:NEXT
8030 FORI=8TO11:POKEUM+I*40,58:POKEUM+39
+40*I,58:NEXT:RETURN
10000 A=X(I,J)+Y(I,J)*40
10001 IF PEEK(US+A+X+Y*40)=42 THEN 16000
10002 IF PEEK(US+A+X+Y*40)<>32 THEN RETU
RN
10005 IF A=0 THEN A=20000
10010 AA=32
10020 POKE US+A,AA
10025 X(I,J)=X(I,J)+X:Y(I,J)=Y(I,J)+Y
10030 AA=D(I,J)
10040 A=X(I,J)+Y(I,J)*40
10045 IF A=0 THEN A=20000
10050 POKE US+A,AA
10100 RETURN
12000 K=PEEK(G+X1+X2+(Y1+Y2)*40)
12002 IF K=32 THEN 12020
12004 IF K=58 THEN 12200
12006 IF K=230 THEN X2=-X2:GOTO12000
12008 IF K=102 THEN Y2=-Y2:GOTO12000
12011 S%=RND(1)*3-1
12012 T%=RND(1)*2:IF T%=0 THEN X2=-X2:Y2
=S%:GOTO12000:
12014 Y2=-Y2:X2=S%:GOTO12000
12020 POKE G+X1+Y1*40,32
12025 X1=X1+X2:Y1=Y1+Y2
12050 POKE G+X1+Y1*40,42
12100 RETURN
12200 REM GOAL
12230 POKE US+X1+Y1*40,32
12240 X1=X1+X2:Y1=Y1+Y2
12250 POKE US+X1+Y1*40,42
12251 PRINT"■■■■";
12252 FORK9=1TO17:POKEUB,U0:PRINTTAB(K9*
2)U2$;"GOAL!"
12254 POKEUB,U9:NEXTK9
12260 IF X1<3 AND M=Q% THEN R=R+1
12265 IF X1>36 AND M=Q% THEN Q=Q+1
12270 IF X1<3 AND M=R% THEN Q=Q+1
12275 IF X1>36 AND M=R% THEN R=R+1
```

```
12280 ZZ=1
12290 RETURN
16000 U=INT(RND(1)*S(I,J)*2+1)
16005 MM=1
16010 RETURN
20000 POKEUG,UF:PRINTUE$;"■DIVISION ONE"
20010 PRINTU7$;"■YOU WILL BE ASKED TO CH
OOSE A TEAM TO
20020 PRINT"LEAD THROUGHOUT ONE SEASON.
20030 PRINT"  THERE ARE 210 MATCHES IN A
LL -
20035 PRINT"AND EACH TEAM PLAYS 28 MATCH
ES SINCE
20040 PRINT"EVERYONE PLAYS EVERYONE TWIC
E - HOME &
20050 PRINT"AWAY. YOU CAN EITHER PLAY A
MATCH OR
20060 PRINT"LET THE MACHINE CALCULATE TH
E RESULT.
20070 PRINT"■  WHEN THE NUMBER OF AUTOMA
TIC RESULTS
20080 PRINT"IS ENDED, A LEAGUE TABLE IS
DRAWN.
20082 PRINT"■AS THE FIXTURES PROGRESS, Y
OU WILL SEE"
20084 PRINT"HOW MANY GAMES EACH TEAM HAS
 PLAYED,  "
20086 PRINT"HOW MANY GOALS EACH TEAM HAS
 SCORED"
20087 PRINT"AND HOW MANY POINTS FOR EACH
 TEAM."
20088 PRINT"(3 FOR A WIN, 1 FOR A DRAW)"
20091 PRINT"■N.B. WHEN YOU GET NEAR THE
END OF THE"
20092 PRINT"SEASON, THERE MAY BE A SLIGH
T PAUSE"
20093 PRINT"BETWEEN MATCHES AS THE COMPU
TER HUNTS"
20094 PRINT"FOR THE NEXT FIXTURE."
20096 PRINT"■PRESS ANY KEY■"
20097 GET A$:IF A$="" THEN 20097
20100 PRINT"■IF YOU DECIDE TO PLAY A MAT
CH
20110 PRINT"THEN YOU MAY RE-POSITION YOU
R TEAM AS
```

```
20120 PRINT"THEY PLAY. ONLY SIX FOOTBALL
RS ARE
20130 PRINT"SHOWN IN EACH TEAM (LETTERS
A-F)."
20132 PRINT"YOUR TEAM ALWAYS PLAYS FROM
LEFT TO
20134 PRINT"RIGHT IN THE 'DARK STRIP'."
20136 PRINT"■YOU MAY RE-POSITION PLAYERS
 ANY TIME IN"
20140 PRINT"THE GAME BUT YOU HAVE NO CON
TROL OVER"
20150 PRINT"WHERE THEY KICK THE BALL! TH
IS DEPENDS"
20160 PRINT"UPON THE VARIOUS STRENGTHS O
F ATTACK"
20170 PRINT"AND DEFENCE. IT IS QUITE USU
AL FOR"
20172 PRINT"A TEAM TO SCORE AN 'OWN GOAL
'...."
20177 PRINT"■THE BALL MOVES FURTHER AND
FASTER WHEN"
20179 PRINT"THE MATCH IS 'AWAY' FROM HOM
E."
20182 PRINT"■THE DURATION OF EACH MATCH
IS 3 MINS."
20184 PRINT"HOLD DOWN THE LETTER OF YOUR
 PLAYER"
20185 PRINT"AND WAIT FOR THE LETTER TO B
E DISPLAYED"
20186 PRINT"NEXT TO THE ■PLAYER TO BE RE
-POSITIONED."
20187 PRINT"THEN PRESS '1' AND '2' FOR L
EFT & RIGHT"
20188 PRINT"  AND KEYS '8' AND '9' FOR D
OWN AND UP."
20189 PRINT"HOLD THE KEY DOWN FOR RANDOM
 MULTI-MOVE.";
20194 PRINT"■PRESS ANY KEY■■"
20195 GET A$:IF A$="" THEN 20195
20197 RETURN
63900 REM COMMODORE 64 CLR/SOUND CODES
63902 US=1024:UC=55296:UG=53281
63904 UB=53280:UV=54296:UA=54277:UD=5427
8:UH=54273:UL=54272
```

```
63905 UW=54276:U0=0:U0$="■":U1=1:U1$="■"
:U2=2:U2$="■"
63906 U3=5:U3$="■":U4=6:U4$="■":U5=8:U5$
=" ":U6=9:U6$="■"
63910 U7=10:U7$="■":U8=13:U8$="■":U9=14:
U9$="■":UU=4:UU$="■"
63915 UR=12:UR$="■":UE=7:UE$="■":UF=11:U
F$="■":RETURN
```

Dogfight

Up in the wild blue yonder, you and the enemy ace are duelling above the trenches. Swoop down on the foe, hang on his tail, catch him unawares from below, with your trusty Brownings spitting leaden death. All good clean fun, but watch for the wraparound!

```
1 REM *** SOLO DOG-FIGHT ***
2 REM***64 VERSION***
5 P1=0:P2=0:Q1=0:Q2=0:A=0:AA=0
10 GOSUB9000
15 POKE808,225:REM DISABLE RUN/STOP KEY:
REM THIS LINE FOR TESTING
20 GOSUB8000
30 GOSUB7500
900 A=1:AA=1:PRINT"■":POKE53280,14:POKE5
3281,14:GOSUB7100
1000 REM     MAIN LOOP
1005 IF(PEEK(53278)=3)THENGOSUB4000
1007 POKES+18,0
1010 POKE54272,255-P1:POKE54274,255-P1
1015 POKE54279,255-Q1:POKE54281,255-Q1
1020 POKE2040,191+A:POKE53248,P2+256*(P2
>255):POKE53249,P1
1025 IFP2>255THENPOKE53264,PEEK(53264)OR
1:GOTO1030
1027 POKE53264,PEEK(53264)AND254
1030 POKE2041,191+AA
1040 POKE53250,Q2+256*(Q2>255):POKE53251
,Q1
1041 IFQ2>255THENPOKE53264,PEEK(53264)OR
2:GOTO1050
1042 POKE53264,PEEK(53264)AND253
1045 IF(PEEK(53278)=3)THENGOSUB4000
1050 KY=PEEK(653):IFKY=1ANDG=1THENF=1
1055 K2=PEEK(197):IFK2=5ANDG=-1THENF=2
1060 IFP=1THENGOSUB1500
1065 IFF>0THENGOSUB2000:KY=0:K2=0
1085 AA=AA-(K2=4)+(K2=3):IFAA=0THENAA=8
1087 IFAA=9THENAA=1
1090 A=A-(KY=4)+(KY=2):IFA=0THENA=8
1095 IFA=9THENA=1
```

```
1112 Q1=Q1+E(AA):Q2=Q2+E(AA+8)
1113 P1=P1+D(A):P2=P2+D(A+8)
1115 IFP1>240THENP1=32
1116 IFQ1>240THENQ1=32
1117 IFP1<32THENP1=240
1118 IFQ1<32THENQ1=240
1160 IFP2>360THENP2=24
1170 IFP2<24THENP2=360
1210 IFQ2>360THENQ2=24
1220 IFQ2<24THENQ2=360
1230 G=-G
1250 GOTO1000
1500 REM SINGLE -!ER -N
1505 IFRND(1)>.8THENIFABS(P1-Q1)<70ANDAB
S(P2-Q2)<70THENF=2
1510 IFRND(1)>.9THENAA=AA-1:IFAA=0THENAA
=8
1520 IFRND(1)>.9THENAA=AA+1:IFAA=9THENAA
=1
1530 RETURN
2000 REM FIRE
2010 IFF=1THENX=P2:Y=P1:XX=F(A):YY=F(A+8
):GOTO2045
2020 X=Q2:Y=Q1:XX=G(AA):YY=G(AA+8)
2045 FORCNT=0TO8:POKES+18,33
2050 IFX<20ORX>320ORY<20ORY>238THEN2200
2055 POKE53252,X+256*(X>255):POKE53253,Y
:X=X+XX:Y=Y+YY
2057 IFX>255THENPOKE53264,PEEK(53264)OR4
:GOTO2070
2058 POKE53264,PEEK(53264)AND251
2070 C=PEEK(53278):IFC=6ANDF=1THENGOSUB5
100
2075 IFC=5ANDF=2THENGOSUB5000
2077 PRINT"■"C
2080 POKES+18,0
2085 NEXTCNT
2200 POKEV+5,0:F=0:RETURN
3040 POKEV,P2+256*(P2>255):POKEV+1,P1
4000 REM CRASH
4010 L1=L1-1:L2=L2-1:POKES+18,129
4020 FORT=1TO8:POKES+15,26-T
4040 POKE2040,191+T:P1=P1-20*(P1<230)
4050 POKE2041,200-T:Q1=Q1-20*(Q1<230)
```

```
4055 POKEV,P2+256*(P2>255):POKEV+1,P1:PO
KEV+2,Q2+256*(Q2>255):POKEV+3,Q1
4060 NEXTT
4100 Q1=80:Q2=160:P1=160:P2=80:A=1:AA=1
4110 POKEV,P2+256*(P2>255):POKEV+1,P1:PO
KEV+2,Q2+256*(Q2>255):POKEV+3,Q1
4120 C=PEEK(53278)
4130 POKES+18,0
4150 GOTO7100
4900 RETURN
5000 REM
5010 L1=L1-1
5015 POKES+18,129
5020 FORT=1TO8
5025 POKES+15,26-T
5030 POKE2040,191+T:P1=P1-20*(P1<230)
5040 POKEV,P2+256*(P2>255):POKEV+1,P1
5050 NEXTT
5060 P1=160:P2=80:A=1
5065 POKEV+2,Q2+256*(Q2>255):POKEV+3,Q1
5070 C=PEEK(53278)
5075 POKES+18,0
5080 GOTO7100
5100 L2=L2-1
5115 POKES+18,129
5120 FORT=1TO8
5125 POKES+15,26-T
5130 POKE2041,191+T:Q1=Q1-20*(Q1<230)
5140 POKEV+2,Q2+256*(Q2>255):POKEV+3,Q1
5150 NEXTT
5160 Q1=80:Q2=160:AA=1
5170 C=PEEK(53278)
5175 POKES+18,0
5180 GOTO7100
6000 REM END
6002 POKES+4,0:POKES+11,0:POKES+18,0
6005 IFL1=0ANDL2=0THENPRINT"■■■■■ THE RE
SULT IS A DRAW"
6010 IFL1=0ANDL2>0THENPRINT"■■■■■ PLAYER
 2 IS THE VICTOR"
6020 IFL2=0ANDL1>0THENPRINT"■■■■■ PLAYER
 1 IS THE VICTOR"
6025 POKE198,0:FORDL=1TO2000:NEXTDL
6030 PRINT"■■■  PRESS ANY KEY TO RESTART
"
```

```
6035 PRINT"■ OR 'X' TO EXIT"
6040 GETQQ$:IFQQ$=""THEN6040
6045 IFQQ$="X"THENPOKE808,237:END
6050 RUN
7100 IFP<>2THENPRINT"■■ PLAYER LIVES "L1
"■   COMPUTER LIVES "L2
7105 IFP=2THENPRINT"■■ PLAYER 1.."L1"■
 PLAYER 2.."L2
7110 IFL1=0ORL2=0THENGOTO6000
7500 REM —
7505 S=54272:FORT=0TO28:POKES+T,0:NEXT
7510 POKES+1,3:POKES+5,9:POKES+6,240:POK
ES+4,97:POKES+2,128:POKES+3,16
7515 POKES+8,3:POKES+12,9:POKES+13,240:P
OKES+11,97
7520 POKES+15,18:POKES+19,9:POKES+20,239
7525 POKES+24,15
7530 RETURN
8000 PRINT"■▲              DOG-FIGHT DUEL"
8002 PRINT"                ——————————"
8005 PRINT"■■THIS GAME CAN BE PLAYED WIT
H ONE OR TWO PLAYERS■"
8010 PRINT"■1.THE SINGLE PLAYER OPTION W
ILL MATCH   YOU AGAINST AIR-COMMODORE ";
8012 PRINT"HINDENBERG,   THE DREADED FIG
HTER ACE WHO ALREADY HAS 64 NOTCHES ";
8014 PRINT" ON HIS JOYSTICK"
8015 PRINT"■■■2.THE TWO PLAYER OPTION IS
 A DUEL TO THE DEATH ";
8017 PRINT"BETWEEN TWO YOUNG PILOTS WHO
IN   MORE PEACEFUL TIMES ";
8019 PRINT"MAY WELL BE FRIENDS"
8020 INPUT"■■■CHOOSE YOUR PATH TO GLORY"
;P
8025 IFP<1ORP>2THENPRINT"□□□";:GOTO8020
8040 PRINT"■■":POKE53280,1:POKE53281,1
8045 PRINT"              ——————————"
8050 PRINT"              PLAYER CONTROLS    "
8051 PRINT"              ——————————    "
8052 PRINT:PRINT"■   PLAYER 1      ■
    PLAYER 2"
8053 PRINT" ■  ————————          ■       —
————"
8055 PRINT"■  CTRL = UP     ■           F1
 = UP"
```

```
8060 PRINT"■   CBM = DOWN  ■          F7
 = DOWN"
8070 PRINT"■ SHIFT = FIRE  ■          F3
 = FIRE"
8110 PRINT:PRINT:PRINT"■ PLAYER 1 FLIES
IN THE BLUE AIRCRAFT"
8120 PRINT:PRINT"■ PLAYER 2 FLIES IN THE
 RED AIRCRAFT"
8130 IFP=1THENPRINT"■      THE COMPUTER I
S PLAYER 2"
8150 PRINT:PRINT:PRINT:PRINT"■      ■ PRE
SS ANY KEY TO START ■"
8160 GETWW$:IFWW$=""THEN8160
8170 RETURN
8999 STOP
9000 REM READ DATA
9030 DIMD(16),E(16),F(16),G(16)
9040 G=1
9050 P1=160:P2=80:Q1=80:Q2=160:A=1:AA=1
9070 RESTORE:FORX=1TO16
9080 READN:D(X)=N
9090 READN:E(X)=N
9100 NEXTX:F=0
9110 DATA0,0,-8,-8,-8,-8,-8,-8,0,0,8,8,8
,8,8,8
9115 DATA8,8,8,8,0,0,-8,-8,-8,-8,-8,-8,0
,0,8,8
9120 DATA8,8,0,-8,-8,-8,0,8,0,-8,-8,-8,0
,8,8,8
9125 DATA8,8,0,-8,-8,-8,0,8,0,-8,-8,-8,0
,8,8,8
9130 FORX=1TO16:READN:F(X)=N:NEXTX
9135 FORX=1TO16:READN:G(X)=N:NEXTX
9150 REM READ SPRITE DATA
9160 V=53248:POKE2040,192:POKEV+21,7:POK
EV+39,6:POKE2041,192:POKEV+40,2
9200 FORT=0TO511:READX:POKE12288+T,X:NEX
TT
9290 L1=5:L2=5
9300 FORT=0TO63:POKE832+T,0:NEXTT:POKE86
0,24:POKE863,60:POKE863,60:POKE2042,13
9310 POKE866,24:POKEV+41,0
9999 RETURN
10010 REM *** SPRITE PLANE A  ***
```

```
10012 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
10013 DATA 0, 0, 0, 0, 0, 0, 64, 15, 254
, 96, 2, 16
10014 DATA 112, 2, 17, 112, 15, 249, 255
, 255, 255, 127, 255, 249
10015 DATA 16, 8, 33, 32, 63, 240, 0, 0,
 32, 0, 0, 48
10016 DATA 0, 0, 72, 0, 0, 48, 0, 0, 0,
0, 0, 0
10017 DATA 0, 0, 0, 0
10020 REM *** SPRITE PLANE B  ***
10022 DATA 0, 0, 0, 0, 0, 32, 0, 1, 16,
0, 2, 8
10023 DATA 0, 5, 20, 0, 8, 226, 0, 17, 2
24, 0, 35, 192
10024 DATA 0, 87, 136, 0, 143, 80, 0, 14
, 38, 0, 28, 89
10025 DATA 0, 26, 137, 0, 49, 6, 0, 98,
0, 31, 192, 0
10026 DATA 7, 128, 0, 3, 64, 0, 4, 64, 0
, 0, 64, 0
10027 DATA 0, 0, 0, 0
10050 REM *** SPRITE PLANE C  ***
10052 DATA 0, 248, 0, 6, 32, 0, 6, 32, 0
, 6, 112, 96
10053 DATA 7, 246, 144, 6, 127, 144, 6,
118, 96, 6, 118, 0
10054 DATA 6, 118, 0, 7, 246, 0, 6, 126,
 0, 6, 54, 0
10055 DATA 0, 54, 0, 0, 48, 0, 0, 48, 0,
 0, 48, 0
10056 DATA 0, 48, 0, 0, 248, 0, 1, 246,
0, 3, 240, 0
10057 DATA 0, 32, 0, 0
10070 REM *** SPRITE PLANE D  ***
10072 DATA 0, 24, 0, 4, 36, 0, 8, 36, 0,
 16, 152, 0
10073 DATA 40, 80, 0, 70, 32, 0, 7, 80,
0, 71, 136, 0
10074 DATA 43, 196, 0, 17, 234, 0, 8, 24
0, 0, 4, 120, 0
10075 DATA 2, 140, 0, 1, 6, 0, 0, 131, 1
12, 0, 1, 128
```

```
10076 DATA 0, 1, 192, 0, 1, 192, 0, 1, 1
60, 0, 1, 0
10077 DATA 0, 0, 0, 0
10100 REM *** SPRITE PLANE E  ***
10102 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 12
, 0, 0
10103 DATA 18, 0, 0, 12, 0, 0, 4, 0, 0,
15, 252, 0
10104 DATA 132, 16, 0, 159, 255, 254, 25
5, 255, 255, 159, 240, 14
10105 DATA 136, 64, 14, 8, 64, 6, 127, 2
40, 2, 0, 0, 0
10106 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
10107 DATA 0, 0, 0, 0
10120 REM *** SPRITE PLANE F  ***
10122 DATA 0, 0, 0, 0, 2, 0, 0, 2, 32, 0
, 2, 192
10123 DATA 0, 1, 224, 0, 3, 240, 96, 70,
 0, 144, 140, 0
10124 DATA 145, 88, 0, 98, 48, 0, 20, 11
2, 0, 10, 241, 0
10125 DATA 17, 234, 0, 3, 196, 0, 7, 136
, 0, 71, 16, 0
10126 DATA 40, 160, 0, 16, 64, 0, 8, 128
, 0, 4, 0, 0
10127 DATA 0, 0, 0, 0
10150 REM *** PLANE G ***
10152 DATA 0, 32, 0, 0, 126, 0, 3, 124,
0, 0, 248, 0
10153 DATA 0, 96, 0, 0, 96, 0, 0, 96, 0,
 0, 96, 0
10154 DATA 3, 96, 0, 3, 99, 0, 3, 243, 0
, 3, 127, 0
10155 DATA 3, 115, 0, 3, 115, 0, 51, 115
, 0, 79, 243, 0
10156 DATA 75, 127, 0, 48, 115, 0, 0, 35
, 0, 0, 35, 0
10157 DATA 0, 248, 0, 0
10170 REM *** SPRITE PLANE H  ***
10172 DATA 0, 0, 0, 0, 128, 0, 5, 128, 0
, 3, 128, 0
10173 DATA 3, 128, 0, 1, 128, 0, 14, 193
, 0, 0, 96, 128
```

```
10174 DATA 0, 49, 64, 0, 30, 32, 0, 15,
16, 0, 87, 136
10175 DATA 0, 35, 212, 0, 17, 226, 0, 10
, 224, 0, 4, 98
10176 DATA 0, 10, 20, 0, 49, 8, 0, 72, 1
6, 0, 72, 32
10177 DATA 0, 48, 0, 0
```

Asset Stripper

This is an investment simulation in which you compete with the computer's company, Spectral Investments, to acquire £1 million. Starting with £100,000 you must study market intelligence reports and buy and sell shares on the stock market. If you find a company which is rich in capital assets but running at a loss, you can make a bid for the company with a mind to distributing its assets amongst the shareholders. To make a takeoever bid you must attempt to buy 51 per cent of the shares, at which point the opposition will start bidding against you. Occasionally, Spectral will initiate its own takeover bids. The longer the bidding continues, the greater the possibility that a 'third party' will intervene.

Ordinary shares may be bought and sold in any quantity and a regular review of share prices is given, together with a market 'wire service'. If you want to look more closely at the performance of a particular company, you have the option of calling up a copy of its annual report which will give you information on assets, share prices, profits and other useful data. During each round, all the companies manufacture and trade their produce, and it is this activity which determines profitability. Frequently a company will invest in new capital equipment and this expenditure will cause a small drop in the share price. Don't be too hasty to sell your shares when a rise in productivity might just be around the corner.

```
1 REM***64 VERSION***
2 REM *** ASSET STRIPPER ***
10 POKE53280,3:POKE53281,1:POKE646,6
20 PRINT"■■■■■■■■■■■■■■■■ASSET   STRIPPER■
"
25 PRINT"■■■■■■■■■■■■■■■■
```

```
150 PRINTN$;E$
160 PRINT
170 PRINT"LIQUID ASSETS ",INT(((CH+.005)
*100)/100)
180 PRINT
190 Q=0:Q1=Q
200 FOR X=1 TO 10
210 Q=Q+E(X)
220 IFF$(X)="C"THEN 240
230 Q1=Q1+E(X)*D(X)
240 NEXT
250 PRINT"SHARES HELD ",INT(Q)
260 PRINT
270 PRINT"TOTAL SHARE VALUE ";INT((Q1+.0
05)*100)/100
280 PRINT
290 PRINT"TOTAL ASSETS ",INT((Q1+CH+.005
)*100)/100
300 PRINT
310 IF Q1+CH>S THEN 2740
320 IF Q1+CH<0 THEN 2770
330 Q3=0
340 FOR X=1TO10
345 IFF$(X)="C"THEN355
350 Q3=Q3+(F(X)*D(X))
355 NEXT
360 IF Q3+ZXCH>S THEN 2770
370 IF Q3+ZXCH<0 THEN 2720
380 IF T$="X" AND CH+Q1>ZXCH+Q3 THEN 274
0
390 IF T$="X" AND CH+Q1<ZXCH+Q3 THEN 276
0
410 PRINTM$;" CLAIMS ASSETS OF ";Q3+ZXCH
420 PRINT
430 FORKI=1TO3000:NEXTKI
450 RETURN
480 PRINTTAB(10);"■■■
```

```
570 IFB(X)>A(X)ANDE(X)<510000ANDF(X)<510
000THENPRINTC$(X),"RIPE FOR TAKEOVER?"
590 IFG(X)<1 AND W(X)>59 THENPRINTC$(X),
"PROFITS LOW "
610 IFW(X)<60 THENPRINTC$(X),"HEADS FOR
TROUBLE"
630 IFG(X)>5 THENPRINTC$(X),"SET FOR GOO
D PROFIT"
650 IFV(X)>0 AND V(X)>=1 THEN PRINTC$(X)
,"ANNOUNCES ";INT(V(X));"REDUNDANCIES"
660 PRINT
670 Q1=Q1+D(X)
675 FORI=1TO500:NEXT
680 NEXT X
690 IFQ=0THEN T$="X"
700 IFQ=0THEN110
710 ASA=Q1/Q
720 PRINT" ALL SHARE AVERAGE ";INT((ASA+
.005)*100)/100
730 IFASA>M(1)THENPRINT"UP ";INT(((ASA-M
(1))+.005)*100)/100
740 IFASA<M(1) THENPRINT"DOWN ";INT(((M(
1)-ASA)+.005)*100)/100
750 IFASA>I(2) THENPRINT"ALL TIME HIGH";
760 IFASA>I(2)THEN I(2)=ASA
770 IFASA<I(3)THENPRINT"ALL TIME LOW ";:
I(3)=ASA
780 FORKI=1TO2000:NEXTKI
810 RETURN
840 FORX=1TO10
850 IF F$(X)="C"THEN1010
860 IFLEV=1 OR LEV=2 THEN880
870 IFF$(X)="X" AND F(X)>0 AND F(X)<5100
00 THEN GOSUB 1110
880 IFW(X)<61 AND F(X)<510000 THEN GOSUB
 1110
900 IFF$(X)="C"THEN 1010
910 IFZXCH<100THEN1010
915 IFLEV=1 AND RND(1)>.5 THEN950
920 F=((((S/100)*51)-F(X))*D(X))
930 IF(B(X)/100)*51>FANDF<ZXCHANDF(X)<51
0000ANDE(X)<510000ANDG(X)<1THEN2620
940 IFZXCH<100 THEN 1010
950 IFF$(X)="C"THEN1010
```

```
955 TENTH=ZXCH/10
960 IFW(X)>60 AND G(X)>0 THENGOSUB 1040
970 IFLEV=1THEN 1010
980 IFW(X)>60 ANDG(X)>1 THEN GOSUB 1040
990 IFW(X)>60 AND G(X)>5 THEN GOSUB 1040
1000 IFW(X)>60 AND G(X)>10THEN GOSUB 104
0
1010 NEXT
1020 RETURN
1040 IF(TENTH/D(X))+E(X)+F(X)>L(X) THEN
RETURN
1050 IF F(X)<510000 AND (F(X)+(TENTH/D(X
))))>S/2 THEN RETURN
1060 A(X)=A(X)+TENTH*1.05
1070 ZXCH=ZXCH-TENTH
1080 F(X)=F(X)+INT(TENTH/D(X))
1090 L(X)=L(X)-INT(TENTH/D(X))
1100 RETURN
1110 A(X)=A(X)-((F(X)*D(X))*1.05)
1120 ZXCH=ZXCH+F(X)*D(X)
1130 L(X)=L(X)+F(X)
1140 F(X)=0
1150 RETURN
1180 PRINT"▒";
1190 PRINTTAB(9);" ▒SHARE PRICES▒"
1200 PRINT
1210 PRINT" COMPANY ";TAB(11);"SHARE PRI
CE ";TAB(24);"UP/DOWN"
1220 PRINT
1230 FORX=1TO10
1240 IFF$(X)="C"THENPRINTC$(X),"▒▒CLOSED
 DOWN▒▒"
1250 IFF$(X)="C"THEN1310
1260 IF INT(D(X))=D(X) THEN P$=STR$(D(X)
)+".00"
1270 IF INT(N(X))=N(X)THEN R$=STR$(N(X))
+".00"
1280 IF INT(D(X))<D(X) THEN P$=STR$(INT(
(D(X)+.005)*100)/100)
1290 IFINT(N(X))<N(X)THEN R$=STR$(INT((N
(X)+.005)*100)/100)
1300 PRINTC$(X);TAB(21-LEN(P$)+1);P$;TAB
(30-LEN(R$)+1);R$
1310 NEXT
```

```
1320 PRINT"————————————————————————————
————————————"
1380 PRINT"ALL SHARE AVERAGE ";INT((ASA+
.005)*100)/100
1390 PRINT"YOU HAVE ";INT((CH+.005)*100)
/100
1410 RETURN
1430 INPUT"BUY HOW MANY ";Y
1450 IFY*D(X)>CH THEN PRINT"YOU HAVE INS
UFFICIENT CASH ":GOTO1430
1470 IFY>L(X) THEN PRINT"NOT ENOUGH SHAR
ES AVAILABLE ":GOTO1430
1490 IFY+E(X)>500000 AND E(X)<510000THEN
1680
1500 CH=CH-(Y*D(X))
1510 L(X)=L(X)-Y
1520 A(X)=(A(X)+(Y*D(X)))*1.05
1530 E(X)=E(X)+Y
1540 X$="P"
1550 RETURN
1570 INPUT" HOW MANY DO YOU WANT TO SELL
";Y
1590 IFY>E(X)THENPRINT"YOU DONT HOLD THA
T MANY.":GOTO1570
1610 CH=CH+(Y*D(X))
1620 L(X)=L(X)+Y
1630 A(X)=A(X)-((Y*D(X)*1.05))
1640 E(X)=E(X)-Y
1645 X$="P"
1650 RETURN
1680 T$="PHASEH"
1690 Z1=.01
1700 PRINT"■"TAB(7);"TAKE OVER BID":PRIN
T
1710 PRINT"YOUR SHARE HOLDING IS ";INT(E
(X)*100)/S;" PERCENT"
1720 PRINT"CURRENT SHARE PRICE IS ";INT(
(D(X)+.005)*100)/100
1730 PRINT"THERE ARE ";L(X);" AVAILABLE"
1740 PRINT"YOU NEED ";INT(510000-E(X));"
 FOR A MAJORITY"
1750 PRINT"AND COST ";INT(((510000-E(X))
*D(X)+.005)*100)/100;" AT MARKET PRICE"
1755 PRINT"YOU HAVE ";INT((CH+.005)*100)
/100
```

```
1756 EG=0
1757 FORV=1TO10
1758 IFF$(X)<>"C"THENEG=EG+(F(V)*D(V))
1759 NEXT
1760 IFRND(1)>.1THEN 1769
1762 PRINT"THIRD PARTY WINS BID "
1763 GOSUB2040
1764 GOTO1890
1769 PRINT"HOW MUCH DO YOU BID PER SHARE
":INPUTZ
1810 IFZ1>ZTHEN1880
1820 K1=A(X)+(510000*(Z+.01))
1822 K2=(510000-F(X))*(Z+.01)
1830 IFK1>K2AND(ZXCH+EG)>=K2THENZ1=Z+.01
1840 IFZ1>ZTHENPRINTM$;" BIDS ";INT((Z1+
.005)*100)/100
1860 IFZ1>ZTHEN1760
1870 IFZ1<ZTHEN GOSUB1920
1880 IFZ1>ZTHENGOSUB2190
1890 Z1=0
1895 Z=0
1900 IFT$="PHASEH"THEN1540
1910 IFT$="PHASEM"THEN1010
1920 REM
1930 PRINT
1940 Z1=0
1950 F=0
1960 PRINT" YOU HAVE WON THE BID."
1970 CH=CH-(Z*(510000-E(X)))
1980 A(X)=A(X)+(Z*(510000-E(X)))
1990 E(X)=E(X)+(510000-E(X))
2000 L(X)=S-(E(X)+F(X))
2010 PRINT"DO YOU WANT TO STRIP THIS COM
PANY OF    ITS ASSETS";
2020 GETY$:IFY$=""THEN2020
2030 IFY$="N"THENPRINT"■NO■":RETURN
2040 PRINT:PRINT"ASSETS ARE BEING DISTRI
BUTED AMONG THE  SHARE HOLDERS."
2050 PSH=(E(X)*100)/S
2060 ZPSH=(F(X)*100)/S
2070 OO=B(X)/100
2080 CH=CH+(PSH*OO)
2090 ZXCH=ZXCH+(ZPSH*OO)
2100 IFA(X)<=0THEN2140
2110 D(X)=A(X)/S
```

```
2120 CH=CH+(E(X)*D(X))
2130 ZXCH=ZXCH+(F(X)*D(X))
2140 F$(X)="C"
2150 L(X)=0
2160 RETURN
2190 IFZ1*(510000-F(X))>ZXCHTHENPRINT"■S
PECTRAL■ ■WITHDRAWS■":RETURN
2200 PRINTM$;" HAS WON BID."
2220 ZXCH=ZXCH-((510000-F(X))*Z1)
2230 A(X)=A(X)-((510000-F(X))*Z1)
2240 F(X)=F(X)+(510000-F(X))
2250 Z1=0
2260 IFG(X)<1THENGOSUB2040
2270 RETURN
2290 FORX=1TO10
2300 IFF$(X)="C"THEN2590
2310 V(X)=0
2320 C(X)=0
2330 IFA(X)<10000THENA(X)=10000
2340 J(X)=A(X)/10
2350 C(X)=C(X)+J(X)
2360 IFH(X)<J(X)/1000THENH(X)=J(X)/1000
2370 IFB(X)>=A(X)/20THEN2400
2380 C(X)=C(X)+((A(X)/10)-B(X))
2390 B(X)=INT(A(X)/10)
2400 PROD=J(X)/10
2410 RAN=INT(RND(1)*3555)+1
2420 IFRAN=1THENW(X)=W(X)-1
2430 IFRAN=3THENW(X)=W(X)+1
2440 T(X)=PROD*W(X)
2450 C(X)=C(X)+(H(X)*5000)
2460 PF=T(X)-C(X)
2470 A(X)=A(X)+T(X)
2480 A(X)=A(X)-C(X)
2490 IFA(X)<=10000THENV(X)=H(X):H(X)=J(X
)/1000
2510 V(X)=V(X)-H(X)
2520 G(X)=(PF*100)/T(X)
2530 SP1=D(X)
2540 IFA(X)<10000THENA(X)=10000
2550 D(X)=A(X)/S
2560 N(X)=D(X)-SP1
2570 IFA(X)<10000THENA(X)=10000
2580 IFRND(1)>.9THENW(X)=W(X)+10
```

```
2585 IFRND(1)>.9THENW(X)=W(X)-10:REM MIS
S PRINT?
2590 NEXT
2610 RETURN
2620 PRINT:PRINT
2640 T$="PHASEM"
2660 PRINT"■"M$;" BID FOR "
2670 PRINTC$(X);" TAKEOVER"
2680 Z1=D(X)
2690 PRINT" AT ";INT((D(X)+.005)*100)/10
0;" PER SHARE"
2700 GOTO1710
2740 PRINT" YOU HAVE WON"
2750 GOTO2780
2770 PRINTM$;" HAS WON WITH "ZXCH+Q3
2780 PRINT:PRINT"DO YOU WANT ANOTHER GAM
E?";
2790 GETV$:IFV$="Y"THENPRINT"YES":FORI=1
TO100:NEXT:RUN
2800 IFV$=""THENGOTO2790
2810 END
2820 REM LOOP
2830 GOSUB2290
2850 GOSUB2290
2860 GOSUB100
2870 GOSUB480
2890 GOSUB1180
2900 PRINT"ENTER INITIAL OF CHOSEN COMPA
NY OR ■P■ASS"
2920 GETX$:IFX$=""THEN2920
2930 IFX$="P"THENPRINTTAB(15)"■PASS■":GO
TO3240
2940 X=1
2950 IFLEFT$(C$(X),1)=X$THEN2970
2960 X=X+1:IFX=11THEN2900
2965 GOTO2950
2970 IFF$(X)="C"THEN2900
2980 PRINT"■"
2990 PRINTC$(X):FORKI=1TOLEN(C$(X)):PRIN
T"‾";:NEXT:PRINT
3000 PRINT"LIQUID CAPITAL ",INT((A(X)+.0
05)*100)/100
3010 PRINT"CAPITAL EQUIPMENT ",INT((B(X)
+.005)*100)/100
```

```
3020 PRINT"EMPLOYEES ",INT(H(X))
3030 PRINT"OVERHEADS ",INT((C(X)+.005)*1
00)/100
3040 PRINT"PROFIT ",INT((T(X)-C(X)+.005)
*100)/100
3050 PRINT"PROFIT % OF TURNOVER ",INT(G(
X))
3060 PRINT"SHARE PRICE ",INT((D(X)+.005)
*100)/100
3070 PRINT"SHARES AVAILABLE ",INT(L(X))
3080 PRINT"SHARES HELD BY YOU ",INT(E(X)
)
3090 PRINT"% SHARES HELD BY YOU ",INT((E
(X)*100)/S)
3100 PRINT"YOU HAVE ";INT((CH+.005)*100)
/100
3110 PRINT"----------
----------"
3120 IFE(X)>=510000THENPRINT"DISPOSE OF
ASSETS";
3130 IFE(X)>=510000THENINPUTA$
3140 IFE(X)<510000THENA$="N"
3150 IFE(X)>=510000 AND A$="Y"THENGOSUB2
040
3160 IFF$(X)="X"THENPRINT"■B■UY,■S■ELL O
R ■P■ASS"
3170 IFF$(X)="X"THENGETX$:IFX$=""THEN317
0
3175 IFF$(X)="C"THENX$="P"
3180 IFX$<>"P" AND X$<>"S" AND X$<>"B"TH
EN2900
3190 IFX$="B"THENGOSUB1430
3200 IFX$="S"THENGOSUB1570
3210 IFX$="P"THENPRINT"LOOK AT ANOTHER C
OMPANY(■Y■ OR ■N■)";
3220 IFX$="P"THENGETA$:IFA$=""THEN3220
3225 IFX$="P"AND A$="N"THEN PRINTTAB(15)
"■PASS■"
3230 IFX$="P" AND A$="Y"THEN2890
3240 GOSUB840
3250 GOTO2850
3260 REM
3270 M$="SPECTRAL INVESTMENTS LTD."
3280 DIMC$(10)
```

```
3290 FORX=1TO10:READC$(X):NEXT
3300 DATA"ACME CORP.","BRN IND.   ","CAPR
A STEEL","DELTA GROUP","ELLIOT CORP."
3310 DATA"FORAX CHEMICALS","GNS INT.    "
,"HOPE HOLDINGS","INCE CO.    "
3320 DATA"JONES & PEEKE"
3390 X=10
3400 DIMA(X),B(X),C(X),D(X),E(X),F(X),G(
X),H(X),P(X),T(X),I(3)
3500 W$="                "
3520 DIMJ(X),L(X)
3540 E$=" INVESTMENTS LTD."
3550 S=1000000
3560 CH=100000
3570 ZXCH=CH
3580 AW=5000
3590 ASA=0
3600 T$="0"
3620 DIMM(3)
3630 PT=0
3640 DIMN(X),W(X),V(X)
3680 DIMF$(X)
3690 FORX=1TO10
3700 A(X)=INT(RND(1)*S/2)+1
3710 D(X)=S/A(X)
3720 B(X)=INT(RND(1)*S/10)+1
3730 H(X)=B(X)/10/1000
3740 W(X)=60
3750 F$(X)="X"
3760 L(X)=S
3770 NEXT
3780 GOTO2820
```

Fives

A deceptively easy game. Try to find the computer's five digit numbers by asking just four simple arithmetic questions. Be warned, it is very addictive!

```
1 REM *** 64 VERSION ***
10 REM ***** FIVES ****** (C) 1983 MICHE
AL BEWS
11 REM CONVERTED 1983 R.D.PARRATT
20 DIM A(5),F$(5),B$(4),S$(5)
25 GOSUB 1400
30 POKE 53280,3:POKE53281,7
40 GOSUB 600
59 REM **MAIN ROUTINE
60 PRINT"■"
70 FOR X=1 TO 5
80 LET A(X)=1+INT(RND(1)*9)
90 IF X=1 THEN 120
100 FOR Y=1 TO X-1: IF A(X)=A(Y) THEN GO
TO 80
110 NEXT Y
120 NEXT X
130 PRINT"■■■■■■■■■■■■■F I V E S"
140 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■NOW ENTER
 YOUR QUESTIONS, ONE AT A TIME"
145 FOR Y=1 TO 4
150 PRINT"■";:FOR QQ=1 TO Y+3:PRINT"■";:
NEXT:PRINTY;"> ";
155 GOSUB 490
157 DU=90:FR=12860:GOSUB 1500
160 LET F$(Y)=STR$(A(P))
165 PRINT X$;
170 GOSUB 530
177 DU=90:FR=19269:GOSUB 1500
180 PRINT"■";:FOR QQ=1 TO Y+3:PRINT"■";:
NEXT:PRINT"■■■■■■■";B$(Y);
190 GOSUB 490
192 IFSTR$(A(P))=F$(Y)THENGOSUB1000:PRIN
TTAB(15);"■■DIFFERENT LETTER■■":GOTO190
193 GOSUB 1000:PRINTTAB(15);"
      ";
```

```
194 DU=90:FR=10207:GOSUB 1500
195 S$(Y)=STR$(A(P))
200 GOSUB 1000:PRINT"■■■■■■■■";X$;
205 GOSUB 1100:REM EVALUATOR
210 GOSUB 1000:PRINTTAB(9);"= ";EV
215 DU=50:FR=12860:FORX=1 TO 5:GOSUB 150
0:NEXT X
220 NEXT Y
250 REM ENDING ROUTINE
255 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
                                        "
260 PRINT"■■■■■■■■■■■■■NOW ENTER YOUR GUES
S AS A COMPLETE FIVE ";
262 PRINT"FIGURE NUMBER"
264 PRINT"        ■FOR EXAMPLE 12345<RETU
RN>"
266 PRINT"        ■ENTER A '?' IF YOU RES
IGN■"
270 INPUT "                                ■■■■■■■■■
■■■■■";X$
272 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■";TAB(11);"
                                        "
275 IF X$="?" THEN PRINT"■■■■";:GOTO 310
280 IFLEN(X$)<>5 THEN PRINT"□□";TAB(11);
"■■AGAIN! - FIVE FIGURES■■":GOTO 260
290 FORX=1TO5:IFVAL(MID$(X$,X,1))=A(X)TH
EN NEXT X:GOTO 300
295 PRINT"□□";TAB(11);"■■NO!- TRY AGAIN■
■":GOTO260
300 PRINT"■■■";TAB(23);"■■CORRECT■■■"
310 DU=100:PRINT TAB(9);:FORX=1TO5:PRINT
A(X);"■■";:FR=10207+600*X:GOSUB1500:NEXTX
311 PRINT"■■■■■■■■■■■■■":LETLN=12:GOSUB 1200
312 PRINT:PRINTTAB(8);"■PRESS <RETURN> F
OR NEXT GAME■"
313 PRINTTAB(8);"■OR ■■Q■■ TO QUIT■"
314 GET X$:IF X$=CHR$(13) THEN 60
315 IF X$="Q" THEN POKE53280,7:POKE53281
,6:PRINT"■■":END
316 GOTO 314
489 REM ****┤BOARD ENTRY
490 GET X$:IF X$="" THEN 490
500 P=ASC(X$)
505 IF X$="F" THEN P=1:RETURN
```

```
510 IF X$="I" THEN P=2:RETURN
515 IF X$="V" THEN P=3:RETURN
520 IF X$="E" THEN P=4:RETURN
525 IF X$="S" THEN P=5:RETURN
527 GOTO 490
530 GET X$:IF X$="" THEN 530
540 IF X$="+" OR X$="-" OR X$="*" OR X$=
"/" THEN 550
545 GOTO 530
550 B$(Y)=X$:GOSUB 1000:PRINTTAB(15);"
          "
570 IF Y=1 THEN RETURN
580 FORZ=1 TO Y-1:IF B$(Y)<>B$(Z)THEN NE
XT Z:RETURN
585 GOSUB 1000:PRINTTAB(15);"■■ALREADY U
SED!■■":GOTO 530
600 REM ***INSTRUCTIONS
610 PRINT"■■■THE OBJECT OF F I V E S IS
TO CALCULATE"
615 PRINT"THE FIVE DIGIT NUMBER REPRESEN
TED BY"
616 PRINTTAB(15);"■F I V E S■"
618 PRINT"          ON THE SCREEN."
620 PRINT:PRINT"■ YOU MAY DO THIS BY ASK
ING THE COMPUTER";
622 PRINT" TO GIVE YOU ANSWERS TO FOUR S
IMPLE SUMS"
630 PRINT:PRINT"■THESE SUMS MUST BE ONE
EACH OF THE"
632 PRINT"FOLLOWING MATHEMATICAL FUNCTIO
NS:"
633 PRINT"       MULTIPLICATION ■■*■■"
634 PRINT"       ADDITION       ■■+■■"
635 PRINT"       SUBTRACTION    ■■-■■"
636 PRINT"       DIVISION       ■■/■■"
640 PRINT:PRINT"FOR EXAMPLE: ■PRESS I+V
■"
642 PRINT"AND THE COMPUTER WILL GIVE YOU
 AN ANSWER";
660 PRINT:PRINT"YOU MAY ASK THE QUESTION
S IN ANY ORDER   YOU WISH."
670 PRINT:PRINTTAB(9);"■PRESS ANY KEY TO
 START■";
680 GET X$:IFX$=""THEN680
```

```
690 GOTO 60
1000 PRINT"■";:FOR QQ=1 TO Y+3:PRINT"■";
:NEXT:RETURN
1099 REM ***EVALUATOR
1100 LET LV=VAL(F$(Y)):LET RV=VAL(S$(Y))
1110 IF B$(Y)="+" THEN EV=LV+RV:RETURN
1120 IF B$(Y)="-" THEN EV=LV-RV:RETURN
1130 IF B$(Y)="*" THEN EV=LV*RV:RETURN
1140 IF B$(Y)="/" THEN EV=LV/RV:RETURN
1150 PRINT "ERROR- BAD OP IN EVALUATOR":
STOP
1200 FORQQ=1TOLN:PRINT"
                          ";:NEXTQQ:RETURN
1399 REM ****SET UP NOISE CHIP
1400 SC=54272
1410 FOR L=SC TO SC+24:POKEL,0:NEXT
1420 POKESC+5,0
1430 POKESC+24,15
1440 RETURN
1499 REM ****MAKE NOISE
1500 POKESC+6,240
1510 HF=FR/256:POKESC+1,HF:POKESC,(HF-IN
T(HF))*256
1518 POKESC+24,15
1520 POKESC+4,17
1525 FOR N=1 TO DU:NEXTN
1530 POKESC+4,16
1535 POKESC+24,0
1540 RETURN
```

Tug-of-War

Tug-of-War is a two player game consisting of a canyon with a rope stretched across the top, held by a team of three figures on either side. A small UFO flies overhead and each player takes turns in dropping a parachute from it, attempting to land on a target which appears lower down the screen in a random position. Every time a parachutist hits the target, the opposing team is pulled further towards the edge of the canyon and if a man topples over the precipice, the team is weakened. The winner is the player who succeeds in pulling all the opposing team over the edge of the canyon.

```
5 GOSUB9000
10 GOSUB8000
20 GOSUB7000
50 T=1024:MM=119:REM SO AS NOT TO POKE L
OC ZERO
999 REM PLAY PLAYER 1
1000 POKET,MM:T=1024+23*40+(RND(1)*38+1)
:MM=PEEK(T):POKET,91:M=0
1005 POKES+4,32:POKES+4,33
1010 FORF=0TO39:L=M:M=PEEK(1024+F):POKE1
024+F,137
1015 POKES+1,70-F
1020 IFL<>0THENPOKE1024+F-1,L
1025 FORH=0TO10:NEXT
1030 GETA$:IFA$="A"THENPOKE1024+F,138:GO
TO2000
1040 NEXT:POKE1024+F-1,M:GOTO3000
2000 POKE1024+F,M:POKES+4,32
2010 FORG=1TO24:L=M:PO=1024+40*G+F:M=PEE
K(PO):POKEPO,138:POKEPO-40,L
2020 IFM=91THEN2100:REM A HIT
2030 NEXT:POKEPO,M:GOTO3000
2100 POKEPO,M
2110 Y=Y-1
2120 PRINTLEFT$(DN$,18);LEFT$(AC$,Y);A$(
1);J$;B$(1);" "
2130 PRINTLEFT$(DN$,19);LEFT$(AC$,Y);A$(
2);SP$;B$(2);" "
2140 IFPEEK(1024+702)<>133THEN3000:REM N
OT FALL OFF
```

```
2145 POKES+4,32:POKES+4,33:POKES+1,10
2150 U=21:PRINTLEFT$(DN$,18);LEFT$(AC$,U
+1);"__"
2155 PRINTLEFT$(DN$,19);LEFT$(AC$,U+1);"
  ":GOSUB6000
2160 IFTB=.02THENB$(1)="■EFEF■":B$(2)="■
GHGH■":SP$=SP$+"  ":J$=J$+"__"
2170 IFTB=.002THENB$(1)="■EF■":B$(2)="■G
H■":SP$=SP$+"  ":J$=J$+"__"
2180 IFTB=.0002THENW=1:GOTO6500
2190 TB=TB/10
2999 REM PLAY PLAYER 2
3000 POKET,MM:T=1024+23*40+(RND(1)*38+1)
:MM=PEEK(T):POKET,91:M=0
3005 POKES+4,32:POKES+4,33
3010 FORF=39TO0STEP-1:L=M:M=PEEK(1024+F)
:POKE1024+F,137
3015 POKES+1,70-39+F
3020 IFL<>0THENPOKE1024+F+1,L
3025 FORH=0TO10:NEXT
3030 GETA$:IFA$="L"THENPOKE1024+F,138:GO
TO4000
3040 NEXT:POKE1024+F+1,M:GOTO1000
4000 L=M:POKES+4,32
4010 FORG=1TO24:L=M:PO=1024+40*G+F:M=PEE
K(PO):POKEPO,138:POKEPO-40,L
4020 IFM=91THEN4100:REM HIT
4030 NEXT:POKEPO,M:GOTO1000
4100 POKEPO,M
4110 Y=Y+1
4120 PRINTLEFT$(DN$,18);LEFT$(AC$,Y-1);"
 ";A$(1);J$;B$(1)
4130 PRINTLEFT$(DN$,19);LEFT$(AC$,Y-1);"
 ";A$(2);SP$;B$(2)
4140 IFPEEK(1024+697)<>130THEN1000:REM N
O FALL OFF
4145 POKES+4,32:POKES+4,33:POKES+1,10
4150 U=18:PRINTLEFT$(DN$,18);LEFT$(AC$,1
6);"__"
4155 PRINTLEFT$(DN$,19);LEFT$(AC$,16);"
 ":GOSUB6000
4160 IFTA=.02THENA$(1)="■ABAB■":A$(2)="■
CDCD■":SP$=SP$+"  ":J$=J$+"__"
4170 IFTA=.002THENA$(1)="■AB■":A$(2)="■C
D■":SP$=SP$+"  ":J$=J$+"__"
```

```
4180 IFTA=.0002THENW=2:GOTO6500
4190 TA=TA/10:GOTO1000
5999 REM * FALL OFF DRAWING
6000 FORF=19TO24:PRINTLEFT$(DN$,F);LEFT$
(AC$,U);"■KL■■■MN■";
6010 IFF>19THENPRINTLEFT$(DN$,F-1);LEFT$
(AC$,U);"   ";
6015 FORI=0TO5:NEXT
6020 NEXT:PRINTLEFT$(DN$,F);LEFT$(AC$,U)
;"□  ■■■■KL■";
6025 FORI=0TO5:NEXT
6030 PRINTLEFT$(DN$,F);LEFT$(AC$,U);"   "
;
6040 RETURN
6499 REM EOG
6500 FORC=0TO20:POKES+1,10:FORJ=0TO50:NE
XT:POKES+1,20:FORJ=0TO50:NEXT:NEXT
6505 POKES+4,32:POKE198,0
6510 PRINT"■WELL DONE PLAYER ";W;" - YOU
 WON!!"
6520 PRINT"■■■PRESS ANY KEY TO PLAY AGAI
N"
6530 :GETA$:IFA$=""THEN6530
6540 GOTO20
6999 REM INITIALIZ
7000 POKE53281,6:PRINT"■":POKE53281,3
7005 DN$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■"
7006 AC$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■"
7010 A(0)=113:A(1)=69:A(2)=68:A(3)=67:A(
4)=70:A(5)=70:A(6)=82:A(7)=111:A(8)=111
7020 FORI=1024TO1574STEP18
7030 FORJ=0TO8:POKEI+J,A(J):NEXT
7040 FORJ=8TO0STEP-1:POKEI+8-J+9,A(J):NE
XT
7060 NEXTI
7070 GR$="■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
■■■■■■■■■■■■■■■■"
7080 PRINTLEFT$(DN$,20);:FORI=1TO5:PRINT
GR$;:NEXT:PRINTLEFT$(GR$,39);
7085 POKE2023,102
7090 A$(1)="■ABABAB■":B$(1)="■EFEFEF■":A
$(2)="■CDCDCD■":B$(2)="■GHGHGH■"
7095 J$="__________":SP$="          "
```

```
7100 PRINTLEFT$(DN$,18);LEFT$(AC$,10);A$
(1);J$;B$(1)
7110 PRINTLEFT$(DN$,19);LEFT$(AC$,10);A$
(2);SP$;B$(2)
7120 TA=.02:TB=TA:T=0:Y=10
7130 S=54272:POKES+24,15:POKES+5,15:POKE
S+1,70
7140 RETURN
7999 REM MOVE CHARACTER GENERATOR ETC
8000 PRINT"■PLEASE WAIT ONE MINUTE"
8009 REM READ CHAR GEN
8010 POKE56334,PEEK(56334)AND254
8020 POKE1,PEEK(1)AND251
8030 FORI=0TO128:FORJ=0TO7
8040 POKE14336+I*8+J,PEEK(53248+I*8+J)
8050 NEXTJ,I
8060 POKE1,PEEK(1)OR4:POKE56334,PEEK(563
34)OR1
8070 POKE53272,(PEEK(53272)AND240)OR14
8079 REM READ IN NEW CHARS
8080 FORI=129TO142:FORJ=0TO7:READD:POKE1
4336+I*8+J,D:NEXTJ,I
8100 DATA24,52,62,60,24,31,255,15,0,0,0,
0,0,248,255,240,15,7,7,3,0,0,0,0,0
8110 DATA128,192,224,112,24,12,7,0,0,0,0
,0,31,255,15,24,44,124,60,24,248
8120 DATA255,240,0,1,3,7,14,24,48,224,24
0,224,224,192,0,0,0,0,0
8130 DATA129,66,36,102,255,126,60,16,124
,254,0,16,56,16,40,1,195,101,55
8140 DATA27,15,7,3,128,195,166,236,152,2
40,224,192,3,3,3,7,14,28,184,112,192
8150 DATA192,192,224,112,56,29,14
8160 RETURN
9000 POKE53281,3:POKE53280,6
9005 PRINT"■■■
```

```
9010 PRINT"■■■■■■■■■■■■■■■■■■■■■■■A SIMPLE GAM
E FOR 2 PLAYERS WHO HAVE
9020 PRINT"■■TO WIN, NOT BY STRENGTH, BU
T BY
9030 PRINT"■■REACTIONS. A UFO WILL FLY A
CROSS THE
9040 PRINT"■■SCREEN AND A TARGET WILL AP
PEAR AT
9050 PRINT"■■THE BOTTOM. PLAYER 1 CAN PA
RACHUTE
9060 PRINT"■■OUT ONTO THE TARGET BY PRES
SING 'A'.
9070 PRINT"■■PLAYER TWO BY PRESSING 'L'.
9080 PRINT"■■■   IF THE PARACHUTE LANDS
ON TARGET
9090 PRINT"■■YOU WILL PULL THE OTHER TEA
M. IF ANY
9100 PRINT"■■MEN FALL DOWN THE CANYON TH
EN THAT
9110 PRINT"■■TEAM WILL FIND IT HARDER TO
 WIN
9120 PRINT"■■■■■■■■■■■PRESS ANY KEY TO ST
ART"
9130 GETA$:IFA$=""THEN9130
9140 RETURN
```

Mushroom Invasion

All right. So you've dealt with the worst that the galaxies can throw up. The Space Invaders, the asteroid belts, the nightmare timewarp tunnels, the vampire cats — you've seen it all haven't you? Don't you believe it! Things can only get worse. This time around you are faced with a mindless, soulless, heartless fungus . . . the invasion of the mushrooms. It's all over for Earth. The mushrooms already cover half the globe and they're moving in for the final kill. You are the commander of the only surviving security cruiser, and your laser cannons are running low. Wait until you see the whites of their undersides and make every shot count. If they hit your ship you're finished.

```
0 REM:** ENTER "P┌642,16:S 64760" DIRECT
 BEFORE ENTERING OR LOADING THIS PROGRAM
1 CL=55296:SN=1024:CH=2048:MU=54272:VI=5
3248:POKEVI+16,0:POKEVI+21,0:POKE646,PEE
K(VI+33)
2 IFPEEK(4114)<>207THENPRINTCHR$(147);:F
ORI=0TO15:PRINTCHR$(PEEK(256*PEEK(44)+PE
EK(43)+16+I));:NEXT
3 IFPEEK(4114)<>207THENPOKE198,2:POKE631
,19:POKE632,13:POKE256*PEEK(44)+PEEK(43)
+4,144:GOTO0
4 REM ** RESETS START OF BASIC AND WIPES
 PROGRAM, IF LOADED IN WRONG PLACE
5 POKEVI+33,0:POKEVI+32,0:PRINT"■";:REM
** CLEARS SCREEN TO ALL BLACK
6 REM ** USE OF ABBREVIATED COMMANDS ESS
ENTIAL THROUGHOUT WHEN ENTERING LINES
7 REM ** CURSOR CONTROL STRINGS: ALL REM
S MAY BE OMITTED EXCEPT LINES 0 & 6
8 DN$="■■■
```

```
13 REM ** EITHER WAY, CHARACTER SET BEST
 LOADED AT 2048 ($0800), AS HERE
14 REM ** BUT POSSIBLE AT 14336 ($3800),
 PAGE 56, FOR SHORT VERSION, IF 644, 52
15 REM ** & 56 ALL POKED WITH 56 TO PROT
ECT - 12288 ($3000) RISKY, 8192 ($2000)
16 REM ** DEFINITELY NO-GO. POKE V+24(53
272) WITH 29 OR 31 TO USE FIRST TWO
20 GOSUB2060:REM ** GET START VALUES
30 GOSUB2100:REM ** GO TO INSTRUCTIONS
38 REM ** START OF GAME LOOP
39 REM ** VI= START OF VIDEO, MU= START
OF SOUND, P & CO= POS. IN SCR & COL MEM
40 POKEVI+1,X:P=INT(X/8)*40+INT(Y/8)+SN-
2:CO=P+MU:POKEVI+21,1
41 IFY<25THENY=25
42 IFY<256THENPOKEVI+16,0:POKEVI,Y
43 IFY>304THENY=304
45 IFY>255THENPOKEVI+16,1:POKEVI,Y-255:R
EM ** MOVEMENT LIMITS
46 A$=CHR$(0)
49 REM ** MOVEMENT CONTROL
50 GETA$:IFA$=" "THENGOSUB4000:REM ** FI
RING
60 IFA$="■"THENY=Y-8:IFY<25THENY=25
70 IFA$="■"THENIFY>255THENPOKEVI+16,1:PO
KEVI,Y-255
75 IFA$="■"THENIFY<256THENPOKEVI+16,0:PO
KEVI,Y
80 IFA$="■"THENY=Y+8:IFY>304THENY=304
85 IFA$="■"THENIFY>255THENPOKEVI+16,1:PO
KEVI,Y-255
90 IFA$="■"THENIFY<256THENPOKEVI+16,0:PO
KEVI,Y
104 REM ** SHIP MOVEMENT
105 IFY<255THENPOKEVI+16,0:IFY<25THENY=2
5
106 IFY>255THENPOKEVI+16,1:POKEVI,Y-255:
GOTO110
109 POKEVI,Y
110 POKEVI+1,X:P=INT(X/8)*40+INT(Y/8)+SN
-2:CO=P+MU
120 IFPEEK(VI+31)=1THENGOSUB5000:REM **
COLLISION
```

```
130 GOSUB3000:REM ** ADD MUSHROOMS
135 IFY>255THENPOKEVI+16,PEEK(VI+16)OR1:
POKEVI,Y-255:GOTO140
136 POKEVI,Y
140 POKEVI+1,X:P=INT(X/8)*40+INT(Y/8)+SN
-2:CO=P+MU
150 GOTO40:REM ** RESTART MAIN GAME LOOP
499 REM ** PRINT TITLE SUB-ROUTINE (MAY
BE OMITTED). STARTS WITH SCREEN OFF
500 POKE53265,11:FORI=0TO39:POKE1024+I,2
11:POKE1984+I,211:NEXT:FORI=1TO23:POKE10
24+40*I,211
501 REM ** BORDER POKED TO SCREEN ONLY,
WITHOUT COLOUR, SO INVISIBLE
505 POKE1063+40*I,211:NEXT:PRINT"■■■■■■■■
M   M ■U U ■SSS ■H H ■RRRR ■OOO ■OOO ■M
  M"
510 PRINT"■■■MM MM ■U U ■S   ■H H ■R  R
■O O ■O O ■MM MM"
515 PRINT"■■■M M M ■U U ■SSS ■HHH ■RRRR
■O O ■O O ■M M M"
520 PRINT"■■■M   M ■U U   ■S ■H H ■RR
■O O ■O O ■M   M"
525 PRINT"■■■M   M ■U U   ■S ■H H ■R R
■O O ■O O ■M   M"
530 PRINT"■■■M   M ■UUU ■SSS ■H H ■R  R
■OOO ■OOO ■M   M"
535 PRINT"■■■■■■■■■■■■■■■■■■■■AAA ■TTT ■TTT
■AAA ■CCC ■K  K"
540 PRINT"■■■■■■■■■■A A ■T  ■T  ■A A ■C
  ■K K"
545 PRINT"■■■■■■■■■■AAA ■T  ■T  ■AAA ■C
  ■KK"
550 PRINT"■■■■■■■■■■A A ■T  ■T  ■A A ■C
  ■KK"
555 PRINT"■■■■■■■■■■A A ■T  ■T  ■A A ■C
  ■K K"
560 PRINT"■■■■■■■■■■A A ■T  ■T  ■A A ■C
CC ■K  K"
595 POKE53265,27:FORT=0TO2000:NEXT:REM *
* SCREEN ON & DELAY
600 PRINTLEFT$(DN$,13)RIGHT$(AC$,15)"■PR
EPARING":RETURN:REM ** END OF ROUTINE
749 REM ** DEFINE GRAPHICS: SHIP SPRITE,
```

```
 MUSHROOM UDG, LASER & EXPLOSION SPRITES
750 FORM=0TO62:READX:POKE832+M,X:NEXTM
760 POKE2040,13:POKEVI+39,5
780 FORM=0TO7:READX:POKECH+211*8+M,X:NEX
TM
995 FORN=0TO62:READX:POKE896+N,X:NEXTN:P
OKE2041,14:POKEVI+40,7
996 FORN=0TO62:READX:POKE960+N,X:NEXTN:P
OKE2042,15:POKEVI+41,8
999 REM ** GRAPHICS DEFINED, LOAD MACHIN
E CODE WHOLE SCREEN PRINT COLOUR CHANGE
1000 FORI=0TO45:READJ:POKE704+I,J:NEXT:P
OKEVI+1,104:POKEVI+3,120:POKEVI+5,128
1005 REM ** ROUTINE TO ENLARGE, ENABLE &
 MOVE SPRITES ACROSS TITLE (IF USED)
1006 REM ** IF NOT REQUIRED, OMIT 2ND HA
LF OF LINE 1000 (POKE VI+1...) TO 1019
1007 REM ** AND REPLACE WITH POKE VI+21.
.. FROM THAT LINE, TO END ROUTINE
1008 REM ** SPRITE 0 FLASHING COLOURS, 2
 AS BACKGROUND: HIT ENABLES 1 YELLOW
1009 REM ** 2 ORANGE & REMOVES LETTER: E
ND OF WORD REVERSES PROCESS
1010 POKEVI+23,7:POKEVI+29,7:FORY=0TO255
:POKEVI,Y:POKEVI+2,Y:POKEVI+4,Y:POKEVI+3
9,Y
1011 POKEVI+21,5:IFY/8<14ORY/8>25THENPOK
EVI+41,PEEK(VI+33):FORT=0TO100:NEXT:GOTO
1014
1012 IFPEEK(VI+31)AND4=4THENPOKEVI+40,7:
POKEVI+41,8:PRINTLEFT$(DN$,13)RIGHT$(AC$
,Y/8)" ";
1013 IFPEEK(VI+31)AND4=4THENPOKEVI+21,7:
FORT=0TO50:NEXT:POKEVI+21,3:FORT=0TO50:N
EXT
1014 NEXT:POKEVI+16,1:FORY=0TO95:POKEVI+
21,0:POKEVI,Y:POKEVI+39,Y:POKEVI+21,1
1016 FORT=0TO100:NEXT:IFY>87THENPOKEVI+2
1,0:REM ** DISABLE ONCE OFF SCREEN
1017 NEXT:POKEVI+16,0:POKEVI+39,5:POKEVI
+40,7:POKEVI+41,8:FORI=0TO5:POKEVI+I,0:N
EXT
1018 POKEVI+23,0:POKEVI+29,0:FORI=0TORND
(1)*150:A=RND(1)*1000+1024:IFPEEK(A)=32T
HENPOKEA,211
```

```
1019 NEXT:POKE646,10:SYS709:POKE1024,211
:FORT=0TO2000:NEXT:POKEVI+21,7:RETURN
1020 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0:REM ** SPRITE & UDG DATA
1030 DATA3,255,192,7,255,224,15,255,240,
170,170,85,170,170,85,15,255,240
1040 DATA7,255,224,3,255,192,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0,0,0,0
1045 DATA4,126,255,255,60,24,24,24
2020 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0
2030 DATA0,24,0,0,24,0,0,24,0,0,24,0,0,2
4,0,0,24,0,0,24,0,0,24,0
2035 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0
2040 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0
2041 DATA0,153,0,0,90,0,0,126,0,0,60,0,0
,60,0,0,126,0,0,90,0,0,153,0
2042 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0
2043 REM ** MACHINE CODE DATA
2045 DATA169,224,76,199,2,169,241,141,23
5,2,162,0,169,32,157,0
2046 DATA4,157,0,5,157,0,6,157,232,6,173
,134,2,157,0
2047 DATA216,157,0,217,157,0,218,157,232
,218,202,208,241,96,0
2050 REM ** SYS 704 CLEARS SCREEN, LOADS
 COLOUR MEM.; SYS 709 CHANGES CHAR COL.
2051 REM ** POKE 646, PRINT CONTROL CODE
 OR PRESS COLOUR KEY BEFORE CALLING
2060 X=48:Y=152:W=0:C=0:REM ** START VAL
UES
2065 QQ=PEEK(VI+31)
2070 RETURN
2099 REM ** INSTRUCTIONS
2100 PRINT"■■ THE EARTH IS BEING ATTACKE
D BY A FLEET ■OF MINDLESS BUT DEADLY ";
2101 PRINT"MUSHROOMS. AS  ■ALWAYS, YOU
 ARE ITS SOLE DEFENDER. THE  ■CURSOR ";
2102 PRINT"KEYS WILL SHIFT YOU ABOUT & T
HE  ■SPACE KEY FIRES YOUR LASER."
2103 PRINT"■ THE END IS INEVITABLE: IF Y
OU'RE HIT  ■YOU'RE DEAD. BUT TRY AND ";
```

```
2104 PRINT"NOTCH UP A MEAN■SCORE BEFORE
YOU GO."
2105 PRINTTAB(49)"■PRESS ANY KEY TO PLA
Y■■":REM ** PRINT MUSHROOMS ONE BY ONE
2106 FORK=1TO160:POKEMU+24,15:POKEMU+4,1
29:POKEMU+5,3:POKEMU+1,35:POKEMU,80
2107 FORT=0TO50:NEXT:POKEMU+4,0:POKEMU+5
,0:IFK<160THENPRINT"■■■";
2108 IFK/40=INT(K/40)ANDK<160THENPRINT"■
";:REM ** SPACE MUSHROOM LINES
2109 IFK>159THENPOKE2023,211:POKE55295,1
0:REM ** POKE LAST ONE TO STOP LINE FEED
2110 NEXT:POKE198,0:WAIT198,1:PRINT"■":R
EM ** WAIT FOR KEY PRESS
2120 RETURN
2999 REM ** PRINT RANDOM MUSHROOMS ROUTI
NE
3000 W=INT(RND(1)*37)
3001 M=24
3005 V=RND(1)*3
3010 PRINTLEFT$(DN$,M)RIGHT$(AC$,W)"■■■
":PRINTLEFT$(DN$,M)RIGHT$(AC$,W+V)"■■■"
3012 POKEMU+24,15:POKEMU+4,129:POKEMU+1,
RND(1)*160+34:POKEMU,RND(1)*203+52
3013 FORT=0TO50:NEXT:POKEMU+4,0:POKE646,
6:SYS709:POKE646,10:SYS709
3015 PRINTLEFT$(DN$,25)"■":REM ** CURSOR
 DOWN ON BOTTOM LINE SCROLLS SCREEN UP 1
3016 IFY>255THENPOKEVI+16,1:POKEVI,Y-255
:GOTO3018
3017 POKEVI,Y:REM ** KEEPS SHIP SPRITE I
N STEP WITH PRINTING
3018 POKEVI+1,X:P=INT(X/8)*40+INT(Y/8)+S
N-2:CO=P+MU:POKEVI+21,1
3020 RETURN
3999 REM ** FIRING ROUTINE
4000 POKEVI+21,3:IFPEEK(VI+16)=1THENPOKE
VI+16,3:POKEVI+2,Y-255
4001 IFY<256THENPOKEVI+16,0:POKEVI+2,Y
4005 P=INT(X/8)*40+INT(Y/8)+SN-2:CO=P+MU
:FORF=56TO72:POKEVI+3,F:REM ** LASER
4010 IFPEEK(VI+31)>1THENF=72:GOSUB6000:R
EM ** GO TO HIT & SCORE ROUTINE
4020 NEXT:POKEMU+25,15:POKEMU+4,129:POKE
MU+1,RND(1)*35+34:POKEMU,RND(1)*149+52
```

```
4060 FORT=0TO100:NEXT:POKEMU+4,0:POKEVI+
21,1:RETURN
4999 REM ** COLLISION ROUTINE: REDEFINE
ALL SPRITES TO EXPLOSION AT SHIP POS.
5000 POKEVI+21,7:FORK=0TO2:POKE2040+K,15
:POKEVI+1+K*2,X:POKEVI+39+K,8:NEXT
5002 IFY<256THENPOKEVI,Y:POKEVI+2,Y-8:IF
Y+8<256THENPOKEVI+4,Y+8
5003 IFY+8>255THENPOKEVI+16,4:POKEVI+4,Y
+8-255
5004 IFY>255THENPOKEVI+16,5:POKEVI,Y-255
5005 IFY-8>255THENPOKEVI+16,7:POKEVI+2,Y
-8-255
5006 IFY-8<256THENPOKEVI+2,Y-8
5007 IFY<256THENPOKEVI,Y
5008 IFY+8<256THENPOKEVI+4,Y+8
5010 REM ** EXPLOSION SHOWN, NOW SOUND,
THEN RESET SPRITES FOR NEXT GAME
5015 POKEMU+24,15:POKEMU+5,47:POKEMU+4,1
29:POKEMU+1,3:POKEMU,103:POKEMU+4,128
5016 FORT=0TO500:NEXT:POKEMU+4,0:POKEMU+
1,48:POKEMU,127:POKEMU+4,129:FORT=0TO500
5017 NEXT:POKEMU+4,0:POKEMU+1,61:POKEMU,
126:POKEMU+4,129:FORT=0TO200:NEXT
5019 POKEMU+4,0:POKEMU+1,4:POKEMU,139:PO
KEMU+4,129:FORT=0TO50:NEXT:POKEMU+4,0
5020 POKEMU+1,0:POKEMU,0:PRINT"␣":POKEVI
+21,0:POKEVI+16,0:FORK=1TO2:POKE2040+K,K
+13
5025 POKEVI+39+K,K+6:NEXT:POKE2040,13:PO
KEVI+39,5:POKEMU+5,0:POKEMU+6,0
5030 FORV=1TO7:POKEMU+24,15:POKEMU+4,17:
ONVGOTO5031,5032,5033,5034,5035,5036,503
7
5031 POKEMU+1,57:POKEMU,172:GOTO5038:REM
 ** PLAY NOTE FOR LINE PRINTED
5032 POKEMU+1,54:POKEMU,111:GOTO5038
5033 POKEMU+1,51:POKEMU,97:GOTO5038
5034 POKEMU+1,48:POKEMU,127:GOTO5038
5035 POKEMU+1,45:POKEMU,198:GOTO5038
5036 POKEMU+1,43:POKEMU,52:GOTO5038
5037 POKEMU+1,40:POKEMU,200:GOTO5038
5038 POKEMU+4,16:FORT=0TO50:NEXT:POKEMU+
4,0
```

```
5040 PRINTTAB(6)"■YOU HAVE BEEN DESTROYE
D.                    YOUR SCORE IS";C;"■■."
5050 PRINT"  ANOTHER GAME? ANY KEY TO ST
ART":NEXTV:REM ** REPEATS MESSAGE
5070 POKE198,0:WAIT198,1:PRINT"■":C=0:Y=
152:POKEVI,Y:REM ** RESET ON KEY PRESS
5080 RETURN:REM ** START NEW GAME
5999 REM ** HIT & SCORE ROUTINE
6000 POKEVI+21,7:POKEVI+5,64:IFPEEK(VI+1
6)=3ORPEEK(VI+16)=1THENPOKEVI+16,7:POKEV
I+4,Y-255
6001 IFY<256THENPOKEVI+4,Y:REM ** EXPLOS
ION AT MUSHROOM POSITION
6002 FORSC=80TO240STEP40:POKEP-SC,32:POK
ECO-SC,0:NEXT:C=C+1:REM ** ERASE + SCORE
6003 POKEMU+24,15:POKEMU+5,47:POKEMU+6,5
:POKEMU+4,129:POKEMU+1,4:POKEMU,208:POKE
MU+4,128
6004 FORT=0TO100:NEXT:POKEMU+4,0:POKEMU+
5,0:POKEMU+6,0
6005 F=72
6010 RETURN
6999 REM ** CHARACTER SET DATA (ALL 256
CHARACTERS, NORMAL & REVERSE, SET 1)
7000 DATA127,115,119,119,112,115,127,0,1
27,115,115,127,115,115,115,0
7010 DATA127,115,115,126,115,115,127,0,1
27,112,112,112,112,112,127,0
7020 DATA126,115,115,115,115,115,126,0,1
27,112,112,126,112,112,127,0
7030 DATA127,112,112,126,112,122,112,0,1
27,112,112,115,115,115,127,0
7040 DATA115,115,115,127,115,115,115,0,2
8,28,28,28,28,28,28,0
7050 DATA7,7,7,7,103,103,127,0,115,118,1
24,120,124,118,115,0
7060 DATA112,112,112,112,112,112,127,0,1
19,127,107,107,99,99,99,0
7070 DATA127,115,115,115,115,115,115,0,1
27,115,115,115,115,115,127,0
7080 DATA127,115,115,127,112,112,112,0,1
27,115,115,115,115,127,14,0
7090 DATA127,115,115,127,124,118,115,0,1
27,112,112,127,3,3,127,0
```

```
7100 DATA127,28,28,28,28,28,28,0,115,115
,115,115,115,115,127,0
7110 DATA115,115,115,115,115,62,28,0,99,
99,99,107,107,127,119,0
7120 DATA115,115,115,62,115,115,115,0,11
5,115,115,127,28,28,28,0
7130 DATA127,7,14,28,56,112,127,0,62,56,
56,56,56,56,62,0
7140 DATA63,56,56,126,56,56,127,0,62,14,
14,14,14,14,62,0
7150 DATA8,28,62,28,28,28,28,0,0,16,63,1
27,63,16,0,0
7160 DATA0,0,0,0,0,0,0,0,28,28,28,28,0,0
,28,0
7170 DATA115,115,115,0,0,0,0,0,118,118,2
55,118,255,118,118,0
7180 DATA28,127,112,127,3,127,28,0,115,1
19,14,28,56,119,103,0
7190 DATA126,118,126,60,127,118,127,0,7,
14,28,0,0,0,0,0
7200 DATA14,28,56,56,56,28,14,0,56,28,14
,14,14,28,56,0
7210 DATA0,118,60,255,60,118,0,0,0,28,28
,127,28,28,0,0
7220 DATA0,0,0,0,0,28,28,56,0,0,0,127,0,
0,0,0
7230 DATA0,0,0,0,0,28,28,0,0,3,7,14,28,5
6,112,0
7240 DATA127,115,119,127,123,115,127,0,1
24,28,28,28,28,28,127,0
7250 DATA127,3,3,127,112,112,127,0,127,7
,7,62,7,7,127,0
7260 DATA112,112,118,118,127,6,6,0,127,1
12,127,3,3,3,127,0
7270 DATA127,112,112,127,115,115,127,0,1
27,7,7,7,7,7,7,0
7280 DATA127,115,115,62,115,115,127,0,12
7,115,115,127,3,3,3,0
7290 DATA0,0,28,0,0,28,0,0,0,0,28,0,0,28
,28,56
7300 DATA15,28,56,112,56,28,15,0,0,0,127
,0,127,0,0,0
7310 DATA120,28,14,7,14,28,120,0,127,103
,31,28,28,0,28,0
```

```
7320 DATA0,0,255,255,0,0,0,8,28,62,127
,127,28,62,0
7330 DATA24,24,24,24,24,24,24,24,0,0,0,2
55,255,0,0,0
7340 DATA0,0,255,255,0,0,0,0,0,255,255,0
,0,0,0,0
7350 DATA0,0,0,0,255,255,0,0,48,48,48,48
,48,48,48,48
7360 DATA12,12,12,12,12,12,12,12,0,0,0,2
24,240,56,24,24
7370 DATA24,24,28,15,7,0,0,0,24,24,56,24
0,224,0,0,0
7380 DATA192,192,192,192,192,192,255,255
,192,224,112,56,28,14,7,3
7390 DATA3,7,14,28,56,112,224,192,255,25
5,192,192,192,192,192,192
7400 DATA255,255,3,3,3,3,3,3,0,60,126,12
6,126,126,60,0
7410 DATA0,0,0,0,0,255,255,0,54,127,127,
127,62,28,8,0
7420 DATA96,96,96,96,96,96,96,96,0,0,0,7
,15,28,24,24
7430 DATA195,231,126,60,60,126,231,195,0
,60,126,102,102,126,60,0
7440 DATA24,24,102,102,24,24,60,0,6,6,6,
6,6,6,6,6
7450 DATA8,28,62,127,62,28,8,0,24,24,24,
255,255,24,24,24
7460 DATA192,192,48,48,192,192,48,48,24,
24,24,24,24,24,24,24
7470 DATA0,0,3,126,246,118,118,0,255,127
,63,31,15,7,3,1
7480 DATA0,0,0,0,0,0,0,0,240,240,240,240
,240,240,240,240
7490 DATA0,0,0,0,255,255,255,255,255,0,0
,0,0,0,0,0
7500 DATA0,0,0,0,0,0,0,255,192,192,192,1
92,192,192,192,192
7510 DATA204,204,51,51,204,204,51,51,3,3
,3,3,3,3,3,3
7520 DATA0,0,0,0,204,204,51,51,255,254,2
52,248,240,224,192,128
7530 DATA3,3,3,3,3,3,3,3,24,24,24,31,31,
24,24,24
```

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7540 DATA0,0,0,0,15,15,15,15,24,24,24,31
,31,0,0,0
7550 DATA0,0,0,248,248,24,24,24,0,0,0,0,
0,0,255,255
7560 DATA0,0,0,31,31,24,24,24,24,24,24,2
55,255,0,0,0
7570 DATA0,0,0,255,255,24,24,24,24,24,24
,248,248,24,24,24
7580 DATA192,192,192,192,192,192,192,192
,224,224,224,224,224,224,224,224
7590 DATA7,7,7,7,7,7,7,7,255,255,0,0,0,0
,0,0
7600 DATA255,255,255,0,0,0,0,0,0,0,0,0,0
,255,255,255
7610 DATA3,3,3,3,3,3,255,255,0,0,0,0,240
,240,240,240
7620 DATA15,15,15,15,0,0,0,0,24,24,24,24
8,248,0,0,0
7630 DATA240,240,240,240,0,0,0,0,240,240
,240,240,15,15,15,15
7640 DATA128,140,136,136,143,140,128,255
,128,140,140,128,140,140,140,255
7650 DATA128,140,140,129,140,140,128,255
,128,143,143,143,143,143,128,255
7660 DATA129,140,140,140,140,140,129,255
,128,143,143,129,143,143,128,255
7670 DATA128,143,143,129,143,143,143,255
,128,143,143,140,140,140,128,255
7680 DATA140,140,140,128,140,140,140,255
,227,227,227,227,227,227,227,255
7690 DATA248,248,248,248,152,152,128,255
,140,137,131,135,131,137,140,255
7700 DATA143,143,143,143,143,143,128,255
,136,128,148,148,156,156,156,255
7710 DATA128,140,140,140,140,140,140,255
,128,140,140,140,140,140,128,255
7720 DATA128,140,140,128,143,143,143,255
,128,140,140,140,140,128,241,255
7730 DATA128,140,140,128,131,137,140,255
,128,143,143,128,252,252,128,255
7740 DATA128,227,227,227,227,227,227,255
,140,140,140,140,140,140,128,255
7750 DATA140,140,140,140,140,193,227,255
,156,156,156,148,148,128,136,255
```

```
7760 DATA140,140,140,193,140,140,140,255
,140,140,140,128,227,227,227,255
7770 DATA128,248,241,227,199,143,128,255
,193,199,199,199,199,199,193,255
7780 DATA192,199,199,129,199,199,128,255
,193,241,241,241,241,241,193,255
7790 DATA247,227,193,227,227,227,227,255
,255,239,192,128,192,239,255,255
7800 DATA255,255,255,255,255,255,255,255
,227,227,227,227,255,255,227,255
7810 DATA140,140,140,255,255,255,255,255
,137,137,0,137,0,137,137,255
7820 DATA227,128,143,128,252,128,227,255
,140,136,241,227,199,136,152,255
7830 DATA129,137,129,195,128,137,128,255
,248,241,227,255,255,255,255,255
7840 DATA241,227,199,199,199,227,241,255
,199,227,241,241,241,227,199,255
7850 DATA255,137,195,0,195,137,255,255,2
55,227,227,128,227,227,255,255
7860 DATA255,255,255,255,255,227,227,199
,255,255,255,128,255,255,255,255
7870 DATA255,255,255,255,255,227,227,255
,255,252,248,241,227,199,143,255
7880 DATA128,140,136,128,132,140,128,255
,131,227,227,227,227,227,128,255
7890 DATA128,252,252,128,143,143,128,255
,128,248,248,193,248,248,128,255
7900 DATA143,143,137,137,128,249,249,255
,128,143,128,252,252,252,128,255
7910 DATA128,143,143,128,140,140,128,255
,128,248,248,248,248,248,248,255
7920 DATA128,140,140,193,140,140,128,255
,128,140,140,128,252,252,252,255
7930 DATA255,255,227,255,255,227,255,255
,255,255,227,255,255,227,227,199
7940 DATA240,227,199,143,199,227,240,255
,255,255,128,255,128,255,255,255
7950 DATA135,227,241,248,241,227,135,255
,128,152,224,227,227,255,227,255
7960 DATA255,255,255,0,0,255,255,255,247
,227,193,128,128,227,193,255
7970 DATA231,231,231,231,231,231,231,231
,255,255,255,0,0,255,255,255
```

```
7980 DATA255,255,0,0,255,255,255,255,255
,0,0,255,255,255,255,255
7990 DATA255,255,255,255,0,0,255,255,207
,207,207,207,207,207,207,207
8000 DATA243,243,243,243,243,243,243,243
,255,255,255,31,15,199,231,231
8010 DATA231,231,227,240,248,255,255,255
,231,231,199,15,31,255,255,255
8020 DATA63,63,63,63,63,63,0,0,63,31,143
,199,227,241,248,252
8030 DATA252,248,241,227,199,143,31,63,0
,0,63,63,63,63,63,63
8040 DATA0,0,252,252,252,252,252,252,255
,195,129,129,129,129,195,255
8050 DATA255,255,255,255,255,0,0,255,201
,128,128,128,193,227,247,255
8060 DATA159,159,159,159,159,159,159,159
,255,255,255,248,240,227,231,231
8070 DATA60,24,129,195,195,129,24,60,255
,195,129,153,153,129,195,255
8080 DATA231,231,153,153,231,231,195,255
,249,249,249,249,249,249,249,249
8090 DATA247,227,193,128,193,227,247,255
,231,231,231,0,0,231,231,231
8100 DATA63,63,207,207,63,63,207,207,231
,231,231,231,231,231,231,231
8110 DATA255,255,252,129,9,137,137,255,0
,128,192,224,240,248,252,254
8120 DATA255,255,255,255,255,255,255,255
,15,15,15,15,15,15,15,15
8130 DATA255,255,255,255,0,0,0,0,0,255,2
55,255,255,255,255,255
8140 DATA255,255,255,255,255,255,255,0,6
3,63,63,63,63,63,63,63
8150 DATA51,51,204,204,51,51,204,204,252
,252,252,252,252,252,252,252
8160 DATA255,255,255,255,51,51,204,204,0
,1,3,7,15,31,63,127
8170 DATA252,252,252,252,252,252,252,252
,231,231,231,224,224,231,231,231
8180 DATA255,255,255,255,240,240,240,240
,231,231,231,224,224,255,255,255
8130 DATA255,255,255,7,7,231,231,231,255
,255,255,255,255,255,0,0
```

```
8200 DATA255,255,255,224,224,231,231,231
,231,231,231,0,0,255,255,255
8210 DATA255,255,255,0,0,231,231,231,231
,231,231,7,7,231,231,231
8220 DATA63,63,63,63,63,63,63,63,31,31,3
1,31,31,31,31,31
8230 DATA248,248,248,248,248,248,248,248
,0,0,255,255,255,255,255,255
8240 DATA0,0,0,255,255,255,255,255,255,2
55,255,255,255,0,0,0
8250 DATA252,252,252,252,252,252,0,0,255
,255,255,255,15,15,15,15
8260 DATA240,240,240,240,255,255,255,255
,231,231,231,7,7,255,255,255
8270 DATA15,15,15,15,255,255,255,255,15,
15,15,15,240,240,240,240
8280 REM ** IF YOU DON'T FANCY TYPING TH
AT LOT, TO COPY THE SET IN ROM CHANGE
8290 REM ** LINE 10 TO: POKE56333,127:PO
KE1,51:FORI=0TO2047:POKECH+I,PEEK(VI+I):
8300 REM ** NEXT:POKE1,55:POKE56333,129:
GOSUB750 (USE ABBRS.) & OMIT 6999 TO END
8310 REM ** TO PCN - THIS IS THE UPPER C
ASE HALF OF MY OWN CHARACTER SET: IF YOU
8320 REM ** LIKE IT AND WISH TO INCLUDE
IN THIS PROGRAM OR TO GIVE A SEPARATE
8330 REM ** LISTING USING THE LOADER IN
LINE 10 (FORI=0TO2047...NEXT) OR COMBINE
8340 REM ** WITH LOWER CASE HALF (INCLUD
ED IN MINELAY ON NEXT TAPE), PLEASE GET
8350 REM ** IN TOUCH WITH ME. NOTE: ALL
ALPHANUMERICS & PUNCTUATION REVISED BUT
8360 REM ** GRAPHICS AS STANDARD - SO FA
R: COMPLETE SET NORMALLY LOCATED AT 8192
8370 REM ** ($2000), POKING 53272 WITH 2
5/27 OR 12288($3000), 29/31; BASIC ABOVE
```

Postman

In Postman your task is to deliver the letters you collect from the postbox to the household eagerly awaiting their mail. Easy enough, even with the time limit placed on these activities, except for the presence of the dog. Remorselessly seeking out the blue serge pants legs it adores, it has the advantage that it can move diagonally, whilst you cannot. Being a little faster on the straight, you will survive if the streets (which stop you, but not the dog) don't hamper your progress. Luckily you can choose the number of streets in your district at the start, so the mail may get through.

```
10 REM ********************************
12 REM **                              **
15 REM **       MR.POSTMAN             **
17 REM **                              **
20 REM **     ADAPTED FOR THE          **
25 REM **      COMMODORE 64            **
30 REM **          BY                  **
35 REM **       D.A.PONTING            **
37 REM **                              **
40 REM **         1-8-83               **
45 REM **                              **
50 REM ********************************
52 DOWN$="[CURSOR DOWN]":REM
 25 <CURSOR DOWN>
53 SIDE$="[CURSOR RIGHT]
[CURSOR RIGHT]":REM 40 <CURSOR RIGHT>
54 PO$="[■]":HS=0
55 POKE53281,1:POKE53280,1:PRINT"[■]"
56 V=53248:POKE650,128:DIMX(36),Y(36)
57 DEF FNA(O) =INT(SQR((ABS((PX-HX)/8)↑2
)+(ABS((PY-HY)/8)↑2))
58 GOSUB9000
60 GOSUB5500
62 POKE53281,1:POKE53280,1:PRINT"[■]"
65 GOSUB7000
70 GOSUB5000
75 POKE198,0
80 FORI=1TO2
100 GETMO$
```

```
105 IFMO$="."THENIFFL<>1THENX1=X+4:FL=1:
POKE2040,192:POKES+15,39
110 IFMO$=","THENIFFL<>2THENX1=X-4:FL=2:
POKE2040,193:POKES+15,25
120 IFMO$="X"THENIFFL<>3THENY1=Y+4:FL=3:
:POKE2040,193:POKES+15,45
130 IFMO$="Z"THENIFFL<>4THENY1=Y-4:FL=4:
POKE2040,193:POKES+15,15
140 :
145 POKEV,X1+256*(X1>255):POKEV+1,Y1:IFX
1>255THENPOKEV+16,PEEK(V+16)OR1
146 IFX1<256THENPOKEV+16,PEEK(V+16)AND25
4
147 FL=FL*(PEEK(V+31)AND1)
148 POKES+18,33:IFFLTHENX1=X:Y1=Y:GOTO14
5
149 X=X1:Y=Y1
150 POKES+15,20:POKES+18,32
200 IFLTR=1THENIFX>HX-4ANDX<HX+4THENIFY>
HY-4ANDY<HY+4THENGOSUB900
250 IFLTR=0THENIFX>PX-8ANDX<PX+8THENIFY>
PY-8ANDY<PY+8THENGOSUB850
300 POKES+18,32:NEXTI
500 DY=DY-4*(DY<Y)+4*(DY>Y)
510 IFDX<XTHENDX=DX+5:POKE2041,197:REM P
OSITION DOG HERE
530 IFDX>XTHENDX=DX-5:POKE2041,196
800 POKEV+2,DX+256*(DX>255):POKEV+3,DY:I
FDX>255THENPOKEV+16,PEEK(V+16)OR2
805 IFDX<256THENPOKEV+16,PEEK(V+16)AND25
3
810 IFDX>X-8ANDDX<X+8THENIFDY>Y-8ANDDY<Y
+8THENGOSUB6000
820 TM=TM-1:GOSUB7999:IFTM=<0THEN8000
830 GOTO80
850 LTR=1:SC=SC+10:GOSUB7999:GOTO5300
900 LTR=0
910 O=INT(SQR((ABS((PX-HX)/8)↑2)+(ABS((P
Y-HY)/8)↑2)))
920 SC=SC+O:GOSUB7999:GOSUB5300:GOTO5000
5000 :
5003 PX=INT(RND(1)*17)*2+3:PY=INT(RND(1)
*8)*2+9
5004 IFPEEK(1024+PY*40+PX)<>32ORPEEK(106
4+PY*40+PX)<>32THEN5003
```

```
5005 IFPEEK(1104+PY*40+PX)<>32THEN5003
5006 LTR=0:PX=20+PX*8:PY=50+PY*8
5007 POKEV+6,PX+256*(PX>255):POKEV+7,PY:
IFPX>255THENPOKEV+16,PEEK(V+16)OR8
5008 IFPX<256THENPOKEV+16,PEEK(V+16)AND2
47
5030 HX=3+INT(RND(1)*17)*2:HY=INT(RND(1)
*8)*2+9
5040 IFPEEK(1024+HY*40+HX)<>32ORPEEK(106
4+HY*40+HX)<>32THEN5030
5050 :
5055 HX=16+HX*8:HY=50+HY*8
5057 IF(HX>PX-20ANDHX<PX+20)AND(HY>PY-20
ANDHY<PY+20)THEN5030
5060 POKEV+4,HX+256*(HX>255):POKEV+5,HY:
IFHX>255THENPOKEV+16,PEEK(V+16)OR4
5065 IFHX<256THENPOKEV+16,PEEK(V+16)AND2
49
5070 X1=320:Y1=220:X=X1:Y=Y1
5100 :
5200 :
5210 S=54272:FORT=0TO28:POKES+T,0:NEXTT
5220 POKES+24,15:POKES+14,20:POKES+15,20
:POKES+19,32:POKES+20,0:POKES+18,128
5290 RETURN
5300 S=54272:POKES,45:POKES+1,24:POKES+7
,52:POKES+8,38
5310 POKES+5,50:POKES+12,50
5320 POKES+6,245:POKES+13,245:POKES+20,2
45:POKES+2,255:POKES+24,15
5325 FORT=1TO5
5330 POKES+4,65:POKES+11,33
5335 FORW=1TO70:NEXTW
5340 POKES+4,64:POKES+11,32
5350 FORW=1TO20:NEXTW,T
5400 GOSUB5200:RETURN
5500 PRINT"  HOW MANY STREETS WOULD YOU
LIKE":PRINT"THERE TO BE ";
5520 PRINT"  (ANY NUMBER 1-36)"
5550 INPUTLB:IFLB<1ORLB>36THENPRINT"□□□"
:GOTO5500
5800 RETURN
6000 :
6005 POKES,20:POKES+1,10:POKES+5,9:POKES
+6,240
```

```
6010 FORT=1TO10
6020 POKE2040,192:POKE2041,196
6025 POKES+4,33
6030 FORDL=1TO10:NEXTDL
6040 POKE2040,193:POKE2041,197
6045 POKES+4,32
6050 FORDL=1TO10:NEXTDL
6060 NEXTT
6070 X=316:Y=216:X1=X:Y1=Y:TM=TM-50
6080 DX=40:DY=80:
6100 RETURN
7000 REM * INITIAL SCREEN DISPLAY *
7005 AB$="■":BB$="■":FORT=1TO38:BB$=BB$+
" ":AB$=AB$+"■":NEXTT
7007 AB$=AB$+"■":BB$=BB$+"■"
7010 PRINT"■■■"AB$;:FORT=1TO21:PRINTBB$
;:NEXTT
7020 PRINTLEFT$(AB$,39);:PRINT"■■■■■■■■■"
;:PRINT"■■";
7100 FORF=1TOLB
7110 Y=INT(RND(1)*4)*6+3:X=INT(RND(1)*9)
*4+3
7120 IFPEEK(1024+Y*40+X)<>32ORPEEK(1064+
Y*40+X)<>32THEN7110
7125 Y(F)=Y:X(F)=X
7130 PRINT"■"LEFT$(DO$,Y)LEFT$(SI$,X)PO$
:NEXTF
7820 REM: POKEV,X+256*(X>255):POKEV+1,Y
7840 SC=0:TM=300
7850 LTR=0:PY=Y(LB):PX=X(LB)
7900 DY=80:DX=40
7905 POKEV+2,DX+256*(DX>255):POKEV+3,DY
7999 PRINT"■■"TAB(5)"SCORE"TAB(15)SCTAB(
25)"TIME"TAB(34)TM"■■  ";:RETURN
8000 REM ******* END OF GAME ********
8005 PRINT"■":POKES,30:POKES+1,10:POKES+
5,20:POKES+6,0
8010 PRINT"■":POKE53280,0:POKE53281,0:PR
INT"■":POKE198,0:POKES+4,17
8020 PRINT"■■■■■■      YOU HAVE RUN OUT OF
 TIME":FORT=1TO50
8030 PRINT"■■■       YOU SCORED "SC" POIN
TS"
8035 IFSC<=HSTHEN8060
```

```
8040 HS=SC:PRINT"■■ WELL DONE, THAT'S A
NEW HIGH SCORE!! "
8050 PRINT" ■ PLEASE ENTER YOUR NAME";:I
NPUTH$:GOTO8070
8060 PRINT"■   THE HIGH-SCORE IS "HS" PO
INTS":PRINT"■        BY POSTMAN "H$
8070 FORT=1TO1000:NEXT
8080 PRINT"■■■■    PRESS ANY KEY TO PLAY
 AGAIN "
8090 GETRR$:IFRR$=""THENPOKES+4,16:FORT=
1TO40:NEXTT:GOTO8010
8095 PRINT"■";:GOTO60
8100 GOTO8100
9000 V=53248
9010 FORW=0TO127:READA:POKE192*64+W,A:NE
XTW
9020 FORW=0TO63:READA:POKE200*64+W,A:NEX
TW
9030 FORW=0TO127:READA:POKE196*64+W,A:NE
XTW
9035 FORW=0TO63:READA:POKE201*64+W,A:NEX
TW
9040 POKE2040,192:POKE2041,196:POKE2042,
200:POKE2043,201
9050 POKEV,0:POKEV+1,0:POKEV+2,0:POKEV+3
,0:POKEV+4,0:POKEV+5,0:POKEV+21,15
9060 POKEV+39,10:POKEV+40,9:POKEV+41,4:P
OKEV+42,2
9200 PRINT"    ▄▄▄ ▄▄▄ ▄▄▄ ▄▄▄      ▄▄▄
    "
9210 PRINT"   ▛▀▜ ▛▀▜ ▛▀▜  ▌  ▚ ▞ ▛▀▜ ▌
▚   ▌"
9220 PRINT"   ▙▄▟ ▌  ▌ ▙▄▄  ▌  ▌ ▼ ▌ ▙▄▟ ▌
 ▚  ▌"
9230 PRINT"   ▌   ▌  ▌ ▪ ▌  ▌  ▌   ▌▛▀▜ ▌
  ▚ ▌"
9240 PRINT"   ▌   ▙▄▟ ▙▄▟  ▌  ▌   ▌▌  ▌ ▌
   ▚▌"
9250 PRINT:PRINT:PRINT"       BY DAVE PO
NTING
9300 PRINT"■■     FIRST COLLECT A LETTER
 FROM THE       FLASHING POST-BOX.";
9310 PRINT"THEN DELIVER IT TO       THE
LITTLE PURPLE HOUSE,"
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9350 PRINT" YOU HAVE LIMITED TIME, AND I
F YOU ARE    ATTACKED BY THE DOG ";
9360 PRINT"YOU WILL LOSE TIME"
9400 PRINT"■■  MOVE WITH:-  < (LEFT)  >
(RIGHT)"
9405 PRINT"                Z (UP)    X (D
OWN)"
9410 PRINT"■■      PRESS ANY KEY TO STAR
T"
9700 GETA$:IFA$=""THEN9700
9999 PRINT"■":RETURN
20000 DATA 48, 0, 0, 124, 0, 0, 212, 0,
0, 202, 0, 0
20003 DATA 254, 0, 0, 228, 0, 0, 124, 0,
 0, 56, 128, 0
20004 DATA 125, 0, 0, 186, 0, 0, 184, 0,
 0, 184, 0, 0
20005 DATA 36, 0, 0, 34, 0, 0, 66, 0, 0,
 130, 0, 0
20006 DATA 99, 128, 0, 0, 0, 0, 0, 0, 0,
 0, 0, 0
20007 DATA 0, 0, 0, 0
20010 DATA 16, 0, 0, 56, 0, 0, 56, 0, 0,
 56, 0, 0
20013 DATA 16, 0, 0, 16, 0, 0, 60, 0, 0,
 122, 0, 0
20014 DATA 186, 0, 0, 56, 0, 0, 56, 0, 0
, 48, 0, 0
20015 DATA 72, 0, 0, 68, 0, 0, 34, 0, 0,
 102, 0, 0
20016 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20017 DATA 0, 0, 0, 0
20100 DATA 1, 16, 0, 3, 144, 0, 7, 208,
0, 15, 240, 0
20103 DATA 31, 240, 0, 127, 252, 0, 63,
248, 0, 51, 24, 0
20104 DATA 51, 24, 0, 63, 248, 0, 63, 25
5, 252, 63, 248, 6
20105 DATA 49, 153, 230, 49, 153, 230, 6
3, 153, 38, 255, 255, 254
20106 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20107 DATA 0, 0, 0, 0
```

```
20200 DATA 0, 0, 0, 0, 0, 0, 36, 0, 0, 1
6, 0, 0
20203 DATA 56, 1, 0, 216, 1, 0, 248, 2,
0, 152, 4, 0
20204 DATA 31, 252, 0, 63, 254, 0, 31, 2
52, 0, 40, 12, 0
20205 DATA 68, 18, 0, 68, 17, 0, 68, 17,
 0, 204, 51, 0
20206 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20207 DATA 0, 0, 0, 0
20220 DATA 0, 0, 0, 0, 144, 0, 0, 32, 0,
 0, 60, 0
20223 DATA 128, 44, 0, 128, 60, 0, 64, 5
2, 0, 32, 48, 0
20224 DATA 63, 240, 0, 127, 248, 0, 63,
240, 0, 48, 48, 0
20225 DATA 72, 72, 0, 136, 72, 0, 136, 7
2, 0, 204, 108, 0
20226 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20227 DATA 0, 0, 0, 0
20300 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
 0, 0
20303 DATA 0, 0, 0, 0, 0, 0, 1, 252, 0,
15, 255, 128
20304 DATA 15, 255, 128, 3, 254, 0, 3, 6
, 0, 3, 254, 0
20305 DATA 3, 254, 0, 3, 142, 0, 3, 142,
 0, 3, 142, 0
20306 DATA 3, 254, 0, 3, 254, 0, 3, 254,
 0, 3, 254, 0
20307 DATA 0, 0, 0, 0
```

Energy Field

You are at the edge of Time, closely pursued by a fleet of alien craft who are out to steal your ship's power. However you have a trick or two up your sleeve. You have the capacity to guard the ends of the time tunnel by setting up energy fields at each of the four open ends of the system. If you attempt to set up a force field anywhere other than at the ends of the time tunnel, the force will feedback and destroy you. Likewise, if you set up a field at the end of an unoccupied tunnel you are finished. Passive cruiser commanders who allow too many aliens through will find their power drained and the game over.

```
10 REM ******************************
11 REM **                            **
12 REM **       ENERGY FIELDS        **
14 REM **       ADAPTED FOR THE      **
16 REM **       COMMODORE 64         **
18 REM **          BY                **
20 REM **       D.A.PONTING          **
22 REM **        22/7/83             **
24 REM **                            **
26 REM ******************************
50 DIMLTR(20,7)
100 A1$="ENERGY FIELDS":S=54272:V=53248:
SC$="000":LI$="5":MO=1.1
107 PO$="80":POKE56334,PEEK(56334)AND254
109 POKE1,PEEK(1)AND251
110 FORC1=1TOLEN(A1$)
115 FORT=0TO7
120 LTR(C1,T)=PEEK((ASC(MID$(A1$,C1,1))-
64)*8+53248+T)
130 NEXTT,C1
132 POKE1,PEEK(1)OR4
134 POKE56334,PEEK(56334)OR1
136 GOSUB2000
200 REM *  POSITION SPRITE *
201 FORT=0TO63:POKE832+T,0:NEXTT
202 X=104:Y=255:REM *** INITIAL POSITION
 ***
203 SP$="[redacted]"
204 SQ$="[redacted]"
```

```
205 FORTT=1TO13
210 FORT=0TO7
220 POKE832+(T*3),LTR(TT,T):REM *** SPRI
TE SHAPE DATA ***
230 NEXTT
235 POKEV,X:POKEV+1,Y
240 POKE2040,13:REM SPRITE 0
250 POKEV+21,PEEK(V+21)OR1 :POKEV+39,5
280 FORY=2TO66STEP4
290 POKEV,X:POKEV+1,Y
295 REM  IFY=24THENGOSUB400
296 NEXTY:GOSUB400:Y=24:X=X+8:NEXTTT
297 GETQQ$:IFQQ$=""THEN297
298 GOSUB600:GOSUB900:GOTO730
300 REM ****** FIRE ENERGY FIELDS ******
301 POKE2044,64:POKE2043,64:POKE2045,64:
POKE2046,64:V=53248
302 POKEV+21,PEEK(V+21)OR120:POKEV+28,PE
EK(V+28)OR120
303 X1=X2:Y1=Y2
304 POKEV+6,XX:POKEV+7,YY
305 POKEV+8,XX+X1:POKEV+9,YY+Y1
310 POKEV+10,XX+2*X1:POKEV+11,YY+2*Y1
315 POKEV+12,XX+3*X1:POKEV+13,YY+3*Y1
320 POKEV+42,X/2:POKEV+43,X/2:POKEV+44,X
/2:POKEV+45,X/2
325 POKEV+38,X1+Y1:POKEV+37,X1+Y1+7
328 POKES+4,33:FORTT=1TO3:FORT=25TO75:PO
KES+1,T:NEXTT,TT:POKES+4,0
330 POKE16320+3*(X1+Y1),INT(RND(1)*256)
331 POKE16321+3*(X1+Y1),INT(RND(1)*256)
332 POKE16322+3*(X1+Y1),INT(RND(1)*256)
335 GOSUB930
340 POKEV+30,0
345 IFCH=KTHENSC=SC+20:GOSUB380:GOSUB110
0:GOTO800
350 LI=LI-1
355 POKES+4,33:FORT=1TO50
357 POKE2040,T:POKEV+39,T:POKES+1,20:POK
ES+1,40:POKES+1,60:POKES+1,80
360 NEXTT:POKES+4,0:POKE2040,13:POKEV+39
,5:GOSUB1100:GOTO900
380 POKES+4,17:POKES+11,33:FORTT=1TO5:FO
RT=1TO255STEP16
```

```
385 POKES+8,(256-T):POKES+1,T
390 NEXTT,TT:POKES+4,0:POKES+11,0:RETURN
400 PRINT"■■■■";SP$;:SP$=SP$+"■"
402 PRINTMID$(A1$,TT,1);:POKEV+21,PEEK(V
+21)AND0:RETURN
410 PRINT"■■■■■■■■■■■■■■";SQ$;:SQ$=SQ$+"■"
412 PRINTMID$(A1$,TT,1);:POKEV+21,PEEK(V
+21)AND253:RETURN
500 REM *** SOUND ***
502 S=54272:FORT=0TO28:POKES+T,0
505 POKES+24,15
507 POKES+5,63:POKES+6,200:POKES+19,12:P
OKES+20,240
510 POKES+4,96:POKES+1,20
515 POKES+18,65:POKES+12,63:POKES+13,200
525 RETURN
600 POKE53281,11:POKE53280,11:PRINT"■";
601 PRINT"■■
          ■";
602 PRINT"■■SCORE      "TAB(10-LEN(SC$))S
C$" FUEL "TAB(22-LEN(PO$))PO$;
603 PRINT"■       LIVES "TAB(35-LEN(LI$))
LI$"       "
604 PRINT"■■■  ■                    "
606 PRINT"              ■■■■          ■■■■
"
608 PRINT"              ■■■ ■■        ■■ ■■■
"
610 PRINT"              ■■■  ■■_____■■   ■■■
"
620 PRINT"  ■ ■■  ■■■■■■     ■■          ■■
    ■■■  ■■ "
625 PRINT"  | ■■ ■■■■ ■■     ■■          ■■
  ■■ ■ ■■ | "
630 PRINT"  |  ■■■■  ■■   ■ ■■      ■■■
 ■■  ■■■■  | "
635 PRINT"  |   ■■■   ■■    ■■   ■■    ■■
   ■■■   |
640 PRINT"  |   ■■■    ■■    ■■  ■■    ■■
   ■■■   |
645 PRINT"  |   ■■■     ■■____■ ■____■■
 ■■■   |
650 PRINT"  |   ■■■          ■ ■
 ■■■   |
655 PRINT"  |   ■■■     ■■■■■■ ■■■■■■
```

```
660 PRINT"    |
665 PRINT"    |
670 PRINT"    |
675 PRINT"    |
680 PRINT"    |
685 REM PRINT"
690 REM PRINT"
695 PRINT"
700 PRINT"
705 PRINT"
710 PRINT"
720 RETURN
730 RESTORE
732 FORW=0TO191:READQQ:POKE832+W,QQ:NEXT
W:POKE2040,13:POKE2046,14:POKE2047,14
735 X=200:Y=96:V=53248:SC=0:LI=5:PO=100
740 POKE2040,13:POKEV+21,PEEK(V+21)OR1:G
OSUB500
750 REM **** SPRITE MOVEMENT ****
752 POKES+14,255-Y:POKES+15,3:POKES+16,Y
755 AA$=""
760 GETAA$:IFAA$="■"ANDY<232THENY=Y+4:X=
X+8
765 IFAA$="■"ANDY>48THENY=Y-4:X=X+8
766 IFX=>254THENX=0:MSB=1:POKEV+16,PEEK(
V+16)OR1
767 IFX>90ANDMSB=1THENX=0:MSB=0:POKEV+16
,PEEK(V+16)AND254
768 A$="":GETA$:IFAA$=" "THENGOSUB1000
770 POKEV,X:POKEV+1,Y
775 POKEV+42,X/2:POKEV+43,X/2:POKEV+44,X
/2:POKEV+45,X/2
780 GOSUB930:GOTO750
899 RETURN
900 REM ***** SET-UP INTIIAL ENEMY POSIT
ION AND DIRECTION ****
905 POKEV+27,PEEK(V+27)OR 128:POKE2047,1
4:POKEV+21,PEEK(V+21)OR128
```

```
907 POKEV+46,8:MO=MO+0.05
910 CH=INT(RND(1)*4)+1:E=144:F=136
920 DE=MO*(CH=1)-MO*(CH=2)
925 DF=MO*(CH=3)-MO*(CH=4)
927 POKE198,0:RETURN
930 E=E+DE:F=F+DF:POKEV+14,E:POKEV+15,F
935 IFE<700RE>1900RF<1100RF>170THENPOKE2
047,15
940 IFE<450RE>2400RF<740RF>210THENLI=LI-
1:GOSUB1100:GOSUB960:GOTO900
950 RETURN
960 REM **ENEMY ESCAPES SOUND***
961 S=54272
962 POKES+4,33:FORT=1TO10
964 POKES+1,100:GOSUB980:POKES+1,70:GOSU
B980:POKES+1,50:GOSUB980
968 NEXTT:POKES+4,0
980 FORDL=1TO50:NEXT:RETURN
1000 REM ***  LAY ENERGY SHIELD ***
1005 X2=0:Y2=0:IFMSB=1THEN1020
1010 IF(X>25ANDX<45)AND(Y>82ANDY<168)THE
NY2=21:K=1:XX=48:YY=106:GOTO300
1020 IF(X>220ANDX<240)AND(Y>82ANDY<168)T
HENY2=21:K=2:XX=240:YY=106:GOTO300
1030 IF(X>52ANDX<150)AND(Y>54ANDY<84)THE
NX2=21:K=3:XX=112:YY=76:GOTO300
1040 IF(X>52ANDX<150)AND(Y>186ANDY<216)T
HENX2=21:K=4:XX=112:YY=204:GOTO300
1050 PO=PO-5
1100 PO$=STR$(PO):LI$=STR$(LI):SC$=STR$(
SC)
1105 IFPO=<0ORLI=<0THENGOTO3000
1110 GOTO601
1199 PO=PO-5:GOSUB601:RETURN
2000 REM *** INSTUCTIONS ***
2010 PRINT"■";:PRINT"■■■■"
2020 PRINT"                ———————— ————————"
2030 PRINT"■ GUARD THE TUBE SYSTEM WITH
YOUR CRAFT"
2040 PRINT" BY SETTING UP ENERGY FIELDS
AT THE 4"
2050 PRINT" OPEN ENDS OF THE SYSTEM. ATT
EMPTING"
2060 PRINT" TO PLACE A FIELD AT ANY PLAC
E OTHER "
```

```
2070 PRINT " THAN THE END WILL RESULT IN
 POWER"
2080 PRINT " LOSS. SETTING ONE UP AT A T
UBE NOT "
2090 PRINT"  CONTAINING AN ENEMY WILL RE
SULT IN "
2100 PRINT" YOUR DESTRUCTION.
2120 PRINT"■ CONTROL YOUR CRAFT BY:-":PR
INT"          ■CURSOR UP ■ = UP
2130 PRINT"        ■CURSOR LEFT ■ = DOWN
2150 PRINT"                 ■SPACE■ = FIRE
2160 PRINT"■ WHEN ALL OF YOUR FUEL IS US
ED OR ALL"
2170 PRINT" YOUR LIVES ARE LOST THE GAME
 IS OVER."
2200 PRINT"■■   PRESS ANY KEY TO START T
HE GAME"
2300 RETURN
2999 GOTO2999
3000 REM **** END OF GAME ****
3005 POKE53269,0:POKE198,0
3010 POKE53265,PEEK(53265)OR64
3020 PRINT"■":FORT=1TO500:NEXT:T=0
3030 PRINT"■■■■■■■■■■"
3040 PRINT"          ■                    ■
"
3045 PRINT"          ■                    ■
"
3050 PRINT"          ■    GAME OVER       ■
"
3055 PRINT"          ■                    ■
"
3060 PRINT"          ■                    ■
"
3070 PRINT"■■■■■■     PRESS ANY KEY TO P
LAY AGAIN"
3075 POKE53283,T
3080 GETBB$:IFBB$=""THENT=-(T+1)*(T<256)
:GOTO3030
3090 POKE53265,PEEK(53265)AND191:POKE532
83,242
3092 SC=0:SC$="00":PO=100:PO$="100":LI=5
:LI$="5"
3095 GOSUB600:GOTO730
```

```
20000 REM SPRITES' DATA **********SHIP**
*********
20010 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,224,0,0
20020 DATA248,0,0,124,0,108,63,255,216,6
1,221,255,63,255,252,124,0,120,120,0,32
20030 DATA224,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0
20100 REM ************* ENEMY 1 ********
******
20110 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0
20120 DATA0,0,0,0,60,0,0,189,0,0,219,0,0
,126,0,0,60,0,0,60,0
20130 DATA0,102,0,0,195,0,0,195,0,0,60,0
,0,24,0,0,0,0,0,0,0,0
20200 REM *** SPRITE ENEMY 2  ***
20202 DATA 6, 3, 0, 2, 2, 0, 1, 4, 0, 1,
 4, 0
20203 DATA 49, 140, 96, 127, 255, 240, 2
54, 113, 248, 140, 113, 136
20204 DATA 140, 113, 136, 127, 255, 240,
 31, 255, 192, 25, 152, 192
20205 DATA 25, 152, 192, 24, 0, 192, 25,
 140, 192, 15, 255, 128
20206 DATA 7, 143, 0, 1, 140, 0, 1, 140,
 0, 49, 140, 96
20207 DATA 63, 143, 224, 0
20210 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0
20220 DATA0,0,0,0,60,0,0,189,0,0,219,0,0
,126,0,0,60,0,0,60,0
20230 DATA0,102,0,0,195,0,0,195,0,0,60,0
,0,24,0,0,0,0,0,0,0,0
```

Paypackets

Anyone who runs a shop or small business will find this program something close to invaluable. It's Friday, you've worked out how much everyone is getting paid and the time has come to make up the wage packets. How many, of what note and what change are your going to need? Well, key this in and all your problems are solved. The program is relatively short, completely reliable and of course you don't have to own a business to use it. It will work with any sum — from thousands of pounds right down to the expenses for the local church fete, or individual small prizes for the children's party.

```
0 REM PAYPACKETS.....WALWYN
5 GOSUB7000
10 REM C$(X)=NAME OF CURRENCY
12 REM CV(X)=CURRENCY VALUE IN POUNDS
14 REM CA(X)=AMOUNT OF UNITS REQUIRED OF
 THIS CURRENCY
16 REM CB(X)=TOTAL AMOUNT OF UNITS REQUI
RED OF THIS CURRENCY
18 DIM C$(10),CV(10),CA(10),CB(10)
20 FORJ=1TO10:READC$(J),CV(J):NEXTJ
25 DATA ONE PENCE,0.01,TWO PENCE,0.02
30 DATA FIVE PENCE,0.05,TEN PENCE,0.1,TW
ENTY PENCE,0.2
40 DATA FIFTY PENCE,0.5,ONE POUND,1,FIVE
 POUND,5
50 DATA TEN POUND,10,TWENTY POUND,20
60 SR=0
100 POKEUG,UF:POKEUB,U2:PRINTU9$;"■"
150 GOSUB500
155 PRINTU9$;
160 PRINT"■■■■PRESS ' ↑ ' TO INPUT A NEW
 PAYMENT      ";
162 PRINT"■
           ";
165 PRINT"■PRESS ' £ ' TO GIVE THE TOTAL
 AMOUNT     ";
167 PRINT"■
           ";
170 PRINT"■PRESS 'CLR/HOME' TO CANCEL AL
L DATA      "
```

```
200 REM GET AN INSTRUCTION KEY
205 XX=0:SR=1
210 GETA$:IFA$=""THEN210
220 IFA$="↑"THEN300
230 IFA$="■"THENRUN
240 IFA$="£"THEN400
250 GOTO210
300 PRINTU7$;"■";
310 INPUT"CASH AMOUNT IN PACKET";A$
320 A=VAL(A$):A1=A
330 INPUT"NUMBER OF PACKETS     ";B$
340 B=VAL(B$):B1=B
350 GOSUB800
360 PRINT"■":GOTO150
400 REM TOTAL FIGURE
410 XX=1
420 PRINT"■":GOTO150
500 REM PRINT OUT TABLE
505 AT=0:PRINTU4$;
510 PRINT"■■■
```

```
610 AA$=AA$+B$
615 IFB$="."ANDVAL(AA$)<1THENAA$="0"+AA$
620 IFB$="."THENN=1
650 NEXTK
660 IFN=0THENAA$=AA$+".00":GOTO700
670 A=LEN(AA$):IFMID$(AA$,A-1,1)="."THEN
AA$=AA$+"0"
690 REM STRING COMPLETE
700 PRINTU9$;
710 A=LEN(AA$)
720 PRINTTAB(39-A)AA$
730 NEXTJ
740 IFSR=0THEN750
741 IFXX=1THENPRINTU5$;TAB(14)"■■THIS IS
 THE RUNNING TOTAL■":GOTO750
742 IFXX=0THENPRINT"■■"UE$;B1"■■ X £"A1;
743 PRINTUE$;TAB(20)"THIS IS A SUB-TOTAL
■"
750 RETURN
800 REM CALCULATE CA(X)
810 X=0:A=INT(A*100.000001):FORJ=10TO1ST
EP-1
820 CA(J)=0:IFX=1THEN850
830 IF(A-CV(J)*100)<0THEN850
835 A=INT(A-INT(CV(J)*100.000001)):IFA=0
THENX=1
836 REM PREVIOUS LINE PREVENTS DECIMAL P
LACE OVERFLOW ERROR
840 CA(J)=CA(J)+1:IFX=0THEN830
850 NEXTJ
860 FORJ=1TO10:CA(J)=CA(J)*B:NEXT
870 FORJ=1TO10:CB(J)=CB(J)+CA(J):NEXTJ
880 RETURN
7000 REM ******************************
7002 REM COLOUR CODES FOR COMMODORE 64.
7005 REM (ONLY USE THESE COLOURS)
7010 U0=0:U0$="■":REM BLACK
7020 U1=1:U1$="■":REM WHITE
7030 U2=2:U2$="■":REM DARK RED
7040 U3=5:U3$="■":REM GREEN
7050 U4=6:U4$="■":REM DARK BLUE
7060 U5=8:U5$="":REM ORANGE
7070 U6=9:U6$="■":REM BROWN
7080 U7=10:U7$="■":REM PINK
```

```
7090 U8=13:U8$="■":REM LIGHT GREEN
7100 U9=14:U9$="■":REM LIGHT BLUE
7110 UU=4:UU$="■":REM PURPLE
7120 UR=12:UR$="■":REM LIGHT GREY
7130 UE=7:UE$="■":REM LIGHT YELLOW
7140 UF=11:UF$="■":REM DARK GREY
7150 UG=53281:UB=53280
7200 RETURN
```

Dambusters

Dambusters is a game in which you have to defend a dam which is under attack from enemy aircraft, armed with bouncing bombs. Each bomb which succeeds in hitting the dam will blow a section of it away until eventually the water pours through and the game is over.

Your defence consists of a gun mounted on the dam which fires at a target sight controlled by the player. Since the aircraft are out of range, you must aim at the bouncing bombs themselves by moving your sight up, down, right or left and then use the space key to fire. Unfortunately your beam weapon needs to be recharged after every three firings and therefore accuracy is vital, especially as there is a strong wind which has a tendency to blow your sights off course!

```
0 REM BY PAUL STANLEY AND DAVID BUCK
1 POKE 53280,6:POKE 53281,6:PRINT"■";CHR
$(8);CHR$(129);
2 POKE 52,48:POKE 56,48:CLR
3 LET HS=0
4 GOSUB 8000
10 GOSUB 1000
11 D$="■■■
```

```
94 FOR F=1 TO 4:PRINTLEFT$(D$,6-F);TAB(X
);MID$(B$,5,1);MID$(B$,6,1);
95 PRINT LEFT$(D$,F+6);TAB(X)"£":GOSUB20
00
96 PRINTLEFT$(D$,6-F);TAB(X);"   ";LEFT$(
D$,6+F);TAB(X);" ":NEXT F
98 LET F=INT(RND(TI)*32)+3:LET G=4+INT(R
ND(TI)*14)
100 LET A$="[£]↑←!":LET HT=10
120 PRINT LEFT$(D$,Y+1);TAB(X);MID$(A$,A
,1)
121 IN$="":GET IN$
122 LET F=F-(IN$="S" AND F<36)+(IN$="A"
AND F>2)
123 LET G=G-(IN$="Z" AND G<18)+(IN$="W"
AND G>3)
125 PRINTLEFT$(D$,G+1);TAB(F)"+"
126 LET LL=LL+LEAK
127 IF LL>1000 THEN 400
128 IF IN$=" " AND S<3 THEN GOSUB 200
130 DU=.03:HI=Y:LO=128:GOSUB 2000
140 PRINTLEFT$(D$,Y+1);TAB(X)" ":REM;MID
$(A$,A,1)
145 PRINTLEFT$(D$,G+1);TAB(F)" "
150 LET Y=Y+D
155 IF RND(TI)>.6 THEN LET F=F+INT(RND(T
I)*1.5)-INT(RND(TI)*1.5)
157 IF RND(TI)<.4 THEN LET G=G+INT(RND(T
I)*1.5 AND G<15)-INT(RND(TI)*1.5)
160 IF Y=HT THEN LET P=P+1:LET D=1:LET A
=A+1
170 IF Y=P THEN DU=.15:HI=2:LO=204:GOSUB
 2000:LET A=A+1:LET D=-1:LET HT=HT-3
180 IF A=7 THEN 350
190 GOTO 120
200 PRINTLEFT$(D$,G);TAB(F-1);"<▮;"
201 PRINTLEFT$(D$,G+1);TAB(F);"#"
202 PRINTLEFT$(D$,G+2);TAB(F-1);";▮K"
205 LET S=S+1
210 PRINTLEFT$(D$,G);TAB(F-1);"    "
211 PRINTLEFT$(D$,G+1);TAB(F);" "
212 PRINTLEFT$(D$,G+2);TAB(F-1);"    "
215 IF G=Y AND X=F THEN 300
220 RETURN
```

```
300 LET SC=SC+10:PRINT"[redacted]";SC:PRINT
LEFT$(D$,G+1);TAB(F);"-"
301 DU=.08:HI=4:LO=251:GOSUB 2000
302 HI=4:LO=112:GOSUB 2000
303 HI=5:LO=152:GOSUB 2000
304 HI=4:LO=112:GOSUB 2000
305 PRINTLEFT$(D$,G+1);TAB(F);" ":GOTO 7
0
350 FORA=1TO5:DU=.001:HI=28:LO=49:GOSUB2
000:HI=89:LO=131:IFPEEK(1824+X)=32THEN37
0
360 PRINTLEFT$(D$,21);TAB(X)"  ":GOTO 70
370 IF PEEK(1864+X)<>58THEN 390
375 LET LEAK=LEAK+1
380 PRINTLEFT$(D$,21);TAB(X)" ";LEFT$(D$
,22);TAB(X)",":GOTO 70
390 LET LEAK=LEAK+2
391 FORQX=20TO21:PRINTLEFT$(D$,QX);TAB(X
-1)" ";:NEXT:PRINTLEFT$(D$,22)TAB(X-1)",
,,":GOTO70
400 PRINTLEFT$(D$,11);TAB(9);"- G A M E
  O V E R -[redacted]"
401 PRINTLEFT$(D$,14);"        PRESS ANY
KEY TO PLAY AGAIN"
402 DU=.03:FOR F=1 TO 50:HI=20+F:LO=HI:G
OSUB 2000:NEXT F
405 IF SC>HS THEN LET S=SC
410 GET Q$:IF Q$<>"" THEN 410
411 GET Q$:IF Q$="" THEN 411
415 PRINT"[redacted]";:GOSUB 1190:GOTO 11
399 PRINT"ERROR":END
1000 POKE 56334,PEEK(56334)AND254
1010 POKE 1,PEEK(1)AND 251
1020 FOR I=0 TO 511:POKE I+12288,PEEK(I+
53248):NEXT
1030 FOR J=0 TO 16:READ A:FOR I=A TO A+7
:READ B:POKE I+12288,B:NEXT I,J
1050 POKE 1,PEEK(1)OR4
1060 POKE 56334,PEEK(56334)OR1
1065 POKE 53272,28
1070 DATA 216,0,0,0,16,0,0,0,0
1080 DATA 224,0,0,0,24,24,0,0,0
1090 DATA 232,0,0,0,56,56,0,0,0
1100 DATA 240,0,0,0,60,60,60,0,0
```

```
1110 DATA 248,0,0,126,126,126,126,0,0
1120 DATA 264,0,0,254,254,254,254,254,0
1130 DATA 352,73,146,73,37,74,145,74,73
1140 DATA 280,153,58,36,219,219,36,58,15
3
1150 DATA 288,0,0,0,8,62,0,0,0
1160 DATA 296,0,0,24,255,66,0,0,0
1170 DATA 304,0,0,1,255,37,0,0,0
1180 DATA 312,0,0,128,255,164,0,0,0
1181 DATA 320,0,2,5,10,20,232,16,16
1182 DATA 328,0,64,160,80,40,23,8,8
1183 DATA 336,255,0,255,0,255,0,255,0
1184 DATA 472,1,2,4,8,16,32,64,128
1185 DATA 480,128,64,32,16,8,4,2,1
1190 LET B$="# $ %&"
1200 LET LL=0
1210 LET SC=0
1220 LET LEAK=0
1230 RETURN
2000 POKE 54273,HI:POKE 54272,LO:POKE 54
276,33
2010 FOR DELAY=1 TO 500*DU:NEXT
2020 POKE 54276,32
2030 RETURN
8000 PRINT "[redacted]D A M B U S T E R S"
8001 PRINT "[redacted]"
8010 PRINT "[redacted]" "
8020 PRINT "THE YEAR IS 1943.YOU ARE IN
CHARGE OF A"
8030 PRINT "POWERFUL BEAM WEAPON,WITH WH
ICH YOU ARE"
8040 PRINT "TO PROTECT A DAM FROM THE BO
UNCING BOMBS";
8050 PRINT "OF THE BRITISH ATTACKERS.THE
Y HAVE"
8060 PRINT "SEVERAL LANCASTER BOMBERS WH
ICH FLY"
8070 PRINT "TOWARDS YOU AND RELEASE THEI
R DANGEROUS"
8080 PRINT "BOMBS."
8090 PRINT "[redacted]HOWEVER,YOUR TASK IS NOT SO
 SIMPLE,FOR"
8100 PRINT "YOUR WEAPON IS UNABLE TO REA
CH THE"
```

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8110 PRINT "LANCASTERS,SO YOU MUST JUST
SHOOT AT THE";
8120 PRINT "BOMBS INSTEAD.YOU CAN MOVE Y
OUR CROSS-"
8130 PRINT "HAIR SIGHTS WITH THE KEYS W,
A,S & Z."
8131 PRINT "W=UP:A=LEFT:S=RIGHT:Z=DOWN"
8140 PRINT "■        ■PRESS ANY KEY TO CO
NTINUE"
8150 GET A$:IF A$<>"" THEN 8150
8160 GET A$:IF A$="" THEN 8160
8170 PRINT "■■■■■■■■■■■■■■■EVEN ADJUSTING TH
E SIGHTS IS DIFFICULT"
8180 PRINT "BECAUSE THERE IS A STRONG WI
ND WHICH"
8190 PRINT "CAUSES YOUR SIGHTS TO MOVE A
BOUT."
8200 PRINT "FIRE YOUR BEAM WITH THE ■<SP
ACE>■ BAR."
8210 PRINT "■BECAUSE OF THE POWER OF YOU
R WEAPON,"
8220 PRINT "IT IS DRAINED AFTER ONLY THR
EE SHOTS AND";
8230 PRINT "WILL ONLY BE READY BY THE NE
XT TIME AN"
8240 PRINT "AEROPLANE ATTACKS.YOUR BATTL
E IS OVER"
8250 PRINT "WHEN TOO MUCH WATER HAS POUR
ED THROUGH"
8260 PRINT "THE BROKEN DAM."
8270 PRINT "■          ■PRESS ANY KEY TO
START"
8280 GET A$:IF A$<>"" THEN 8280
8290 GET A$:IF A$="" THEN 8290
8300 PRINT"■";
8310 S=54272
8320 FOR XX=S TO S+24:POKE XX,0:NEXT XX
8330 POKE S+5,9:POKE S+6,0:POKE S+24,15
8340 RETURN
```

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