

If you are a games addict continuously on the prowl for more and better games or looking for your first collection of listings to type in – look no further.

This sparkling collection will keep you busy for a long time. Some of the best programs that have ever appeared in the well-known magazine *Personal Computer World* have been converted for your computer and put together here in this prize collection.

Each game has been thoroughly tested and comes with full instructions, and a useful description of the programmer's technique to help you pick up some hints as you go.

Test your reflexes on arcade-style games or test your wits on strategy games – there is something here for everyone.

These games are also available on cassette tape to save you typing them all in.

Several programs require a 48K Spectrum.

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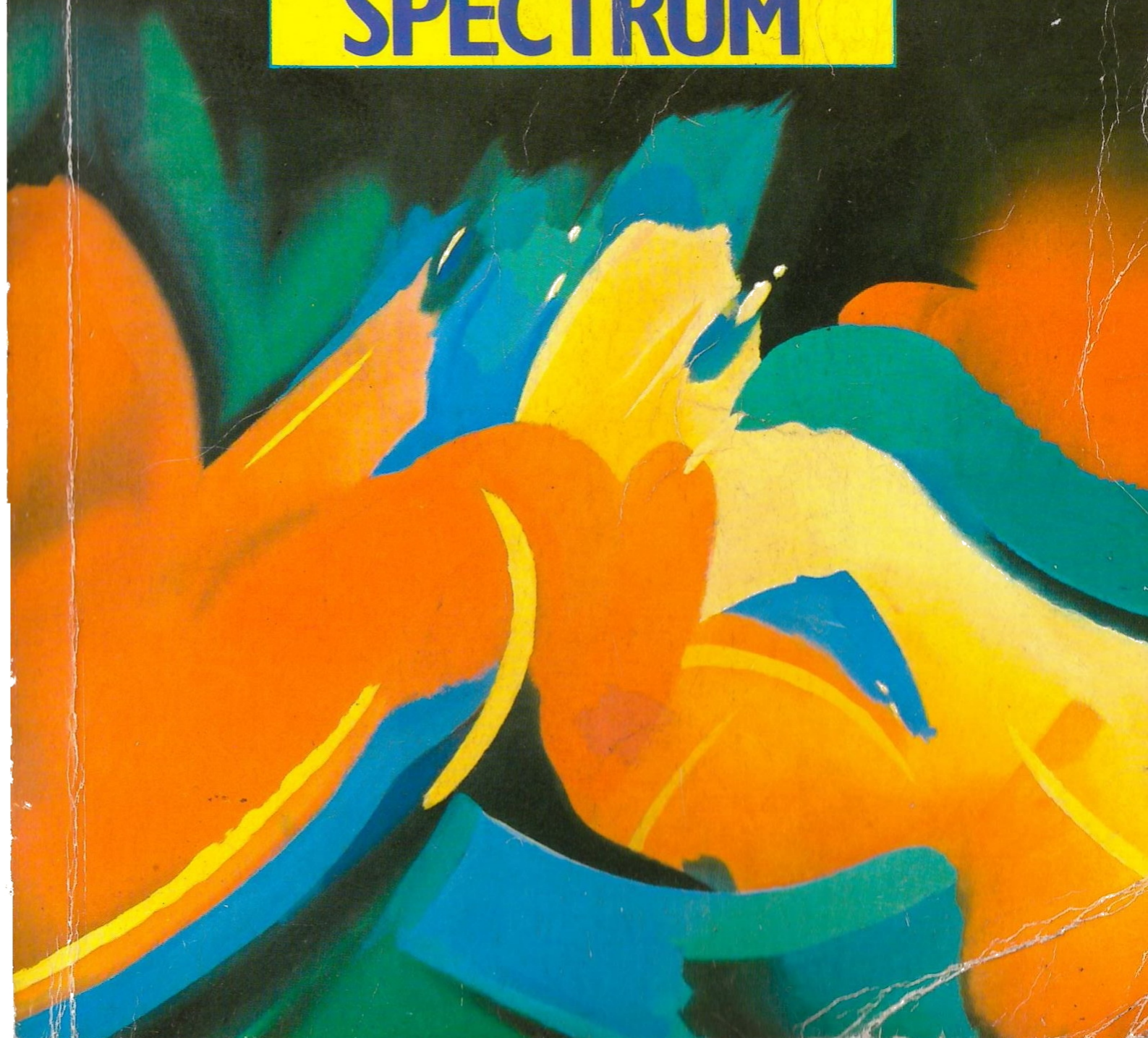
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PCW GAMES COLLECTION FOR THE SPECTRUM



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All of these games require a 48K Spectrum, apart from those marked with a \*.



# INTRODUCTION

Each year *Personal Computer World*, Britain's biggest microcomputer magazine, receives literally thousands of computer programs from its dedicated band of readers. Now, for the first time, we have selected the very best of their collective efforts and proudly offer you this balanced compilation of 20 games. Within these pages you are sure to find something to give you pleasure, whether your taste is for arcade-action or board games, adventures or brain-teasers.

Each program has been redesigned by a Spectrum expert to make full use of colour, sound and the other facilities of your machine. All programs have been closely vetted by one of *PCW's* experienced team of referees to ensure that they are as bug-free as possible.

Full documentation is included so that you can gain a clear understanding of how each program works. You will be able to improve your own programming style, and many of the routines can also be used within your own programs. Who knows, if you spend as many hours in front of your computer as these programmers have, you may get one of your programs published next year!



# TYPING TIPS

If you are a new user of the Spectrum, it is important that you should have read through your user manual and be familiar with the keyboard of your machine before you start typing in any programs. Most of all, it is vital that you type the program *exactly* as it appears in the book. Here are some hints to help you avoid the commonest mistakes.

- 1 Think before you type. Try to understand as much of what the program is trying to do as you can.
- 2 Remember that every character is important to your computer and should be type in exactly what is listed in the book, including all spaces.
- 3 Be particularly careful that you distinguish between the following:

- 1 (one) and I (letter)
- 0 (zero) and O (letter). All zeros are 0 in the listings
- :
- ;
- ,
- .
- " (quote marks) and ' (apostrophe)
- quotation marks with/without a space between them.

- 4 When lower case letters are listed they must be entered as such, not as capitals.
- 5 Always save your program on a tape before running it for the first time. If you have any typing errors your program may crash and hours of patient work will be lost.
- 6 Throughout the book, italic characters in the program listings represent graphics characters. To enter the graphics mode, press CAPS SHIFT and 9 together, and to exit the graphics mode simply press 9 by itself.

Capital italics represent the corresponding user-defined graphics characters.

Lower case italic letters represent the pre-defined graphics symbols on the keys 1 to 8:

symbol	how obtained
<i>a</i>	graphic 8
<i>b</i>	" 1
<i>c</i>	" 2
<i>d</i>	" 3
<i>e</i>	" 4
<i>f</i>	" 5
<i>g</i>	" 6
<i>h</i>	" 7

symbol	how obtained
<i>i</i>	graphic <CAPS SHIFT> 7
<i>j</i>	" " 6
<i>k</i>	" " 5
<i>l</i>	" " 4
<i>m</i>	" " 3
<i>n</i>	" " 2
<i>o</i>	" " 1
<i>p</i>	" " 8

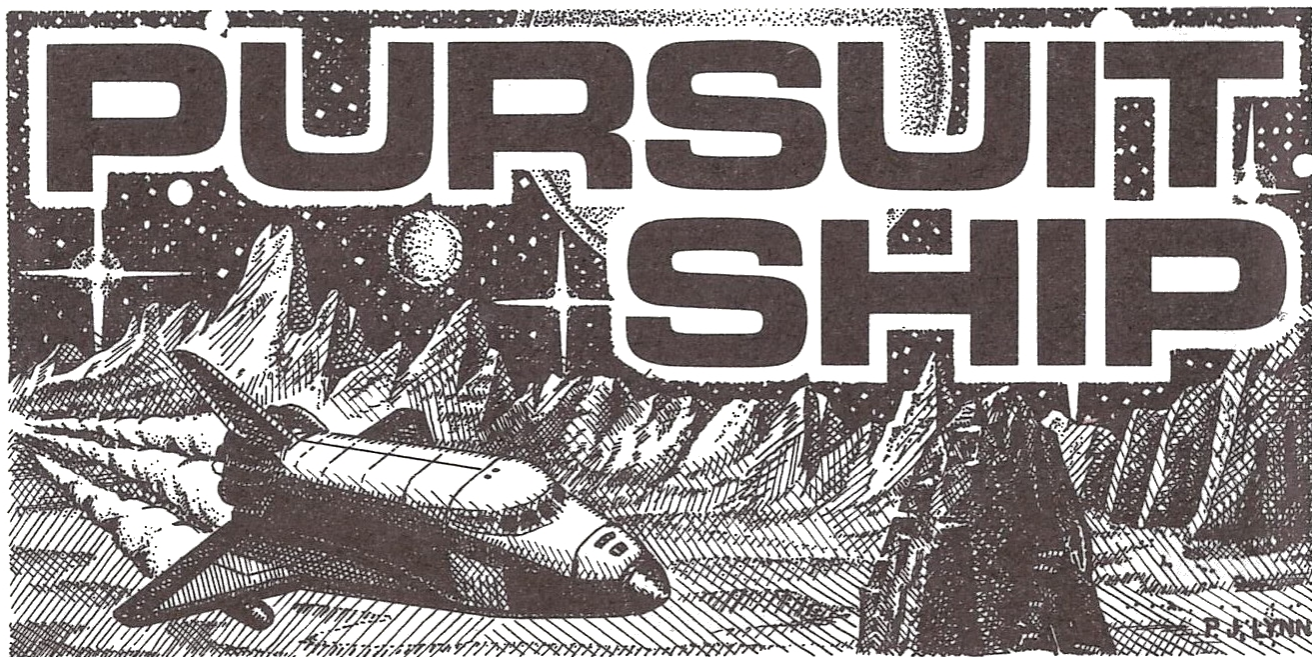
See page 92 of the Spectrum user guide if you require a further explanation.

## Note:

If you don't want the bother of typing in the listings in this book you can get the programs on cassette instead. Simply send away the voucher at the back of the book, with a cheque or postal order for £4.95.

The programs on the cassette are exactly the same as those printed here, so you can still use all the print-outs and program descriptions to help you play the games, and to understand how the programs were built up.





Original program by John Dean

Pursuit Ship is an exciting arcade-style game for the 48K Spectrum. The object is to survive for as long as you can by vaporizing the enemy's ships. Your vessel is equipped with the latest 'Snatch' drive, which is able to power itself from the energy of exploding objects. The more enemy ships you destroy, the longer you will survive! Energy is consumed constantly during your flight time, and at a faster rate during battle. Laser hits on your ship will drain even more energy, especially if you encounter a Battle Star. Your weapons are lasers and plasma bolts; lasers will destroy everything except a Battle Star, for which you need the plasma bolts. You may use plasma bolts at any time, but remember that they are a waste of energy when directed against small targets.

The game starts with a view of the galaxy, and your instruments are displayed at the foot of the screen. These include a sliding scale showing your present energy status and an 'energy low' signal will flash and a bleeper will sound when your energy is almost exhausted. If you do not destroy an enemy ship soon after this warning, the game will end and you will see your score displayed.

Below the energy scale, your status display is shown. This will normally indicate that you are patrolling but once a target has been detected a warning bleeper sounds, the target is scanned,

and then it is identified. After identification, the status will change to Battle Stations and the enemy ship will appear.

To destroy the enemy you must guide your weapon sights on to the target and shoot. Be warned, the enemy will try to evade you and shoot back. It's the survival of the fittest in this game. To control your weapon sights use the following keys:

- Q – Up
- A – Down
- P – Right
- O – Left

To fire your weapons use the following keys:

- 0 – Lasers
- 1 – Plasma bolts

These aliens are hard to destroy, and often two successive hits will be required to annihilate them. As soon as you have scored a hit, the energy from the explosion will be absorbed by your ship and will repower your system. Astral Pirates and Battle Stars yield the greatest energy.

This program makes good use of colour, sound and graphics, and provides for a fast, exciting game. Sound effects for the lasers are provided by two machine code routines which also change the border colour.

The graphics are slightly unconventional in that they are defined as strings and incorporate the ASCII control characters (CHR\$), the codes for PAPER and INK colours, as well as the OVER function. Writing the program in this way has the advantage of only having to define the codes at the beginning of the program. They are automatically present whenever a character is printed. Using the OVER function means that a character printed twice in the same place will disappear.

## Program Description

10 Tape loading instructions.

30 POKE to force CAPS LOCK and then initialize the variables and dimension strings.

40 GOSUB to print the instructions.

50 GOSUB to set up character arrays for the enemy aircraft and



laser sights.

**60** GOSUB to set up the instrument display.

**80** Sets the random function to be truly random, then GOSUB to one of six lines to select the type of enemy.

**100-120** Detects a key press.

**140-200** Move the sights up, down, left or right.

**220-260** Decide whether the target is to move (a 50 per cent chance), then move the target.

**280** Detects if the laser has been fired.

**300-310** Fire the laser. Randomize user A initiates the machine code sound.

**330** Decreases the energy level when the lasers are fired.

**350** Detects a hit by the laser.

**370** Fires a plasma bolt.

**410** Decides whether the enemy ship is about to fire.

**430-460** Fire an enemy laser, (a hit is automatic), and decreases the ship's energy as a result.

**480-500** Detect when the fuel status is low.

**520** Detects when the fuel is exhausted.

**540-566** Print the fuel status, decrease the fuel, and increment the turn counter.

**580-590** Read and install the user-defined-graphics (UDGs).

**610-620** Read and install the machine code.

**630-770** Data for UDGs (uses graphics characters A-O).

**780** Data for machine code routines.

**810** Clears the lower section of the screen.

**820-860** Randomly print stars on the screen.

**890-950** Set up character arrays A\$-G\$ to represent the enemy ships.

**960** Dimension the laser sight array.

**980-1010** Set a temporary string variable T\$ to represent an enemy ship. Set the variables to indicate the centre of the target and the colour of the enemy ship's laser.

**1120-1190** Destroy the target if it has been hit.

**1210** Increase the ship's energy by the value of the destroyed target.

**1220** Return to the main loop.

**1240-1280** Print the instrument panel.

**1300-1480** Scan for a target. When found, print its identity on

screen, and decrease the ship's fuel.

**1500-1520** The end of the game. The screen is cleared and your survival time is printed.

**1530-1680** Set the BORDER, PAPER and INK colours, then clear the screen. Print the instructions. While these are being displayed the machine code routines and the UDGs are installed.

```
10 REM TO LOAD TYPE LOAD ""
20 REM SET CAPS LOCK & DEFINE
VARIABLES
30 POKE 23658,8: DIM Z$(64): L
ET LF=0: LET FL=0: LET SH=3200:
LET Y=9: LET Y1=9: LET X=15: LET
X1=15: LET IN=7: LET T1=0: LET
T2=0: LET T3=1: LET T4=1
40 GO SUB 1530: REM INSTRUCTI
ONS
50 GO SUB 810: REM SET CHATACT
ER ARRAYS
60 GO SUB 1240
70 REM SELECT ENEMY & ENEMY PO
SITION
80 RANDOMIZE 0: LET SUB=(INT (
RND*5)*10)+1050: GO SUB SUB: GO
SUB 1300: LET XX=INT (RND*R): LE
T YY=INT (RND*16): LET XX1=XX: L
ET YY1=YY: PRINT AT YY,XX;T$
90 REM DETECT KEY PRESS
100 IF INKEY$="" THEN GO TO 22
0
110 IF INKEY$="0" THEN LET FIR
E=1
120 IF INKEY$="1" THEN LET FIR
E=2
130 REM SET SIGHTS UP OR DOWN
140 LET Y=ABS (Y+1*(INKEY$="A")
+(-1*(INKEY$="Q")))+-(Y-14)*(Y>1
4)
150 REM SET SIGHTS LEFT OR RI
GHT
160 LET X=ABS (X+1*(INKEY$="P")
+(-1*(INKEY$="O")))+-(X-26)*(X>29)
```



```

170 REM MOVE SIGHTS
180 PRINT AT Y1,X1;S$(1);AT Y1+
1,X1;S$(2);AT Y1+2,X1;S$(3)
190 PRINT AT Y,X;S$(1);AT Y+1.X
;S$(2);AT Y+2,X;S$(3)
200 LET Y1=Y: LET X1=X
210 REM MOVE TARGET RANDOMLY
220 LET T=INT (RND*100): IF T<5
0 THEN GO TO 260
230 PRINT AT YY1,XX1;T$: LET YY
=ABS (YY+1*(T>50 AND T<60))+(-1*(
T>60 AND T<70))+- (YY-13)*(YY>13
)
240 LET XX=ABS (XX+1*(T>70 AND
T<80))+(-1*(T>80 AND T<100))+- (X
X-R)*(XX>R)
250 PRINT AT YY,XX;T$: LET YY1=
YY: LET XX1=XX
260 LET T3=T1+XX: LET T4=T2+YY
270 REM IF NOT FIRING THEN MI
SS FIRE ROUTINE
280 IF INKEY$<>"0" THEN GO TO
370
290 REM FIRE LASER ROUTINE
300 FOR J=1 TO 2: PLOT INK 6;
BRIGHT 1; OVER 1;0,32: DRAW INK
6; BRIGHT 1; OVER 1;((8*X)+12)-
PEEK 23677,((8*(18-Y))+20)-PEEK
23678
310 PLOT INK 6; BRIGHT 1; OVER
1;255,32: DRAW INK 6; BRIGHT 1
; OVER 1;((8*X)+12)-PEEK 23677,(
(8*(18-Y ))+20)-PEEK 23678: IF J
=1 THEN RANDOMIZE USR A: BORDER
0
320 REM DECREASE ENERGY
330 LET SH=SH-25: NEXT J
340 REM DETECT A HIT
350 IF FIRE=1 AND (1*(Y+1=YY))+
(1*(X+1=XX+(T1-1)))=2 THEN GO T
O 1120
360 REM FIRE PLASMA BOLTS

```

```

370 IF INKEY$="1" THEN : LET L=
17-Y: FOR K=1 TO 2: FOR J=1 TO L
: PRINT OVER 1;AT 18-J,X+1;Z$(1
): NEXT J: RANDOMIZE USR A: LET
SH=SH-100: NEXT K
380 REM DETECT HIT
390 IF FIRE=2 AND (1*(Y+1=YY))+
(1*(X+1=XX+(T1-1)))=2 THEN GO T
O 1120
400 REM RANDOMLY ALLOW ENEMY T
O FIRE
410 IF T>10 THEN GO TO 480
420 REM ENEMY FIRE
430 LET P1=(RND*230)+10: FOR J=
1 TO 2: PLOT OVER 1; BRIGHT 1;
INK IN; (T3*8)-4,((22-T4)*8)+4: D
RAW BRIGHT 1; OVER 1; INK IN;P1
-PEEK 23677,32-PEEK 23678
440 REM DECREASE ENERGY WHEN H
IT BY ENEMY
450 IF J=1 THEN LET SH=SH-(1+
10*(CODE T$(9)<>152)+100*(CODE T
$(9)=152)): POKE A+4,5: POKE A+1
2,0: POKE A+6,0: POKE A+14,16: R
ANDOMIZE USR A: POKE A+4,75: POK
E A+12,75: POKE A+6,6: POKE A+14
,25
460 RANDOMIZE 0: NEXT J
470 REM DETECT LOW FUEL
480 IF INT (SH/100)>6 THEN PRI
NT INK 1; PAPER 5;;AT 19,1;"LOW
"
490 REM DETECT FUEL EXHAUSTED
500 IF INT (SH/100)<6 THEN BEE
P .03,5: PRINT FLASH 1; INK 2;
PAPER 5;;AT 19,1;"LOW"
510 REM OUT OF FUEL END GAME
520 IF INT (SH/100)=1 THEN GO
TO 1500
530 REM PRINT FUEL STATUS
540 PRINT AT 20,0;Z$(33-(SH/100
) TO 32+(32-(SH/100)))

```



```

550 REM INCREMENT PARSEC COUNT
ER DECREMENT FUEL
560 LET LF=LF+1: LET SH=SH-10:
LET FIRE=0: GO TO 100
570 REM UDG'S
580 LET A=USR "A"-1
590 FOR J=0 TO 14: FOR N=0 TO 7
: READ B : LET A=A+1: POKE A,B:
NEXT N: NEXT J
600 REM MCH'CODE FOR SOUND
610 LET A=USR "P"
620 FOR J=0 TO 39: READ B: POKE
A+J,B: NEXT J
630 DATA 1,131,135,137,249,135,
131,1
640 DATA 128,193,225,145,159,22
5,193,128
650 DATA 1,15,30,60,255,131,129
,1
660 DATA 128,240,120,60,255,193
,129,128
670 DATA 1,7,1,3 ,14,151,163,19
3
680 DATA 128,224,128,192,112,23
3,197,131
690 DATA 65,39,24,63,224,63,48,
79
700 DATA 130,228,24,252,7,252,1
2,242
710 DATA 1,130,196,191,191,206,
142,3
720 DATA 255,74,82,255,126,126,
255,129
730 DATA 128,65,35,253,253,115,
113,192
740 DATA 24,126,24,126,153,153,
126,60
750 DATA 170,85,170,85,170,85,1
70,85
760 DATA 129,4,226,9,32,67,138,
8
770 DATA 129,32,71,144,4,194,81

```

```

,16
780 DATA 6,255,197,6,75,62,6,21
1,254,16,252,6,75,62,25,211,254,
16,252,193,16,236,201
790 DATA 33,0,10,43,126,211,254
,6,205,5,32,-3,175,132,200,24,-1
4
800 RETURN
810 FOR J=18 TO 21: PRINT PAPER
5: AT J,0: ,,: NEXT J: PRINT #1:
PAPER 5: INK 0: AT 0,0: ,,:
820 FOR J=1 TO 80: LET I=RND*7+
1: PLOT INK I;RND*255,(RND*143)
+31: NEXT J
830 REM PRINT STARS
840 FOR J=1 TO 20: LET I=RND*7+
1: PRINT INK I; AT RND*17,RND*31
; "*": NEXT J
850 FOR J=1 TO 20: LET I=RND*7+
1: PRINT INK I; AT RND*17,RND*31
; ".": NEXT J
860 PRINT AT 9,15; S$(1); AT 10,1
5; S$(2); AT 11,15; S$(3)
870 RETURN
880 REM SET UP CHARACTER ARRAY
S
890 LET A$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 5+CHR$ 144+CHR$ 145
900 LET B$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 3+CHR$ 146+CHR$ 147
910 LET C$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 2+CHR$ 148+CHR$ 149
920 LET D$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 7+CHR$ 150+CHR$ 151
930 LET E$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 6+CHR$ 152+CHR$ 153+CHR$ 1
53++CHR$ 153+CHR$ 153+CHR$ 154

```



```

940 LET F$=CHR$ 19+CHR$ 1+CHR$
21+CHR$ 1+CHR$ 17+CHR$ 0+CHR$ 16
+CHR$ 4+CHR$ 155
950 LET G$=CHR$ 19+CHR$ 1+CHR$
17+CHR$ 6+CHR$ 16+CHR$ 2+CHR$ 1
56
960 DIM S$(3,11) : LET FIRE=0:
LET IN=0
970 REM SET SIGHTS ARRAY
980 LET S$(1, TO )=CHR$ 21+CHR$
1+CHR$ 19+CHR$ 1+CHR$ 17+CHR$ 0
+CHR$ 16+CHR$ 7+"I!h"
990 LET S$(2, TO )=CHR$ 19+CHR$
1+CHR$ 21+CHR$ 1+CHR$ 17+CHR$ 0
+CHR$ 16+CHR$ 7+"- -"
1000 LET S$(3, TO )=CHR$ 19+CHR$
1+CHR$ 21+CHR$ 1+CHR$ 17+CHR$ 0
+CHR$ 16+CHR$ 7+"o!n"
1010 DIM H$(3,11): LET H$(1)=CHR
$ 21+CHR$ 1+CHR$ 19+CHR$ 1+CHR$
17+CHR$ 0+CHR$ 16+CHR$ 6+CHR$ 15
7+CHR$ 158+CHR$ 157: LET H$(2)=H
$(1): LET H$(3)=H$(1)
1020 REM DIM D(6,2)
1030 RETURN
1040 REM RANDOMLY SELECTED TARGE
T AND TARGET VALUES
1050 LET T$=E$: LET P=25: LET IN
=6: LET T1=3: LET T2=1: LET R=31-
(LEN E$-8): RETURN
1060 LET T$=B$: LET P=5: LET IN=
3: LET T1=1: LET T2=1: LET R=31-
(LEN B$-8): RETURN
1070 LET T$=C$: LET P=15: LET IN
=2: LET T1=1: LET T2=1: LET R=31-
(LEN C$-8): RETURN
1080 LET T$=D$: LET P=1: LET IN=
7: LET T1=1: LET T2=1: LET R=31-
(LEN D$-8): RETURN
1090 LET T$=A$: LET P=10: LET IN
=5: LET R=31-(LEN A$-8): LET T1=
1: LET T2=1: RETURN

```

```

1100 LET T$=F$: LET P=1: LET IN=
4: LET T1=1: LET T2=1: LET R=31-
(LEN F$-8): RETURN
1110 REM DESTROY ENEMY
1120 IF FIRE=1 AND CODE T$(9)=15
2 THEN GO TO 560
1130 PRINT AT Y,X;S$(1);AT Y+1,X
;S$(2);AT Y+2,X;S$(3);AT YY,XX;T
$
1140 PRINT #1; INK 6; PAPER 0;AT
0,7;" ABSORBING ENERGY"
1150 FOR J=1 TO 2: PRINT AT Y,X;
H$(1);AT Y+1,X;H$(2);AT Y+2,X;H$(
3)
1160 IF J =1 THEN RANDOMIZE USR
65511
1170 NEXT J : BORDER 0
1180 POKE A+6,6: POKE A+14,25: P
OKE A+4,75: POKE A+12,75: PRINT
AT Y,X;S$(1);AT Y+1,X;S$(2);AT Y
+2,X;S$(3): RANDOMIZE 0:
1190 PRINT #1;AT 0,5;X$
1200 REM INCREASE ENERGY BY POIN
TS VALUE OF TARGET
1210 LET SH=SH+P*100: IF SH>3200
THEN LET SH=3200: PRINT AT 20,
0;Z$(33-(SH/100) TO 32+(32-(SH/1
00)))
1220 GO TO 80
1230 REM SET UP INSTRUMENT PANEL
1240 FOR J=1 TO 32: LET Z$(J)=CH
R$ 156: NEXT J: FOR J=33 TO 64:
LET Z$(J)=" ": NEXT J
1250 PRINT INK 2; PAPER 5;AT 18
,12;"ENERGY"
1260 PRINT INK 1; PAPER 5;AT 19
,1;"LOW";AT 19,27;"HIGH": FOR J=
4 TO 26: PRINT INK 3; PAPER 5;A
T 19,J;":": PRINT INK 1; PAPER
5; OVER 1;AT 19,J;"_": NEXT J
1270 PRINT AT 20,0;Z$( TO 32): F
OR J=0 TO 31: PRINT INK 1; PAPE

```



```

R 5;AT 21,12;"STATUS"
1280 LET X#=CHR# 17+CHR# 0+"
      ": PRINT #1;AT
0,5;X#: RETURN : REM 21 SPACES"
1290 REM SCANNING ROUTINE
1300 LET LF=LF+1: LET FL=FL+1: L
ET T5=INT (RND*100)+1: LET T6=IN
T (RND*100)+1
1310 LET SH=SH-5
1320 IF INT (SH/100)>6 THEN PRI
NT INK 1; PAPER 5;;AT 19,1;"LOW
"
1330 IF INT (SH/100)<6 THEN BEE
P .03,5: PRINT FLASH 1; INK 2;
PAPER 5;;AT 19,1;"LOW"
1340 IF INT (SH/100)=1 THEN GO
TO 1500
1350 PRINT AT 20,0;Z$(33-(SH/100
) TO 32+(32-(SH/100)))
1360 PRINT #1; INK 7;AT 0,5;"
PATROLLING "
1370 IF FL=100 THEN PRINT #1; P
APER 0; INK 7;AT 0,5;" BORING IS
N'T IT": PAUSE 100: PRINT #1;AT
0,5;X#
1380 IF T5/T6<>1 THEN GO TO 130
0
1390 PRINT #1;AT 0,5;X#: INK 7;A
T 0,5;" TARGET FOUND": FOR J=
1 TO 10: BEEP .1,20: BEEP .2,50:
PAUSE 10: NEXT J
1400 PRINT #1;AT 0,5;X#: INK 7;A
T 0,5;" SCANNING TARGET": FOR
J=1 TO 10: BEEP .05,10: BEEP .08
,20: PAUSE 10: NEXT J
1410 PRINT #1;AT 0,5;X#: INK 7;A
T 0,5;" TARGET IS": PAUSE 1
00
1420 IF CODE T$(9)=144 THEN PRI
NT #1;AT 0,5;X#: INK 7;AT 0,5;"
MERCON INTERCEPTOR": PAUSE 100
1430 IF CODE T$(9)=146 THEN PRI

```

```

NT #1;AT 0,5;X#: INK 7;AT 0,5;"
ZILON FIGHTER": PAUSE 100
1440 IF CODE T$(9)=148 THEN PRI
NT #1;AT 0,5;X#: INK 7;AT 0,5;"
ASTRAL PIRATE": PAUSE 100
1450 IF CODE T$(9)=150 THEN PRI
NT #1;AT 0,5;X#: INK 7;AT 0,5;"
UN IDENTIFIED": PAUSE 100
1460 IF CODE T$(9)=152 THEN PRI
NT #1;AT 0,5;X#: INK 7;AT 0,5;"
TIRAN BATTLE STAR": PAUSE 100
1470 IF CODE T$(9)=155 THEN PRI
NT #1;AT 0,5;X#: INK 7;AT 0,5;"
TIRAN SCOUT SHIP": PAUSE 100
1480 PRINT #1;AT 0,5;X#: INK 7;A
T 0,5;" BATTLE STATIONS ": LET
FL=0: RANDOMIZE 0: RETURN
1490 REM END GAME & PRINT SCORE
1500 FOR J=0 TO 21: PRINT AT J,0
;Z$( TO 32): BEEP .05,65-J+1: NE
XT J
1510 PRINT #1; PAPER 7; INK 0;AT
0,0;,,,,: BORDER 7
1520 PRINT INK 0; PAPER 7;AT 5,
10;"WELL DONE!";AT 7,7;"YOU SURV
IVED FOR";AT 9,12;LF;AT 11,10;"P
ARSECS": STOP
1530 BORDER 0: PAPER 0: INK 7: C
LS : PRINT AT 2,10;"PURSUIT SHIP
";AT 4,2;"You are the commander
of the";AT 5,2;"latest galactic
pursuit ship";AT 6,2;"X104. It i
s equipped with the"
1540 PRINT AT 7,2;"latest 'SNATC
H' drive, and is";AT 8,2;"able t
o absorb power from any";AT 9,2;
"exploding object."
1550 PRINT AT 10,2;"Your mission
is to patrol";AT 11,2;"the gala
xy in search of any";AT 12,2;"ho
stile life forms."
1560 PRINT AT 13,2;"Your instrum

```



```

ents will show";AT 14,2;"your pr
esent energy status and"
1570 PRINT AT 15,2;"whether a ta
rget has been          located. ";A
T 17,2;"Once a target has been f
ound"
1580 PRINT AT 18,2;"it will be s
canned and then";AT 19,2;"identi
fied. Battle station";AT 20,2;"s
tatus is then indicated.";AT 21,
2;"The enemy will then appear!"
1590 GO SUB 580: PRINT #1; INK 0
; PAPER 7;AT 1,3;"PRESS ANY KEY
TO CONTINUE": PAUSE 0: CLS
1600 CLS : PRINT AT 0,2;"Your sh
ip uses energy at the";AT 1,2;"r
ate of five units per cycle.";AT
 2,2;"During battle it will cons
ume";AT 3,2;"at twice that rate.
Also each"
1610 PRINT AT 4,2;"hit by the en
emy on your ship";AT 5,2;"will d
ecrease your energy by";AT 6,2;"
ten units per hit for a small";A
T 7,2;"craft and by one hundred
units"
1620 PRINT AT 8,2;"for a Battle
Star!";AT 9,2;"To recharge your
energy you";AT 10,2;"must keep d
estroying the enemy"
1630 PRINT AT 12,2;"To do this y
ou may fire either";AT 13,2;"you
r lasers or your plasma -";AT 14
,2;"bolts. Plasma bolts can be";
AT 15,2;"used against either typ
e of "
1640 PRINT AT 16,2;"enemy, but a
re a waste of good energy on sm
all craft. Battle";AT 18,2;"Star
s can only be destroyed";AT 19,2
;"with plasma bolts. You must";A
T 20,2;"shoot fast and sometimes

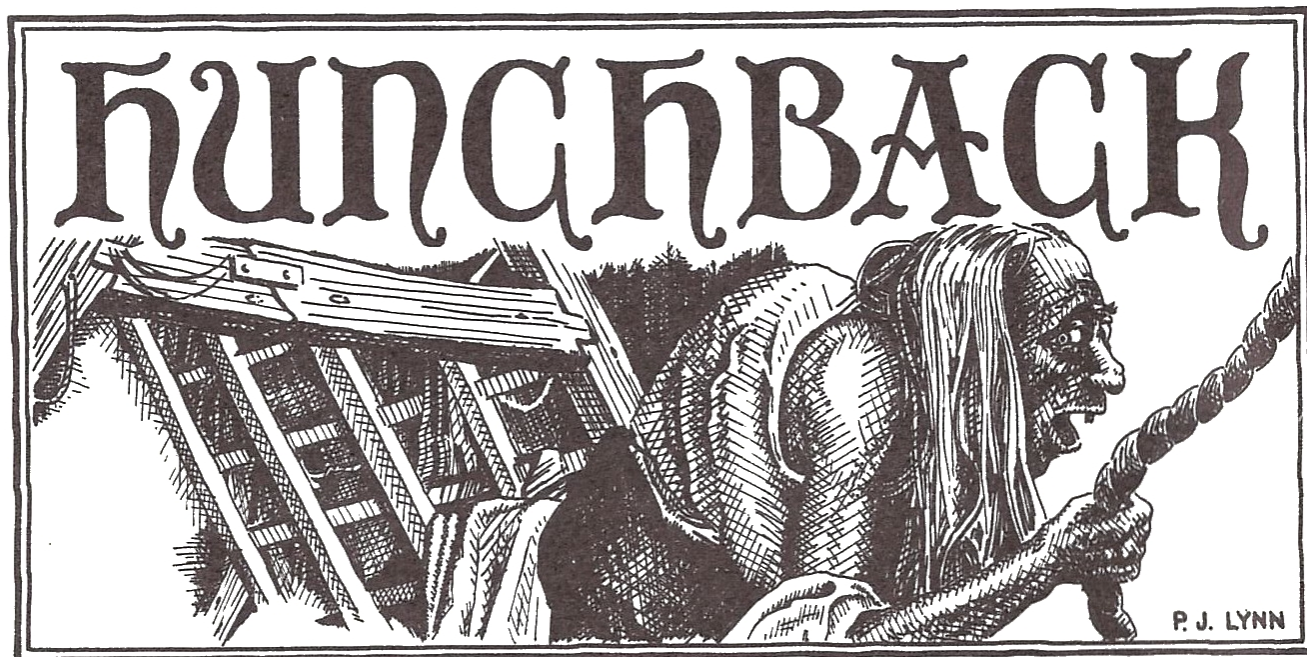
```

```

you"
1650 PRINT AT 21,2;"must hit twi
ce in a row"
1660 GO SUB 890: PRINT #1; INK 0
; PAPER 7;AT 1,3;"PRESS ANY KEY
TO CONTINUE": PAUSE 0: CLS
1670 PRINT AT 0,2;"to destroy th
e target.";AT 2,13;"CONTROLS";AT
 4,9;"UP...0 LEFT...0";AT 6,9;
"DOWN..A RIGHT..F";AT 11,9;"FLA
SMA-BOLTS..1";AT 8,9;"LASERS...
...0"
1680 PRINT #1; INK 0; PAPER 7;AT
 1,3;"PRESS ANY KEY TO CONTINUE"
: PAUSE 0: CLS : RETURN

```





### Original program by B. C. Wakelin

Hunchy, the local village idiot has fallen in love with the lovely Belinda. Unfortunately she is being held captive in the wicked Baron's castle. Undaunted by the challenge, and with more courage than sense, Hunchy sets off to rescue her.

You control Hunchy and must help him reach his beloved. To move, use the following keys:

- P – Move forward
- Q – Leap up and down
- A – Leap forward

There are six levels to beat, each progressively harder than the last. The first level consists simply of the castle walls, along which Hunchy must run. The remaining levels include rolling cannon balls, daggers, foot soldiers and a drawbridge. It will take considerable skill and luck to succeed in this game, so to help you accomplish the task you will be given five lives.

Your score is calculated from the level you have reached and the number of lives you have left. Your score and the number of lives left are displayed at the bottom of the screen. This program makes excellent use of graphics and presents a classic exciting arcade-style game.

### Program Description

**10** POKE to force CAPS LOCK.

**20-50** Read and install the user-defined-graphics.

**60-260** Data for user-defined-graphics (A-U).

**270-330** Dimension arrays and strings, then create strings to represent Hunchy (H\$), cannon balls (C\$) and knives (K\$). Also creates a string (T\$) to represent the castle walls.

**340** Defined function to detect if Hunchy has fallen from the walls.

**360-380** Initialize the variables.

**400-450** Detect a key press and reset the variables which control Hunchy's position accordingly. A check is made to detect if Hunchy has reached the end of the wall. If he had then move to next level, re-draw the screen. Hunchy's previous position is removed and his new position printed on to the screen.

**460** Checks that Hunchy has not fallen off the wall.

**470** The variable flag is set to 1 or -1 on each pass through the main routine, in this way the graphics characters for Hunchy's legs can be printed alternatively to give the impression of running.

**490-560** Routine which allows the character to leap forward over the battlements and objects.

**570-660** This routine prints rolling cannon balls along the top of the walls. A check is made to see if one of them has hit Hunchy. If Hunchy has been hit, then the number of lives is decremented by one and the routine is restarted. On level four, moving knives also appear.

**670-730** Routine to print the drawbridge. The position of the bridge (ie open or closed) is randomly selected. A check is made when Hunchy tries to cross the bridge. If the bridge is open, then Hunchy will fall.

**740-810** Routine to print the soldiers inbetween the battlements. The spears held by the soldiers are randomly thrust upwards, and there is a check to see if any one of them has hit Hunchy. The number of lives left and the score is printed at the bottom of the screen.

**900-990** Routine to print Hunchy falling off the wall.

**100-1150** Two routines to print either normal castle walls or, if the drawbridge level is in operation, castle walls with a deep wall.

**1160-1220** The end of game routine.

**1240-1380** The instructions.



```

10 POKE 23658,8: GO SUB 1230
20 LET A=0
30 LET A=A+1: FOR N=0 TO 7: RE
AD B: POKE USR CHR$(143+A)+N,B:
NEXT N
40 IF A>20 THEN GO TO 270
50 GO TO 30
60 DATA 112,236,8,188,64,128,0
,144
70 DATA 0,0,30,33,66,132,137,6
8
80 DATA 39,32,127,58,113,224,2
24,48
90 DATA 255,160,192,224,112,11
2,96,248
100 DATA 103,64,255,49,49,49,49
,57
110 DATA 255,32,240,128,128,128
,128,224
120 DATA 156,170,170,148,255,24
7,193,247
130 DATA 247,182,156,170,162,16
2,34,99
140 DATA 0,1,2,4,8,16,255,255
150 DATA 3,3,3,7,11,19,35,67
160 DATA 3,3,3,3,3,3,255,255
170 DATA 0,0,64,224,112,63,28,1
2
180 DATA 7,11,19,35,195,3,3,3
190 DATA 7,3,1,0,0,0,0,0
200 DATA 3,131,195,227,115,59,3
1,15
210 DATA 15,15,15,15,15,15,15,1
5
220 DATA 60,126,255,255,255,255
,126,60
230 DATA 0,16,16,126,241,126,16
,16
240 DATA 15,31,119,187,253,127,
57,253
250 DATA 128,192,224,128,128,12
8,128,128

```

```

260 DATA 170,85,170,85,170,85,1
70,85
270 DIM T$(32): DIM H$(6): DIM
B$(9): DIM P(4): LET P(1)=1: LET
P(2)=5: LET P(3)=0: LET P(4)=5
280 LET H=6: LET H$=CHR$ 145+CH
R$ 144+CHR$ 146+CHR$ 147+CHR$ 14
8+CHR$ 149
290 LET SCORE=0: LET S=0: LET S
P=1: LET BRIDGE=0: LET AA=0: LET
LIVES=5: LET LEVEL=1
300 LET B$=CHR$ 32+CHR$ 153+CHR
$ 152+CHR$ 154+CHR$ 155+CHR$ 156
+CHR$ 157+CHR$ 158+CHR$ 159+CHR$
159
310 DIM C$(96): DIM K$(96): FOR
J=19 TO 93 STEP 12: LET C$(J)=C
HR$ 160: LET K$(J)=CHR$ 161: NEX
T J
320 PAPER 1: INK 1: BORDER 1: C
LS
330 FOR J=1 TO 32: LET T$(J)=CH
R$ 164: NEXT J
340 DEF FN B()=(ATTR (Y+2,X)+AT
TR (Y+2,X+1))
350 GO TO 870
360 LET TAG=0: LET Y=5: LET X=0
: LET Y1=Y: LET X1=X: LET FLAG=1
: LET TAB=1
370 REM FIRST LEVEL
380 IF TAG=1 THEN LET TAG=0: L
ET Y1=Y: LET Y=Y+2
390 PRINT AT 0,0:,,,,,,
400 IF INKEY$="P" AND Y=5 THEN
LET X1=X: LET X=X+1: LET Y1=Y
410 IF X>=30 AND LIVES>=0 THEN
LET LEVEL=LEVEL+1: LET SCORE=SC
ORE+(1000*LEVEL)*LIVES: GO SUB 8
70
420 IF INKEY$="Q" AND Y1=Y THEN
LET Y1=Y: LET X1=X: LET Y=Y-2:
LET TAG=1

```



```

430 IF (Y1=Y)+(X1=X)<>2 THEN P
RINT PAPER 1; INK 1; AT Y1,X1;"
"; AT Y1+1,X1;" "
440 IF LIVES<0 THEN GO TO 1160
450 BEEP .005,(5*Y): PRINT PAP
ER 1; INK 7; AT Y,X; H$(1 TO 2); AT
Y+1,X; H$(3*(FLAG=1)+5*(FLAG=-1)
TO 4*(FLAG=1)+6*(FLAG=-1))
460 IF FN B()=20 AND (A=1)+(X=1
7)<>2 THEN LET LIVES=LIVES-1: G
O SUB 900: GO TO 870
470 LET FLAG=FLAG*-1
480 IF INKEY$<>"A" THEN GO TO
570
490 IF (X=16)+(X=15)<>0 AND LEV
EL=3 THEN GO TO 570
500 LET Y1=Y: LET Y=Y-1: LET X1
=X: GO SUB 540
510 FOR J=1 TO 2: LET Y1=Y: LET
X1=X: LET X=X+J: IF X<30 THEN
GO SUB 540: NEXT J
520 LET Y1=Y: LET Y=Y+1: LET X1
=X: GO SUB 540
530 LET Y1=Y: LET X1=X: BEEP .0
05,(5*Y): PRINT PAPER 1; INK 7;
AT Y,X; H$(1 TO 2); AT Y+1,X; H$(3*
(FLAG=1)+5*(FLAG=-1) TO 4*(FLAG=
1)+6*(FLAG=-1)): GO TO 570
540 PRINT PAPER 1; INK 7; AT Y,
X; H$(1 TO 2); AT Y+1,X; H$(3*(FLAG
=1)+5*(FLAG=-1) TO 4*(FLAG=1)+6*
(FLAG=-1))
550 IF (Y1=Y)+(X1=X)<>2 THEN B
EEP .005,5*Y: PRINT PAPER 1; IN
K 1; AT Y1,X1;" "; AT Y1+1,X1;"
"
560 RETURN
570 IF INT (LEVEL/2)=LEVEL/2 TH
EN GO TO 600
580 IF INT (LEVEL/2)=LEVEL/2 TH
EN GO TO 600
590 GO TO 620

```

```

600 PRINT PAPER 1; INK 2; AT H,
0; C$( TO X); AT H,X+2*(X<29); C$(X
+2*(X<=29) TO 30): LET C$( TO )=
C$(3 TO )+C$(1 TO 2)
610 IF CODE (C$(X+2*(X=0)))+COD
E (C$(X-1+(2*(X-1<=0))))<>64 A
ND Y=5 THEN BEEP .3,10: LET LIV
ES=LIVES-1: GO SUB 900: GO TO 87
0
620 IF LEVEL=4 OR LEVEL=6 THEN
GO TO 640
630 GO TO 670
640 PRINT PAPER 1; INK 3; AT 5,
0; K$( TO X); AT 5,X+2; K$(X+2 TO 3
0): LET K$( TO )=K$(94 TO 96)+K$(
1 TO 93)
650 IF CODE (K$(X-1+(2*(X=0))+4
))<>32 AND Y=5 THEN BEEP .3,10:
LET LIVES=LIVES-1: GO SUB 900:
GO TO 870
660 IF CODE (K$(X+(1*(X=0))+4))
<>32 AND Y=5 THEN BEEP .3,10: L
ET LIVES=LIVES-1: GO SUB 900: GO
TO 870
670 IF LEVEL=3 THEN GO TO 690
680 LET BRIDGE=0: GO TO 740
690 IF RND*100>10 AND BRIDGE<>0
THEN GO TO 710
695 IF X=17 AND A=1 THEN GO
TO 730
700 LET BRIDGE=1*(X<>17 AND A=1
): LET AA=AA+1: LET A=P(AA): IF
A=0 THEN PRINT PAPER 1; INK 2;
AT 5,17; CHR$ 32; AT 5,18; B$(9); AT
6,17; CHR$ 32; AT 6,18; B$(9): GO
TO 730
710 PRINT PAPER 1; INK 2; AT 5,
17; B$(A TO A+1); AT 6,17; B$(A+2 T
O A+3)
720 IF X=17 AND A<>1 THEN LET
LIVES=LIVES-1: BEEP .3,15: GO SU
B 900: GO TO 870

```



```

730 IF AA=4 THEN LET AA=0
740 IF LEVEL>4 THEN GO TO 760
750 GO TO 800
760 IF RND*100>5 THEN FOR S=3
TO 29 STEP 5: PRINT OVER 1; PAP
ER 1; INK 4; AT 6,S; CHR$ 163: BEE
P .005,60
770 IF ATTR (5,S)=15 THEN LET
LIVES=LIVES-1: GO SUB 900: GO TO
870
780 NEXT S
790 LET SP=SP*-1
800 IF X=30 AND LEVEL=6 THEN G
O TO 1160
810 PRINT PAPER 4; INK 1; AT 18
,4; "LIVES": FOR J=1 TO LIVES: PR
INT PAPER 4; INK 2; AT 19,3+J; "*"
: NEXT J
820 PRINT PAPER 4; INK 0; AT 18
,23; "SCORE"; AT 19,23; SCORE
830 LET Y1=Y: LET X1=X: GO TO 3
80
840 PRINT PAPER 1; INK 2; AT 6,
0; C$( TO X); AT 6,X+2; C$(X+2 TO 3
0): LET C$( TO )=C$(3 TO )+C$(1
TO 2)
850 PRINT PAPER 1; INK 3; AT 4,
0; K$( TO 27): LET K$( TO )=K$(95
TO 96)+K$( TO 94)
860 IF CODE (C$(X+2*(X=0)))+COD
E (C$(X-1)+(2*(X-1<=0)))<>64 A
ND Y=5 THEN BEEP .3,10: STOP
870 CLS : LET BRIDGE=0: LET A=0
: LET AA=0
880 IF LEVEL<>3 THEN GO SUB 10
00: GO TO 360
890 GO SUB 1090: GO TO 360: REM
END GAME
900 LET Y1=Y: LET X1=X: LET Y=Y
+1
910 IF X=17 AND LEVEL=3 THEN L
ET P=1: LET I=7: LET CHAR=32: GO

```

```

TO 940
920 REM IF Y<9 AND BRIDGE=0 TH
EN LET P=1: LET I=7
930 LET CHAR=164: LET P=6: LET
I=2
940 PRINT PAPER 1; INK 1; AT Y1
,X1; " "; AT Y1+1,X1; " "
950 FOR J=9 TO 16: LET Y=J: PRI
NT PAPER P; INK I; AT Y,X; H$(1 T
O 2); AT Y+1,X; H$(3*(FLAG=1)+5*(F
LAG=-1) TO 4*(FLAG=1)+6*(FLAG=-1
))
960 LET Y1=Y: LET X1=X
970 PRINT PAPER P; INK I; AT Y1
,X1; CHR$ CHAR+CHR$ CHAR; AT Y1+1,
X1; CHR$ CHAR+CHR$ CHAR
980 BEEP .05,3*J: NEXT J: BEEP
.2,10
990 RETURN
1000 FOR J=9 TO 17: PRINT PAPER
6; INK 2; AT J,0; T$(): NEXT J
1010 LET W$=CHR$ 164+CHR$ 164+CH
R$ 164
1020 PRINT PAPER 1; INK 2; AT 7,
0; , , , ,
1030 FOR J=7 TO 8: PRINT PAPER
6; INK 2; AT J,0; W$( TO 2); AT J,4
; W$; AT J,9; W$; AT J,14; W$; AT J,19
; W$; AT J,24; W$; AT J,29; W$: NEXT
J
1040 IF LEVEL=6 THEN PRINT PAP
ER 1; INK 7; AT 0,31; CHR$ 162: FO
R J=1 TO 7: PRINT PAPER 6; INK
2; AT J,31; CHR$ 164: NEXT J
1050 PRINT PAPER 4; INK 0; AT 18
,0; , , , , , , , ,
1060 DIM C$(96): DIM K$(96): FOR
J=19 TO 93 STEP 12: LET C$(J)=C
HR$ 160: LET K$(J)=CHR$ 161: NEX
T J
1070 IF LEVEL>4 THEN FOR J=3 TO
29 STEP 5: PRINT PAPER 1; INK

```



```

4; AT 7, J; CHR$ 150; AT 8, J; CHR$ 15
1: NEXT J
1080 RETURN
1090 FOR J=9 TO 17: PRINT PAPER
6; INK 2; AT J, 0; T$( ): NEXT J
1100 LET W$=CHR$ 164+CHR$ 164+CH
R$ 164
1110 PRINT PAPER 1; INK 2; AT 7,
0; , , , ,
1120 FOR J=7 TO 8: PRINT PAPER
6; INK 2; AT J, 0; W$( TO 2); AT J, 4
; W$; AT J, 9; W$; AT J, 14; W$; AT J, 19
; W$; AT J, 24; W$; AT J, 29; W$: NEXT
J
1130 FOR J=1 TO 10: PRINT PAPER
1; INK 1; AT 8+J, 17; " ": NEXT J
1140 PRINT PAPER 4; INK 0; AT 18
, 0; , , , , , , , ,
1150 RETURN
1160 PAPER 1: INK 6: BORDER 1: C
LS
1170 FOR P=0 TO 6
1180 FOR K=0 TO 31: BEEP .005, K*
2: PRINT PAPER P; INK P+1; AT 0+
P, K; CHR$ 164; AT 21-P, K; CHR$ 164:
NEXT K: FOR K=0 TO 21: BEEP .05
, K*3: PRINT PAPER P; INK P+1; AT
K, 0+P; CHR$ 164; AT K, 31-P; CHR$ 1
64: NEXT K
1190 NEXT P
1200 IF LEVEL=6 AND X>=30 THEN
PRINT AT 8, 12; "YOU WON"; AT 10, 9;
"YOUR SCORE WAS"; AT 12, 12; SCORE
1210 IF LIVES<0 THEN PRINT AT 8
, 12; "YOU LOST"; AT 10, 9; "YOUR SCO
RE WAS"; AT 12, 12; SCORE
1220 FOR J=1 TO 60: BEEP .01, J:
NEXT J: FOR J=60 TO 1 STEP -1: B
EEP .01, J: NEXT J: STOP
1230 REM INSTRUCTIONS
1240 PAPER 6: INK 1: BORDER 6: C
LS

```

```

1250 PRINT AT 1, 11; "HUNCHY"; AT 2
, 10; "dddddddd"
1260 PRINT : PRINT "Hunchy the l
ocal village idiot has fallen i
n love with the ": PRINT "lovely
Belinda. Unfortunately she is
being held captive in the"
1270 PRINT "wicked Baron's castl
e. ": PRINT "Undaunted by the cha
llenge, and with more courage th
an sense,"
1280 PRINT "Hunchy sets off to r
escue her."
1290 PRINT "You control Hunchy,
and must help him reach his b
eloved. ": PRINT "To move him use
the following keys:-"
1300 PRINT " Key P ....Move
forward": PRINT " Key Q ....
Leap up and down": PRINT " K
ey A ....Leap forwards"
1310 PRINT : PRINT " Press any
key to continue": PAUSE 0: CLS
1320 PRINT "There are six levels
to beat before he reaches Be
linda."
1330 PRINT "The first level cons
ists simply of the castle walls
along which he must run."
1340 PRINT "The remaining levels
include rolling cannon balls
, daggers, foot soldiers and a
draw bridge."
1350 PRINT : PRINT "It will take
considerable luck and skill to
succeed in this game. To hel
p, you will be given five lives w
ith which to try and reach Belind
a."
1360 PRINT "Your score is a prod
uct of the level you have reach
ed and the number of lives you

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have left."
1370 PRINT "Both your score and
the number of lives left to you
, are displayed at the bot
tom of the screen during play."
1380 PRINT " Press any key to
play": PAUSE 0: CLS : RETURN

```

# ROULETTE

Original program by M. I. Cowie

If you have ever longed to break the bank at Monte Carlo here is your chance (well almost). In this game you are invited to try your luck at the roulette table. You start with a total of fifty pounds and you may bet any amount up to your total on any combination of bets.

The game starts with a display of the roulette table and a menu of betting options. To play, simply enter your selection and the amount you wish to bet. When all your bets are placed, start the wheel spinning by entering 10 when asked for a number.

The type of roulette table depicted is known as a French table, and a description of the kinds of bets accepted, along with the odds on winning is given below. Good luck!

<b>Bet</b>	<b>Description</b>	<b>Odds</b>
Any number	Any single number between zero and 36	36:1
Column bet	1st, 2nd or 3rd vertical column of numbers.	3:1
Passe	Any number between 19 and 36.	2:1
Manque	Any number between 1 and 18.	2:1
Pair	Any even number.	2:1
Impair	Any odd number.	2:1
Dozens	1st, 2nd or 3rd horizontal group of twelve numbers.	3:1
Black or Red	Any black or red number.	2:1

## Program Description

**7** POKE to set keyboard click.

**40-160** Print the menu of possible bets.

**170** Requests the player to enter a bet.

**180-190** Assigns the variable A\$ to indicate the bet chosen, and



then picks out the appropriate routine.

**250-340** If a single number bet is placed, request the number on which the bet is placed. Check that the number entered is within the range 0-36, and if so reprint the menu.

**400-530** If a column bet is placed, request which column has been selected.

**560-880** Execute various routines for the other types of bets.

**890-1020** If a dozen bet has been placed, request which dozen has been selected.

**1030-1200** Execute subroutines for other types of bet.

**1210-1225** If option ten has been chosen then spin the wheel and randomly generate a number between 0 and 36.

**1230-1350** Check the number the wheel has stopped at, against the various bets to see if any have been won.

**1355-1410** Print the number which has been generated, then print the amount of money that has been won.

**1414** Pause then rerun the main routine when any key is pressed.

**1420-1425** Add the winnings to the player's funds, then return to the main routine.

**1430-1470** If all the money has been lost then print a message and offer the player another go.

**9000-9030** Clear the right hand side of the screen, then print the player's funds.

**9040-9080** Request the amount of money to be placed on the bet.

**9800-9824** Print the roulette table.

**9900-9949** Dimension arrays and define the variables.

**9951-9979** Read and install the UDG symbols.

```
1 REM *****
2 REM *****ROULETTE*****
3 REM ***BY MARTIN. I. COWIE***
4 REM ****48K ZX SPECTRUM****
5 REM *****
6 RESTORE : GO SUB 2000
7 POKE 23609,100
10 GO SUB 9950
20 GO SUB 9900
30 GO SUB 9800
40 PRINT AT 2,12;"MONEY=";MON
```

EY

```
50 PRINT AT 4,12;"WHAT DO YOU
WISH TO"
60 PRINT AT 5,13;"BET ON (1-10
)?"
70 PRINT AT 7,12;"1-A SINGLE N
UMBER"
80 PRINT AT 8,12;"2-A COLUMN B
ET"
90 PRINT AT 9,12;"3-A PASSE BE
T"
100 PRINT AT 10,12;"4-A MANQUE
BET"
110 PRINT AT 11,12;"5-A PAIR BE
T"
120 PRINT AT 12,12;"6-A IMPAIR
BET"
130 PRINT AT 13,12;"7-A DOZENS
BET"
140 PRINT AT 14,12;"8-BLACK BET
"
150 PRINT AT 15,12;"9-RED BET"
160 PRINT AT 16,12;"10-SPIN THE
WHEEL"
170 INPUT "NUMBER";A$
180 IF A$="1" THEN GO TO 200
181 IF A$="2" THEN GO TO 350
182 IF A$="3" THEN GO TO 560
183 IF A$="4" THEN GO TO 650
184 IF A$="5" THEN GO TO 740
185 IF A$="6" THEN GO TO 830
186 IF A$="7" THEN GO TO 870
187 IF A$="8" THEN GO TO 1030
188 IF A$="9" THEN GO TO 1070
189 IF A$="10" THEN GO TO 1200
190 GO TO 170
200 GO SUB 9000
220 GO SUB 9040
250 PRINT AT 4,12;"WHICH NUMBER
DO YOU ";AT 5,12;"WISH TO BET O
N?"
270 INPUT "NUMBER ";N
280 LET N=INT N
```



```

290 IF N<0 OR N>36 THEN GO TO
270
300 LET B((N+1),1)=1
310 LET B((N+1),2)=C
340 GO TO 30
350 GO SUB 9000
360 GO SUB 9040
400 PRINT AT 4,12;"WHICH COLUMN
?      "
410 PRINT AT 5,12;"      "
420 PRINT AT 6,12;"1-FIRST"
430 PRINT AT 7,12;"2-SECOND"
440 PRINT AT 8,12;"3-THIRD"
450 LET N$=INKEY$
460 IF N$="1" THEN LET B(38,1)
=1
470 IF N$="1" THEN LET B(38,2)
=C
480 IF N$="2" THEN LET B(39,1)
=1
490 IF N$="2" THEN LET B(39,2)
=C
500 IF N$="3" THEN LET B(40,1)
=1
510 IF N$="3" THEN LET B(40,2)
=C
520 IF N$="1" OR N$="2" OR N$="
3" THEN GO TO 550
530 GO TO 450
550 GO TO 30
560 GO SUB 9000
570 GO SUB 9040
610 LET B(41,1)=1
620 LET B(41,2)=C
640 GO TO 30
650 GO SUB 9000
660 GO SUB 9040
700 LET B(42,1)=1
710 LET B(42,2)=C
730 GO TO 30
740 GO SUB 9000
750 GO SUB 9040

```

```

790 LET B(43,1)=1
800 LET B(43,2)=C
820 GO TO 30
830 GO SUB 9000
840 GO SUB 9040
850 LET B(44,1)=1
860 LET B(44,2)=C
865 GO TO 30
870 GO SUB 9000
880 GO SUB 9040
890 PRINT AT 4,12;"WHICH DOZEN?
"
900 PRINT AT 6,12;"1-P12"
910 PRINT AT 7,12;"2-M12"
920 PRINT AT 8,12;"3-D12"
930 LET N$=INKEY$
940 IF N$="1" THEN LET B(45,1)
=1
950 IF N$="1" THEN LET B(45,2)
=C
960 IF N$="2" THEN LET B(46,1)
=1
970 IF N$="2" THEN LET B(46,2)
=C
980 IF N$="3" THEN LET B(47,1)
=1
990 IF N$="3" THEN LET B(47,2)
=C
1000 IF N$="1" OR N$="2" OR N$="
3" THEN GO TO 1020
1010 GO TO 930
1020 GO TO 30
1030 GO SUB 9000
1040 GO SUB 9040
1050 LET B(48,1)=1
1060 LET B(48,2)=C
1065 GO TO 30
1070 GO SUB 9000
1080 GO SUB 9040
1090 LET B(49,1)=1
1100 LET B(49,2)=C
1110 GO TO 30

```



```

1200 GO SUB 9000
1210 PRINT AT 4,12;"WHEEL SPINNI
NG"
1211 LET Z=0
1220 LET Z=INT (RND*37)+1
1225 LET WIN=0
1230 IF B(Z,1)=1 THEN LET WIN=W
IN+B(Z,2)*36
1240 IF B(42,1) AND Z<>0 AND Z<2
0 THEN LET WIN=WIN+B(42,2)*2
1250 IF B(41,1) AND Z>19 THEN L
ET WIN=WIN+B(41,2)*2
1260 IF B(45,1) AND Z<>0 AND Z<=
13 THEN LET WIN=WIN+B(45,2)*3
1270 IF B(46,1) AND Z>=13 AND Z<
=25 THEN LET WIN=WIN+B(46,2)*3
1280 IF B(47,1) AND Z>=25 THEN
LET WIN=WIN+B(47,2)*3
1290 IF B(44,1) AND Z<>0 AND (IN
T (Z/2))*2=Z THEN LET WIN=WIN+B
(44,2)*2
1300 IF B(43,1) AND (INT (Z/2))*
2<>Z THEN LET WIN=WIN+B(43,2)*2
1310 LET Z=Z-1: IF B(48,1) THEN
IF Z=2 OR Z=4 OR Z=6 OR Z=8 OR
Z=10 OR Z=11 OR Z=13 OR Z=15 OR
Z=17 OR Z=20 OR Z=22 OR Z=24 OR
Z=26 OR Z=28 OR Z=29 OR Z=31 OR
Z=33 OR Z=35 THEN LET WIN=WIN+B
(48,2)*2
1320 IF B(49,1) THEN IF Z=1 OR
Z=3 OR Z=5 OR Z=7 OR Z=9 OR Z=12
OR Z=14 OR Z=16 OR Z=18 OR Z=19
OR Z=21 OR Z=23 OR Z=25 OR Z=27
OR Z=30 OR Z=32 OR Z=34 OR Z=36
THEN LET WIN=WIN+B(49,2)*2
1330 IF B(38,1) THEN IF Z=1 OR
Z=4 OR Z=7 OR Z=10 OR Z=13 OR Z=
16 OR Z=19 OR Z=22 OR Z=25 OR Z=
28 OR Z=31 OR Z=34 THEN LET WIN
=WIN+B(38,2)*3
1340 IF B(39,1) THEN IF Z=2 OR

```

```

Z=5 OR Z=8 OR Z=11 OR Z=14 OR Z=
17 OR Z=20 OR Z=23 OR Z=26 OR Z=
29 OR Z=32 OR Z=35 THEN LET WIN
=WIN+B(39,2)*3
1350 IF B(40,1) THEN IF Z=3 OR
Z=6 OR Z=9 OR Z=12 OR Z=15 OR Z=
18 OR Z=21 OR Z=24 OR Z=27 OR Z=
30 OR Z=33 OR Z=36 THEN LET WIN
=WIN+B(40,2)*3
1355 FOR N=1 TO 10: BEEP .05,N:
NEXT N
1360 PRINT AT 4,12;"THE WHEEL ST
OPPED"
1370 PRINT AT 5,12;"AT NUMBER ";
Z
1390 PRINT AT 7,12;"TOTAL WINNIN
GS ARE"
1395 PRINT AT 8,12;" ";WIN
1400 PRINT AT 10,12;"YOUR MONEY
PLUS YOUR"
1401 PRINT AT 11,12;"WINNINGS IS
"
1410 PRINT AT 12,12;" ";WIN+MONE
Y
1414 BEEP .1,5: PAUSE 0
1420 LET MONEY=MONEY+WIN
1425 IF MONEY>0 THEN DIM B(49,2
): GO TO 30
1426 GO SUB 9000
1430 PRINT AT 13,12;"YOU ARE SKI
NT"
1440 PRINT AT 15,12;"PRESS ^P^ K
EY TO RUN"
1460 IF INKEY$="p" THEN RUN
1470 GO TO 1460
2000 REM *** INSTRUCTIONS ***
2010 PRINT AT 1,12; INK 1; PAPE
R 4;"ROULETTE"
2020 PRINT : PRINT " This is a
computer adaptation of the casin
o game Roulette."
2030 PRINT "There are 9 types o

```



```

f possible bet, each with different odds."
2040 PRINT : PRINT "The bets are:"
2050 PRINT
2060 PRINT "1. A single number: Betting on a single number between 1 and 36."
2070 PRINT : PRINT "2. A column bet: Betting on any of the three columns."
2080 PRINT : PRINT "3. Passe: Betting on the numbers 19 to 36."
2085 PRINT AT 21,10; INK 6; PAPER 2; "Press any key": PAUSE 0: LET q$=INKEY$: CLS
2090 PRINT : PRINT "4. Manque: Betting on the numbers 1 to 18."
2100 PRINT : PRINT "5. Pair: Betting on all the even numbers."
2110 PRINT : PRINT "6. Impair: Betting on all the odd numbers."
2120 PRINT : PRINT "7. Dozens: Betting on one of the three blocks of 12 numbers."
2130 PRINT : PRINT "8. Black: Betting on all the black numbers."
2140 PRINT : PRINT "9. Red: Betting on all the red numbers."
2999 PRINT AT 21,8; INK 6; PAPER 2; "Press any key": PAUSE 0: LET q$=INKEY$: CLS
3000 RETURN
9000 PRINT AT 2,12; "MONEY="; MONEY
9001 FOR A=4 TO 21
9010 PRINT AT A,12; "
"
9020 NEXT A

```

```

9030 RETURN
9040 PRINT AT 4,12; "HOW MUCH DO YOU WISH"
9050 PRINT AT 5,12; "TO BET?"
9060 INPUT " "; C
9070 IF C<0 OR C>MONEY THEN GO TO 9060
9075 LET MONEY=MONEY-C
9080 RETURN
9800 REM *****DRAW BOARD*****
9801 INK 0: PAPER 7: CLS : PRINT FLASH B(41,1); PAPER 6; " P "; FLASH 0; PAPER 1; " "; PAPER 4; FLASH B(1,1); " 0"; FLASH 0; PAPER 1; " "; PAPER 6; FLASH B(42,1); " M "
9802 PAPER 6: PRINT FLASH B(41,1); " A "; FLASH 0; PAPER 1; " "; FLASH B(42,1); PAPER 6; " A "
9803 PAPER 6: PRINT FLASH B(41,1); " S "; PAPER 2; FLASH B(2,1); " 1"; PAPER 7; FLASH B(3,1); " 2"; PAPER 2; FLASH B(4,1); " 3"; FLASH B(42,1); PAPER 6; " N "
9804 PAPER 6: PRINT FLASH B(41,1); " S "; FLASH B(5,1); PAPER 7; " 4"; FLASH B(6,1); PAPER 2; " 5"; PAPER 7; FLASH B(7,1); " 6"; FLASH B(42,1); PAPER 6; " Q "
9805 PAPER 6: PRINT FLASH B(41,1); " E "; PAPER 2; FLASH B(8,1); " 7"; PAPER 7; FLASH B(9,1); " 8"; PAPER 2; FLASH B(10,1); " 9"; PAPER 6; FLASH B(42,1); " U "
9806 PAPER 6: PRINT FLASH B(41,1); " "; PAPER 7; FLASH B(11,1); "10"; FLASH B(12,1); "11"; PAPER 2; FLASH B(13,1); "12"; PAPER 6; FLASH B(42,1); " E "; PAPER 7
9807 INK 4: PAPER 0: PRINT FLASH B(43,1); " "; PAPER 1; FLASH

```



0; " "; INK 4; PAPER 0; FLAS  
 H B(44,1); " I "  
 9808 PAPER 0: PRINT FLASH B(43,  
 1); " F "; INK 0; PAPER 7; FLASH  
 B(14,1); "13"; PAPER 2; FLASH B(1  
 5,1); "14"; PAPER 7; FLASH B(16,1  
 ); "15"; PAPER 0; INK 4; FLASH B(  
 44,1); " M "  
 9809 PAPER 0: PRINT FLASH B(43,  
 1); " A "; INK 0; PAPER 2; FLASH  
 B(17,1); "16"; PAPER 7; FLASH B(1  
 8,1); "17"; PAPER 2; FLASH B(19,1  
 ); "18"; PAPER 0; INK 4; FLASH B(  
 44,1); " P "  
 9810 PAPER 0: PRINT FLASH B(43,  
 1); " I "; INK 0; PAPER 2; FLASH  
 B(20,1); "19"; PAPER 7; FLASH B(2  
 1,1); "20"; PAPER 2; FLASH B(22,1  
 ); "21"; PAPER 0; INK 4; FLASH B(  
 44,1); " A "  
 9811 PAPER 0: PRINT FLASH B(43,  
 1); " R "; INK 0; PAPER 7; FLASH  
 B(23,1); "22"; PAPER 2; FLASH B(2  
 4,1); "23"; PAPER 7; FLASH B(25,1  
 ); "24"; PAPER 0; INK 4; FLASH B(  
 44,1); " I "  
 9812 INK 4: PAPER 0: PRINT FLAS  
 H B(43,1); " "; PAPER 1; FLASH  
 0; " "; INK 4; PAPER 0; FLAS  
 H B(44,1); " R "  
 9813 PAPER 6: INK 0: PRINT FLAS  
 H B(48,1); "aAa"; INK 0; PAPER 2;  
 FLASH B(26,1); "25"; PAPER 7; FL  
 ASH B(27,1); "26"; PAPER 2; FLASH  
 B(28,1); "27"; PAPER 6; INK 2; F  
 LASH B(49,1); "aAa"  
 9814 PAPER 6: INK 0: PRINT FLAS  
 H B(48,1); "BpC"; PAPER 7; FLASH  
 B(29,1); "28"; PAPER 7; FLASH B(3  
 0,1); "29"; PAPER 2; FLASH B(31,1  
 ); "30"; PAPER 6; INK 2; FLASH B(  
 49,1); "BpC"

9815 PAPER 6: INK 0: PRINT FLAS  
 H B(48,1); "CaB"; PAPER 7; FLASH  
 B(32,1); "31"; PAPER 2; FLASH B(3  
 3,1); "32"; PAPER 7; FLASH B(34,1  
 ); "33"; PAPER 6; INK 2; FLASH B(  
 49,1); "CaB"  
 9816 PAPER 6: INK 0: FLASH B(48,  
 1): PRINT "aDa"; PAPER 2; FLASH  
 B(35,1); "34"; PAPER 7; FLASH B(3  
 6,1); "35"; PAPER 2; FLASH B(37,1  
 ); "36"; PAPER 6; INK 2; FLASH B(  
 49,1); "aDa"  
 9817 PAPER 0: INK 7: PRINT FLAS  
 H B(45,1); "P12"; FLASH B(38,1);  
 PAPER 4; "F"; FLASH 0; "p"; FLASH  
 B(39,1); "S"; FLASH 0; "p"; FLASH  
 B(40,1); "T"; FLASH 0; "p"; FLASH  
 B(45,1); PAPER 0; "P12"  
 9818 PAPER 0: INK 7: PRINT FLAS  
 H B(46,1); "M12"; FLASH B(38,1);  
 PAPER 4; "I"; FLASH 0; "p"; FLASH  
 B(39,1); "E"; FLASH 0; "p"; FLASH  
 B(40,1); "H"; FLASH 0; "p"; FLASH  
 B(46,1); PAPER 0; "M12"  
 9819 PAPER 0: INK 7: PRINT FLAS  
 H B(47,1); "D12"; FLASH B(38,1);  
 PAPER 4; "R"; FLASH 0; "p"; FLASH  
 B(39,1); "C"; FLASH 0; "p"; FLASH  
 B(40,1); "I"; FLASH 0; "p"; FLASH  
 B(47,1); PAPER 0; "D12"  
 9820 PAPER 0: INK 7: PRINT AT 19  
 ,3; FLASH B(38,1); PAPER 4; "S";  
 FLASH 0; "p"; FLASH B(39,1); "O";  
 FLASH 0; "p"; FLASH B(40,1); "R";  
 FLASH 0; "p"  
 9821 PAPER 0: INK 7: PRINT AT 20  
 ,3; FLASH B(38,1); PAPER 4; "T";  
 FLASH 0; "p"; FLASH B(39,1); "N";  
 FLASH 0; "p"; FLASH B(40,1); "D";  
 FLASH 0; "p"  
 9822 PAPER 0: INK 7: PRINT AT 21  
 ,5; FLASH B(39,1); PAPER 4; "D";



```

FLASH 0
9823 INK 0: PAPER 7: PRINT AT 0,
17;"ROULETTE"
9824 FLASH 0: RETURN
9900 REM DEFINE VARIABLES
9901 LET MONEY=50
9902 DIM B(49,2)
9949 RETURN
9950 REM ***DEFINE CHARACTERS***
9951 FOR A=0 TO 7
9952 READ B
9953 READ C
9954 READ D
9955 READ E
9966 POKE USR "A"+A,B
9967 POKE USR "B"+A,C
9968 POKE USR "C"+A,D
9969 POKE USR "D"+A,E
9970 NEXT A
9971 DATA 0,1,128,126
9972 DATA 0,3,192,60
9973 DATA 0,7,224,24
9974 DATA 0,15,240,0
9975 DATA 24,31,248,0
9976 DATA 60,63,252,0
9977 DATA 126,127,254,0
9978 DATA 255,255,255,0
9979 RETURN

```



Original program by S. Roden

You are the commander of the last laser base on earth, defending six major cities. Your mission is to destroy the in-coming missiles with your laser fire by moving the cross-wire sights onto the heads of the missiles. To do this use the following keys:

Q - Up  
 A - Down  
 P - Right  
 O - Left  
 0 - Fire

When either your laser or all of the cities have been destroyed the game will end and your score, along with the current high score, will be printed. If you reach a score of 1000 points, then night will fall and you will be given a new laser and six cities. When your score reaches 2000 points (if you last that long), then day breaks and you are given another six cities. You must place your sights as close to the head of the missiles as possible.

The missiles attack in waves of six, each one is guided, and will converge on to any remaining targets. You score 25 points for every missile destroyed, and your score is displayed at the bottom of the screen during play. The missiles are plotted as high-resolution dots, and the speed at which they descend increases the lower they get, so you must shoot fast.



## Program Description

**10-50** Dimension arrays and set the variables to their initial values.

**80-110** Set up bases and rocket attack by calling the subroutine starting at line 480, and jumping to line 250.

**130-160** Detect a key press and set the X, Y co-ordinates of the laser sight according to the key press.

**170-180** Check that the position of the laser sights does not exceed the limits of the screen.

**190** Print the laser sights at the position selected, then print over the previous laser sight, to erase it.

**200-230** If key 0 has been pressed, then fire from the laser base to the centre of the sight.

**250** Prints the score at the bottom of the screen, then checks if all the missiles have been destroyed or have hit their targets (variable TOTE).

**260-290** The main loop which controls missile flight. If a missile has been destroyed or has hit a target, then the next missile is tested.

**300-320** Calculate from the angle of the trajectory, the next missile position. These values are then stored in array M for use in the next pass through the loop. The previously plotted position of the missile is checked using the POINT function, and if the missile is not present then it must have been destroyed. An element of array M is then set to eight to indicate the missile has been destroyed. The program then jumps to the routine which draws the missile explosion.

**340** This routine uses the CIRCLE function to indicate that a missile has been destroyed.

**350** Check if the missile has reached the ground, if so print a mushroom cloud at the position immediately below this. Then set the element in the target array B to zero.

**360** If a key is being pressed, and the laser base is still present, the program calls the routine which moves the laser sight.

**370-380** Check if the score has exceeded 1000 points. If it has, the PAPER, INK and border colours are re-set to represent night-time. If a value of 2000 has been scored, change the colours back to represent daytime. During each of these routines, a GOSUB is

executed to reset the screen and print six more cities.

**400** If all the cities have been destroyed (variable FLAG = 0), or the base has been destroyed, then GO TO the end of game routine at line 730.

**410-420** Increases the rate at which the missiles descend, then clears the screen of missile tracks.

**430-470** Read and install the user defined graphics.

**480-550** Randomly select a start and finish position for each missile, checking first that the finishing position is a target. Then calculate the angle of descent of each missile.

**560-590** Dimension arrays for the cities and laser base, print the cities and base on the screen.

**600-720** Instructions.

**730-800** The end of game routine, where the score and high score are printed.

```
10 LET HISCORE=0: GO TO 600
20 RESTORE : PAPER 5: BORDER 5
3 CLS
40 LET N=6: LET SCORE=0: LET S
=124: LET X1=19: LET Y1=15: LET
X2=X1: LET Y2=Y1
50 LET TAG=0: LET FLAG=7: LET
FIRE=0: LET YY=175: LET LEV=6: L
ET T=0: DIM M(6,6): DIM T(7): LE
T N=0
60 LET LABEL=0: LET RK=0: LET
BK=5: LET BAS=1: LET GR=3
70 GO SUB 450: GO SUB 560
80 REM SET UP BASES AND ROCKET
ATTACK
90 GO SUB 480
100 GO TO 250
110 REM PRINT AT 21,0; INK 4; B
*
120 IF TAG=0 THEN PRINT AT X1,
Y1; OVER 1; "+": LET TAG=1
130 REM CHECK KEY PRESS
140 IF INKEY$="Q" OR INKEY$="q"
THEN LET X1=X1-1
150 IF INKEY$="A" OR INKEY$="a"
THEN LET X1=X1+1
```



```

150 IF INKEY$="0" OR INKEY$="o"
THEN LET Y1=Y1-1
160 IF INKEY$="P" OR INKEY$="p"
THEN LET Y1=Y1+1
170 IF X1<2 OR X1>20 THEN LET
X1=2*(X1<=2)+20*(X1>20)
180 IF Y1<1 OR Y1>31 THEN LET
Y1=1*(Y1<1)+31*(Y1>31)
190 PRINT AT X1,Y1; OVER 1; "+":
PAUSE 7: PRINT AT X2,Y2; OVER 1
; "+": REM FIRE CONTROL CURSOR
200 LET X2=X1: LET Y2=Y1: REM S
ET FIRE FROM FIRST REMAINING BAS
E
210 IF INKEY$="0" THEN LET FIR
E=1: REM FIRE
220 IF INKEY$="0" THEN FOR K=1
TO 2: PLOT OVER 1; INK 2; S,8:
DRAW OVER 1; INK 2; ((Y1*8)-S)+4
,((20-X1)*8)+4: FOR L=1 TO 5: BE
EP .01,25+L: NEXT L: NEXT K: PRI
NT PAPER 6; INK 2; AT X1,Y1; CHR$
145: BEEP .1,25: PRINT PAPER 5
; INK 0; AT X1,Y1; " ": PRINT AT X
1,Y1; OVER 1; "+"
230 RETURN
240 RETURN
250 PRINT #1; AT 1,10; "SCORE "; S
CORE: IF TOTE=0 THEN GO TO 420
260 FOR J=1 TO 6
270 IF M(J,1)=8 THEN GO TO 390
280 IF M(J,1)<=8 THEN LET M(J,
1)=8: GO TO 390
290 LET YY=M(J,1)
300 LET P=175-M(J,1): LET XX=M(
J,2)+(P*TAN (M(J,4))): PLOT INK
RK; XX,M(J,1): BEEP .0005,45
310 IF M(J,1)<170 AND POINT (M(
J,5),M(J,6))=0 THEN GO TO 340
320 LET M(J,5)=XX: LET M(J,6)=M
(J,1): LET M(J,1)=M(J,1)-LEVEL
330 GO TO 350

```

```

340 FOR O=1 TO 2: FOR K=1 TO 3:
CIRCLE PAPER SK; INK 6; OVER 1
; XX,M(J,1),K: BEEP .003,15: NEXT
K: NEXT O: LET TOTE=TOTE-1: LET
M(J,1)=-1: LET SCORE=SCORE+25
350 IF M(J,1)<=8 AND M(J,1)<>-1
THEN LET TOTE=TOTE-1: LET XX=(
XX-4)/8: PRINT PAPER SK; INK 2;
AT 21,XX; CHR$ 147: FOR K=1 TO 4:
BEEP .2,65: NEXT K: PAUSE 50: P
RINT PAPER SK; INK GR; AT 21,XX;
" ": LET M(J,1)=-1: IF B(XX)<>0
THEN LET B(XX)=0: LET FLAG=FLAG
-1
360 IF INKEY$<>" " AND B(15)<>0
THEN GO SUB 100
370 IF SCORE=1000 AND LABEL=0 T
HEN LET LABEL=1: LET TAG=0: LET
FLAG=7: LET T=0: LET SK=0: LET
TAG=0: LET RK=7: LET BAS=5: LET
GR=7: PAPER 0: INK 7: BORDER 0:
CLS : GO SUB 560: GO TO 420
380 IF SCORE=2000 AND LABEL=1 T
HEN LET LABEL=0: LET FLAG=7: LE
T T=0: LET SK=5: LET RK=0: LET B
AS=1: LET GR=3: PAPER 5: INK 0:
BORDER 5: LET TAG=0: CLS : GO SU
B 560: GO TO 420
390 NEXT J
400 IF FLAG<=0 OR B(15)=0 THEN
GO TO 730
410 LET LEVEL=LEVEL+.35: GO TO
250
420 FOR J=0 TO 20: PRINT AT J,0
; ,,: NEXT J
430 FOR J=1 TO 6: LET M(J,1)=0:
LET M(J,2)=0: LET M(J,3)=0: LET
M(J,4)=1: LET M(J,5)=1
440 GO SUB 480: GO TO 250
450 LET N=4: FOR J=1 TO N: READ
A: FOR K=0 TO 7: READ B: POKE U
SR CHR$ (A)+K,B: NEXT K: NEXT J

```



```

460 DATA 144,16,16,16,16,56,124
,254,254,145,138,64,20,192,21,64
,10,65,146,2,2,18,26,94,127,255,
255,147,60,82,181,239,153,24,60,
126
470 RETURN
480 LET TAG=0: LET LEVEL=LEV: L
ET TOTE=6: LET YY=175: FOR J=1 T
O 6
490 LET ST=(RND*255)
500 LET RAN=INT (RND*7)+1: LET
F1=T(RAN)
510 IF B(F1)=0 THEN GO TO 500
520 LET F=(F1*8)+4
530 LET Z=F-ST: LET L=SQR (YY^2
+(Z*Z)): LET ANGLE=ASN (Z/L)
540 LET M(J,1)=YY: LET M(J,2)=S
T: LET M(J,3)=F: LET M(J,4)=ANGL
E
550 NEXT J: RETURN
560 DIM B(32): DIM D$(32)
570 FOR J=3 TO 29 STEP 5: LET T
=T+1: PRINT PAPER SK; INK GR; AT
21,J;CHR$ 146: LET B(J)=1: LET
T(T)=J: NEXT J
580 PRINT PAPER SK; INK BAS; AT
21,15;CHR$ 144: LET B(15)=3: LE
T T(7)=15
590 RETURN
600 PAPER 7: INK 0: BORDER 7: C
LS :
610 PRINT AT 0,7; BRIGHT 1;" MI
SSILE DEFENDER ": PRINT
620 PRINT "YOU ARE THE COMMANDE
R OF THE LAST LASER BASE ON E
ARTH. YOU ": PRINT "ARE DEFENDIN
G FOUR MAJOR CITIES AND YOUR MIS
SION IS TO DESTROY THE INCOMING
MISSILES."
630 PRINT : PRINT "YOU DO THIS
BY MOVING THE LASER SIGHTS AND F
IRING, USING THESE KEYS:" PRIN

```

```

T : PRINT " Q=UP": PRI
NT " A=DOWN": PRINT "
P=RIGHT": PRINT "
O=LEFT": PRINT "
O=FIRE": PRINT
635 PRINT "YOU MUST PLACE YOUR
SIGHTS AS CLOSE TO THE HEAD OF
THE MISSILE": PRINT "AS POSSIBL
E TO DESTROY IT."
650 PRINT #1; AT 1,3; "PRESS ANY
KEY TO CONTINUE": IF INKEY$="" T
HEN GO TO 650
660 CLS
665 PRINT "WHEN YOUR LASER OR A
LL OF THE CITIES HAVE BEEN DES
TROYED THE GAME ENDS.": PRINT :
PRINT "IF YOU REACH A SCORE OF
1000": PRINT "THEN NIGHT WILL FA
LL AND YOU"
670 PRINT "WILL BE GIVEN ANOTHE
R 4 CITIES.": PRINT : PRINT "AT
2000 POINTS, DAY BREAKS AND": PR
INT "YOU WILL BE GIVEN ANOTHER F
OUR CITIES. (IF YOU LAST THAT L
ONG!)"
690 PRINT : PRINT "YOU SCORE 25
POINTS FOR EVERY MISSILE. THE
MISSILES ARE GUIDED AND WILL CON
VERGE ONTO REMAINING TARGETS."
700 PRINT : PRINT "YOUR SCORE W
ILL BE DISPLAYED AT THE BOTTOM O
F THE SCREEN, AND YOUR HIGEST
SCORE WILL BE": PRINT "RETAINED
BETWEEN GAMES."
710 PRINT #1; AT 1,5; "PRESS ANY
KEY TO PLAY": IF INKEY$="" THEN
GO TO 710
720 GO TO 20
730 PAPER 6: INK 1: BORDER 6: C
LS
740 IF HISCORE<SCORE THEN LET
HISCORE=SCORE

```



# OUTLAW

Original program by M. J. Smith

```
750 PRINT AT 3,11;"HI-SCORE";AT
5,14-(LEN (STR$ (HIScore)))/2;H
IScore
760 PRINT AT 7,12;"SCORE";AT 9,
14-(LEN (STR$ (SCORE)))/2;SCORE
770 PRINT AT 15,0;" Do you wish
to try again Y/N": FOR J=0 TO 3
1: PRINT AT 16,J;CHR$ 131: NEXT
J
780 IF INKEY$="Y" OR INKEY$="y
" THEN GO TO 20
790 IF INKEY$="N" OR INKEY$="n
" THEN PRINT AT 18,13;"Bye": F
OR K=1 TO 6: BEEP .005,15+K: NEX
T K: STOP
800 LET X=RND*31: PRINT INK 2;
AT 15,X;CHR$ 147: PAUSE 30: PRIN
T AT 15,X;" ": BEEP .1,(RND*50)+
10: GO TO 780
810 STOP
```

This is a fast wild west game in which you adopt the role of Sheriff of Dead Gulch! You must rid your town of a gang of ruthless outlaws, but it's difficult as your trigger finger is rather rusty.

You will be given three practice sessions in which to improve your aim, by shooting bottles off the top of a wall. Try to obtain the best possible score in the lowest time, because then you will have to face the outlaws!

There are three levels of skill in this game, the harder the level the less time you will have to beat each outlaw. You have three lives with which to score the most points, you may also choose the number of bullets you will need for each outlaw. Can you earn title 'One Shot Sheriff'? To move and fire use the following keys:

Q - Left  
W - Right  
0 - Fire

## Program Description

**1-67** Set screen PAPER, INK and BORDER colours, then POKE to force CAPS LOCK. Set initial values of variables.

**70-115** Create string arrays to represent the wall and bottles.

**200-250** Print introduction to the outlaw routine.

**1055-1150** Print the practice routine screen, and the sheriff. Print the score and best time.

**2030-2200** Move the sheriff left or right in response to a key press, then increment the time counter (T) and print the time and score.

**3020-3050** Print warning message.

**3070-3104** These lines clear the screen, ask the player to input the skill level and the number of bullets required, and finally set the variables to register the choices made.

**3105-3117** Print the time, bullets left, lives left and score.

**3117-3125** Print the cacti.



**3130-3152** Print the number of outlaws to be faced and then check the time has not run out.

**3160-3250** Print the sheriff and outlaws on the screen. Move the outlaw randomly, and the sheriff in response to a key press.

**5000-5028** Allows the sheriff and the outlaw to fire. If a hit is detected, then the outlaw is replaced with an image of upturned feet.

**5030-5099** The scores are updated and printed. There is a check to see if all the lives have been used up.

**5100-5180** The end of game routine, with an option for another game.

**5200-5290** If another game is requested, the player can choose another practice or 500 points.

**5300-5390** Routine to print the score and the high score.

**7000-7200** Allows the sheriff to shoot the outlaw. There is a test to detect a hit. Both score and time are incremented if a hit is scored, and then printed.

**7310-7900** Instructions.

**8500-9990** Read and install the UDG characters (A-U).

```

1 BORDER 0: PAPER 0: INK 7: C
LS
2 LET HIG=0: GO SUB 7300
3 BORDER 0: PAPER 0: INK 7: C
LS : LET P=1: LET TT=0
4 POKE 23658,8
5 LET BU=6
6 LET LI=3
8 LET OUT=0: LET SCO=0
10 REM *****
25 CLS
31 LET X=14: LET Y=19
32 IF P=3 THEN GO TO 3000
45 LET A1=1
60 LET M=17
67 LET T=0
70 LET B$="  G  G  G  G  G  G
G  G  G  G "
80 LET C$="  H  H  H  H  H  H
H  H  H  H "
85 LET D$="IJJIJJJJJJJJJJJJJJ

```

```

JIJJJJJJJJJJ"
87 LET E$="IIJJJJJJJJJJJJJJJJ
IJJJJJJJJJJJ"
100 LET OD=3: LET OA=INT (RND*2
0)+8
110 LET EOD=3: LET EOA=OA
115 CLS
200 PRINT INK 2;AT 2,13;"T H E
"
210 PRINT INK 2;AT 5,9;"O U T
L A W S"
220 PRINT INK 2;AT 7,5;"A R E
C O M I N G !"
230 FOR J=1 TO 15: PLOT INK 7;
RND*250+5,RND*100+5: BEEP .05,5:
PAUSE 5: NEXT J
250 BEEP .5,10: BEEP .5,20: BEE
P .5,15
500 CLS
1010 REM ***** SET UP SCREEN *****
1020 REM *****
1055 PRINT INK 4;AT 4,0;B$;AT 5
,0;C$
1060 PRINT INK 2; PAPER 6;AT 6,
0;D$
1070 PRINT INK 2; PAPER 6;AT 7,
0;E$
1075 PRINT INK 2; PAPER 6;AT 8,
0;D$
1080 PRINT INK 2; PAPER 6;AT 9,
0;E$
1115 PRINT AT 0,20;"SCORE =";SCO
;" "
1116 PRINT AT 0,6;" "
1117 PRINT AT 0,0;"TIME =";T
1120 PRINT AT 1,0;"BEST TIME =";
TT
1150 PRINT INK 5;AT Y,X;" AB "
1160 PRINT INK 5;AT Y+1,X;" CD
"
1170 PRINT INK 5;AT Y+2,X;" EF
"

```



```

1200 FOR H=1 TO 100: NEXT H
2000 REM *****
2010 REM ***** MOVE *****
2020 REM *****
2030 PRINT AT 1,0; "BEST TIME =";
TT; " "
2050 LET T=T+.1
2055 PRINT AT 0,0; "TIME ="; T
2056 PRINT AT 1,0; "BEST TIME =";
TT; " "
2057 IF T>=29 THEN LET SCO=SCO:
GO TO 7080
2060 LET A=X: LET B=Y
2065 IF INKEY$="0" THEN GO TO 7
000
2070 IF INKEY$="Q" AND X>0 THEN
LET X=X-1
2080 IF INKEY$="W" AND X<28 THEN
LET X=X+1
2095 IF A<>X OR B<>Y THEN PRINT
AT B,A; " "
2100 PRINT INK 5; AT Y,X; " AB "
2110 PRINT INK 5; AT Y+1,X; " CD
"
2120 PRINT INK 5; AT Y+2,X; " EF
"
2200 GO TO 2000
3000 REM *****
3005 REM *****
3010 REM *****
3020 PRINT AT 11,0; FLASH 1; "
YOUR PRACTICE IS OVER "
3030 PRINT AT 12,0; FLASH 1;
" PREPARE TO MEET
"
3040 PRINT INK 2; FLASH 1; AT 15
,0; " THE OUTLAWS
"
3050 FOR N=1 TO 400: NEXT N
3060 BEEP .05,30: BEEP .006,20:
BEEP .5,10
3070 BORDER 0: PAPER 0: INK 7: C

```

```

LS
3075 PRINT AT 10,7; "ENTER SKILL
LEVEL "
3077 PRINT INK 2; AT 12,9; "1 = D
IFFICULT"; INK 6; AT 14,9; "2 = MO
DERATE"; INK 4; AT 16,9; "3 = EASY
"
3078 PAUSE 0
3080 IF INKEY$="1" THEN LET SK=
20: GO TO 3086
3082 IF INKEY$="2" THEN LET SK=
30: GO TO 3086
3084 IF INKEY$="3" THEN LET SK=
40: GO TO 3086
3085 GO TO 3078
3086 BEEP .05,20: BEEP .5,30: BE
EP .5,25
3088 CLS
3090 PRINT AT 10,0; "ENTER No. OF
BULLETS (1-6 Inc.)"
3093 PAUSE 0
3094 IF INKEY$<"1" OR INKEY$>"6"
THEN GO TO 3092
3095 IF INKEY$="1" THEN LET EBU
=1
3096 IF INKEY$="2" THEN LET EBU
=2
3097 IF INKEY$="3" THEN LET EBU
=3
3098 IF INKEY$="4" THEN LET EBU
=4
3099 IF INKEY$="5" THEN LET EBU
=5
3100 IF INKEY$="6" THEN LET EBU
=6
3104 BEEP .5,20: BEEP .5,30: PRI
NT AT 10,0; "
"
3105 LET BU=EBU: LET Y=18
3106 LET T=0: LET TT=0
3107 LET X=14
3108 LET LI=3: LET OUT=0

```



```

3110 PRINT AT 0,0;"TIME=";T;"
"
3111 PRINT AT 0,10;"UP TO:";SK
3112 PRINT AT 1,0;"LIVES=";LI
3113 PRINT AT 0,20;"SCORE=";SCO
3115 PRINT AT 1,18;"OUTLAWS=";O
UT
3117 PRINT AT 21,8;"BULLETS LEFT
= ";BU
3120 PRINT INK 4;AT 9,2;"P";AT
10,2;"S";AT 11,0;"P S P";AT 12,0
;"NTS S";AT 13,2;"STU";AT 14,2;"
S";AT 15,2;"S";AT 15,2;"S"
3122 PRINT INK 4;AT 7,29;"P";AT
8,27;"P S";AT 9,27;"NTS P";AT 1
0,29;"STU";AT 11,29;"S";AT 12,29
;"S"
3125 FOR H=1 TO 20: NEXT H
3130 PRINT AT 21,8;"BULLETS LEFT
= ";BU
3140 LET A=X: LET B=Y
3145 PRINT AT 21,8;"BULLETS LEFT
= ";BU
3147 PRINT AT 0,10;"UP TO:";SK
3148 PRINT AT 1,18;"OUTLAWS=";O
UT
3149 PRINT AT 1,0;"LIVES=";LI
3150 LET T=T+1
3151 PRINT AT 0,0;"TIME=";T;" "
3152 IF T>=SK THEN PRINT AT 10,
8;"YOU'RE OUT OF TIME": FOR H=1
TO 50: NEXT H: GO TO 5095
3153 PRINT AT 0,0;"TIME=";T;" "
3155 IF INKEY$="0" THEN GO TO 5
000
3160 IF INKEY$="Q" AND X>4 THEN
LET X=X-1
3170 IF INKEY$="W" AND X<24 THEN
LET X=X+1
3180 IF A<>X OR B<>Y THEN PRINT
AT B,A;" "
3185 PRINT AT Y-1,X;" "

```

```

3190 PRINT INK 5;AT Y,X;" AB
"
3200 PRINT INK 5;AT Y+1,X;" CD
"
3210 PRINT INK 5;AT Y+2,X;" EF
"
3212 PRINT AT EOD,EOA;" ";AT EO
D+1,EOA;" ";AT EOD+2,EOA;" "
3220 PRINT INK 2;AT OD,OA;"AB"
3230 PRINT INK 2;AT OD+1,OA;"CD
"
3240 PRINT INK 2;AT OD+2,OA;"EF
"
3245 LET EOD=OD: LET EOA=OA
3250 LET E=INT (RND*2)+1
3260 IF E=2 THEN IF OA<25 THEN
LET OA=OA+1
3270 IF E=1 THEN IF OA>4 THEN
LET OA=OA-1
4999 GO TO 3140
5000 REM ** OUTLAW FIRE & YOU **
5001 LET BU=BU-1
5002 PRINT AT 21,8;"BULLETS LEFT
= ";BU;" "
5003 PRINT INK 5;AT Y+1,X+2;"L"
; INK 5;AT Y,X+2;"K"
5005 BEEP .009,10: BEEP .09,30
5015 IF SCREEN$(4,X+2)<>" " THE
N LET OUT=OUT+1
5020 IF SCREEN$(4,X+2)<>" " THE
N IF SK>15 THEN IF OUT=50 THEN
LET SK=15: GO TO 5028
5022 IF SCREEN$(4,X+2)<>" " THE
N IF SK>15 THEN IF OUT=40 THEN
LET SK=SK-5: GO TO 5028
5025 IF SCREEN$(4,X+2)<>" " THE
N IF SK>15 THEN IF OUT=30 THEN
LET SK=SK-5: GO TO 5028
5026 IF SCREEN$(4,X+2)<>" " THE
N IF SK>15 THEN IF OUT=20 THEN
LET SK=SK-5: GO TO 5028
5027 IF SCREEN$(4,X+2)<>" " THE

```



```

N IF SK>15 THEN IF OUT=10 THEN
  LET SK=SK-5
5028 IF SCREEN# (4,X+2)<>" " THE
N PRINT OVER 1; INK 2; AT 4,X+2
;"+": BEEP .007,30: BEEP .5,20:
BEEP .05,30: BEEP .05,40: BEEP .
05,35: PRINT AT OD,OA-1;" ";
AT OD+1,OA-1;" "; AT OD+2,OA-
1;" "; INK 2; AT OD+2,OA-1;"
OR "; LET SCO=SCO+100: PRINT AT
0,20;"SCORE =";SCO: LET BU=EBU:
LET T=0: FOR H=1 TO 40: NEXT H:
PRINT AT OD+2,OA-2;" ": LET
  OA=INT (RND*20)+8
5030 PRINT AT 0,10;"UP TO:";SK
5040 PRINT AT 1,18;"OUTLAWS =";O
UT
5050 PRINT AT 0,20;"SCORE =";SCO
5055 IF BU=0 THEN BEEP .04,20:
BEEP .02,30: BEEP .07,10: BEEP .
09,30: BORDER 2: BEEP .08,40: BO
RDER 0: LET BU=EBU: BEEP .009,20
: BEEP .05,10: LET LI=LI-1: IF L
I=0 THEN PRINT AT 1,0;"LIVES ="
;LI: GO TO 5100
5090 GO TO 3212
5095 BEEP .04,20: BEEP .02,30: B
EEP .07,10: BEEP .09,30: BORDER
2: BEEP .08,40: BORDER 0: LET BU
=EBU: BEEP .009,20: BEEP .05,10:
  LET LI=LI-1: IF LI=0 THEN PRIN
T AT 1,0;"LIVES =";LI: GO TO 510
0
5096 LET T=0
5098 PRINT AT 10,7;"
"
5099 GO TO 3140
5100 REM ***** YOUR DEAD *****
5110 PRINT INK 2; PAPER 7; FLAS
H 1; AT 9,0;" YOU HAVE BEEN
BEATEN "
5120 PRINT INK 2; PAPER 7; FLAS

```

```

H 1; AT 10,0;" YOU WEREN'T QUITE
QUICK ENOUGH "
5130 PRINT INK 2; PAPER 7; FLAS
H 1; AT 11,0;" WOULD YOU LIKE TO
TRY AGAIN "
5140 PRINT INK 2; PAPER 7; FLAS
H 1; AT 12,0;" (Y/N)
"
5150 PAUSE 0
5160 IF INKEY#="Y" THEN GO TO 5
200
5170 IF INKEY#="N" THEN STOP
5180 GO TO 5150
5200 REM ***** YES *****
*
5210 PRINT INK 2; PAPER 7; FLAS
H 1; AT 9,0;" DO YOU REQUIRE A
PRACTICE "
5220 PRINT INK 2; PAPER 7; FLAS
H 1; AT 10,0;" OR JUST TAKE 5
00 POINTS "
5230 PRINT INK 2; PAPER 7; FLAS
H 1; AT 11,0;" PRESS 'P' FOR A
PRACTICE "
5240 PRINT INK 2; PAPER 7; FLAS
H 1; AT 12,0;" OR 'F' FOR 500
POINTS "
5245 BEEP .5,20: BEEP .5,30
5250 PAUSE 0
5260 IF INKEY#="F" THEN BEEP .5
,30: BEEP .5,40: BEEP .5,35: LET
GO=1: GO TO 5300
5270 IF INKEY#="P" THEN BEEP .5
,30: BEEP .5,40: BEEP .5,35: LET
GO=2: GO TO 5300
5290 GO TO 5250
5300 REM ***** HIGH SCORE *****
5310 CLS
5320 PRINT AT 5,3;"TODAY'S HIGHE
ST SCORE IS "; FLASH 1; INK 0; P
APER 7; HIG
5330 PRINT AT 8,3; FLASH 1; INK

```



```

2; PAPER 6; "YOU"; FLASH 0; INK 7
; PAPER 0; " SCORED ";SCO;" POINT
S"
5340 IF SCO>HIG THEN PRINT AT 1
1,0;"THEREFORE YOU NOW HAVE THE
";AT 13,0;"HIGHEST SCORE"
5350 IF SCO<=HIG THEN PRINT AT
11,0;"BAD LUCK TRY AGAIN"
5355 IF SCO>HIG THEN LET HIG=SC
0
5360 FOR H=1 TO 600: NEXT H
5370 IF GO=1 THEN LET SCO=500:
GO TO 3070
5380 IF GO=2 THEN GO TO 3
5390 GO TO 5320
6997 REM
7000 REM ** SHOOT & EXPLOSION **
7010 PRINT INK 5;AT 19,X+2;"K";
AT 20,X+2;"L"
7020 IF SCREEN$(5,X+2)=" " THEN
PRINT INK 2;AT 5,X+2;"O": BEE
P .005,10: BEEP .05,-10: FOR H=1
TO 5: NEXT H: PRINT AT 5,X+2;"
"
7060 IF SCREEN$(5,X+2)<>" " THE
N PRINT INK 4;AT 4,X+2;"#";AT
5,X+2;"#": BEEP .005,10: BEEP .0
05,30: BEEP .001,50: LET A1=A1+1
7065 FOR H=1 TO 10: NEXT H
7070 PRINT AT 4,X+2;" ";AT 5,X+2
;" "
7105 IF T>=29 THEN LET P=P+1
7110 IF T>=29 THEN IF P=1 THEN
LET TT=30: LET P=P+1
7120 IF A1=11 THEN LET P=P+1
7130 IF A1=11 THEN IF P=2 THEN
LET TT=T
7135 PRINT AT 1,0;"BEST TIME =";
TT;" "
7140 IF A1=11 THEN IF T<TT THEN
LET TT=T
7145 IF A1=11 THEN IF T>TT THEN

```

```

LET TT=TT
7147 IF A1=11 AND T<6 THEN LET
SCO=SCO+500: GO TO 7163
7150 IF A1=11 AND T<7 THEN LET
SCO=SCO+100: GO TO 7163
7152 IF A1=11 AND T<10 THEN LET
SCO=SCO+50: GO TO 7163
7154 IF A1=11 AND T<12 THEN LET
SCO=SCO+30: GO TO 7163
7156 IF A1=11 AND T<15 THEN LET
SCO=SCO+20: GO TO 7163
7158 IF A1=11 AND T<20 THEN LET
SCO=SCO+10: GO TO 7163
7159 IF A1=11 AND T<30 THEN LET
SCO=SCO+5: GO TO 7163
7160 IF T>=29 THEN LET SCO=SCO:
BEEP .5,20: BEEP .5,30: BEEP .5
,35: FOR H=1 TO 50: NEXT H: GO T
O 7163
7163 PRINT AT 1,0;"BEST TIME =";
TT;" "
7165 PRINT AT 0,20;"SCORE =";SCO
7170 IF P=4 THEN GO TO 3000
7180 IF A1=11 THEN GO TO 45
7190 IF T>=29 THEN GO TO 45
7200 GO TO 2000
7300 CLS : PRINT AT 0,8; INK 6;
FLASH 1;"O U T L A W S"
7310 PRINT INK 7;AT 3,0;"This i
s a fast wild west game in whi
ch you play the role of "
7320 PRINT INK 7;"the Sheriff o
f Dead Gulch! You must rid your
town of a gang of ": PRINT INK
7;"ruthless outlaws, but you ar
e very much out of practice."
7330 PRINT INK 7;"You are given
three practice sessions in w
hich to improve your aim. In
practice you have to shoot ten
bottles off the top of a wall";
7340 PRINT INK 7;". Try to get

```



```

the best possible time and score,
because then you will
have to face the:"
7350 PRINT TAB (8); INK 6;"O U T
L A W S": PRINT AT 20,3;"PRESS
ANY KEY TO CONTINUE": PAUSE 0
7360 CLS : PRINT AT 0,8; INK 6;
FLASH 1;"O U T L A W S": PRINT :
PRINT
7370 PRINT "There are three leve
ls of skill,(1-3), the harder th
e level the less time you will h
ave to shoot."
7380 PRINT " You will also have
a choice of how many bullets you
start with.Do you think you can
earn the title ONE SHOT SHERI
FF?"
7390 PRINT : PRINT "To move and
use the following keys:-"
7400 PRINT TAB (7);"Key Q ....Mo
ve left": PRINT TAB (7);"Key W .
...Move right": PRINT TAB (7);"K
ey 0 ....Fire"
7410 GO SUB 8500: PRINT AT 20,3;
"PRESS ANY KEY TO START": PAUSE
0: RETURN
7900 STOP
8500 REM *****
8505 REM ***** GRAPHICS *****
8507 REM ***** MAN *****
8510 REM *****
8520 FOR J=0 TO 7
8530 READ Q
8540 POKE USR "A"+J,Q
8550 NEXT J
8560 DATA 3,3,15,3,3,1,3,15
8570 FOR J=0 TO 7
8580 READ Q
8590 POKE USR "B"+J,Q
8600 NEXT J
8610 DATA 192,192,240,192,192,12

```

```

8,192,240
8620 FOR J=0 TO 7
8630 READ Q
8640 POKE USR "C"+J,Q
8650 NEXT J
8660 DATA 31,63,55,55,55,39,15,1
5
8670 FOR J=0 TO 7
8680 READ Q
8690 POKE USR "D"+J,Q
8700 NEXT J
8710 DATA 248,252,236,236,236,22
8,240,240
8730 FOR J=0 TO 7
8740 READ Q
8750 POKE USR "E"+J,Q
8760 NEXT J
8770 DATA 7,14,14,14,14,14,6,30
8780 FOR J=0 TO 7
8790 READ Q
8800 POKE USR "F"+J,Q
8810 NEXT J
8820 DATA 224,112,112,112,112,11
2,96,120
8825 REM ***** BOTTLE *****
8830 FOR J=0 TO 7
8840 READ Q
8850 POKE USR "G"+J,Q
8860 NEXT J
8870 DATA 24,60,60,60,60,126,255
,255
8880 FOR J=0 TO 7
8890 READ Q
8900 POKE USR "H"+J,Q
8910 NEXT J
8920 DATA 189,129,129,129,129,12
9,195,126
8925 REM ***** BRICKS *****
8930 FOR J=0 TO 7
8940 READ Q
8950 POKE USR "I"+J,Q
8960 NEXT J

```



```

8970 DATA 127,127,127,127,127,12
7,127,0
8980 FOR J=0 TO 7
8990 READ Q
9000 POKE USR "J"+J,Q
9010 NEXT J
9020 DATA 255,255,255,255,255,25
5,255,0
9025 REM ***** MAN FIRES *****
9030 FOR J=0 TO 7
9040 READ Q
9050 POKE USR "K"+J,Q
9060 NEXT J
9070 DATA 192,192,248,192,194,13
4,198,246
9090 FOR J=0 TO 7
9100 READ Q
9110 POKE USR "L"+J,Q
9120 NEXT J
9130 DATA 252,248,224,224,224,22
4,240,240
9135 REM ***** EXPLOSIONS *****
9140 FOR J=0 TO 7
9150 READ Q
9160 POKE USR "M"+J,Q
9170 NEXT J
9180 DATA BIN 01000010,BIN 00100
100,BIN 00000000,BIN 10000100,BI
N 01001000,BIN 01000000,BIN 0000
0101,BIN 10010001
9190 FOR J=0 TO 7
9200 READ Q
9210 POKE USR "N"+J,Q
9220 NEXT J
9230 DATA 255,239,241,207,115,12
4,63,15
9240 FOR J=0 TO 7
9250 READ Q
9260 POKE USR "O"+J,Q
9270 NEXT J
9280 DATA 32,9,64,18,144,74,36,2
4

```

```

9290 FOR J=0 TO 7
9300 READ Q
9310 POKE USR "P"+J,Q
9320 NEXT J
9330 DATA 60,126,215,247,253,213
,213,215
9335 REM ***** OUTLAWS FEET *****
9340 FOR J=0 TO 7
9350 READ Q
9360 POKE USR "Q"+J,Q
9370 NEXT J
9380 DATA 224,240,240,248,126,30
,14,0
9390 FOR J=0 TO 7
9400 READ Q
9410 POKE USR "R"+J,Q
9420 NEXT J
9430 DATA 7,15,15,31,126,120,112
,0
9440 FOR J=0 TO 7
9450 READ Q
9460 POKE USR "S"+J,Q
9470 NEXT J
9480 DATA 189,189,223,215,215,24
5,181,191
9490 FOR J=0 TO 7
9500 READ Q
9510 POKE USR "T"+J,Q
9520 NEXT J
9530 DATA 255,143,248,39,255,225
,159,255
9540 FOR J=0 TO 7
9550 READ Q
9560 POKE USR "U"+J,Q
9570 NEXT J
9580 DATA 255,223,55,235,150,254
,60,240
9990 RETURN

```



# MICRO- MOUSE



Original program by M. Ashwin

This micro has a mouse! It lives under the PCB, and the computer feeds it cheese. The cheese is put at the bottom right-hand corner of the screen and the mouse travels from the top left-hand corner to collect it.

The idea is to create a maze between these two points, from which the mouse will never escape. To create the maze, you use the cursor keys (5-8) to move a pointer around the screen. A blue line will be printed as the pointer moves round, representing the tunnel of the maze.

The maze must start the top left-hand corner of the screen and finish at the bottom right-hand corner. Once you have completed your masterpiece, press key Q to start the mouse.

The program has a demonstration routine, which if selected will draw a simple maze and set the mouse the task of solving it. In addition once you have created a maze you will have the option of viewing it from the mouse's point of view. The number of goes or moves the mouse makes is displayed at the bottom of the screen. At the end of each run, the number of goes taken, along with the current lowest number of goes will be printed.

## Program Description

10 POKE to force the machine to work in capitals.

20 Sets variables for first run of program. The variable SCORE is set

very high so that on the first run the mouse score will re-set to a lower value, against which all subsequent scores will be compared.

40-60 Dimension and set up arrays. Initialize the variables used for each run.

70-90 Set the PAPER, INK and BORDER colours, then zero all elements of the maze array M(x,y). Finally draw the boundary of the maze.

100-120 Ask if the player wishes to see a demonstration maze.

150-260 Move the cursor around the screen, in response to the key presses, printing a blue square. When key Q is pressed GO TO the 'mouse view' routine.

300-390 Check to see if the maze has been finished. Ask if the user would like to view the maze from the mouse's viewpoint. If the answer is yes (Y) then print the array M(x,y) on to the screen. Values of one in this array represent the tunnels of the maze, and if encountered during the loop will cause a block of 'green cheese' to be printed on the screen.

400-630 This routine tests the contents of the maze array M(x,y), and if a value of one is encountered, will allow the mouse to move to that location on the screen. The image of the mouse printed on the screen is controlled by the direction in which the mouse is moving, and the correct character from the mouse string M\$ is selected.

650-730 This is the end of game routine which will print a message for help if the mouse cannot get out of the maze. If the mouse does succeed in getting the cheese, then a message is printed along with the number of goes taken and the current low score.

740-930 This is the random maze generating routine which will print a simple maze on to the screen, then set the mouse the task of solving it.

950-990 Read and install the UDG characters (A-E)

1000-1040 Data for the UDGs.

1050 Set up the string array M\$() to represent the four different views of the mouse, and the character representing the cheese.

1080-1200 Instructions.

```
10 POKE 23658,8: REM FORCE CAP  
5 LOCK  
20 LET TAG=0: LET M=1: LET FLA
```



```

G=0: LET SCORE=1000000
 30 GO TO 1070
 40 REM SET ARRAYS AND VARIABLE
S
 45 LET FLAG=0
 50 DIM M(30,20): DIM R(4): LET
R(1)=0: LET R(2)=1: LET R(3)=0:
LET R(4)=-1
 60 LET K$=CHR$ 17+CHR$ 3+CHR$
16+CHR$ 7+"@": LET Y=1: LET X=1:
LET Y1=Y: LET X1=X
 70 REM SET COLOURS AND ZERO MA
ZE ARRAY
 80 PAPER 6: INK 1: BORDER 1: C
LS : FOR J=1 TO 30: FOR K=1 TO 2
0: LET M(X,Y)=0: NEXT J
 90 FOR J=0 TO 31: PRINT PAPER
6: INK 1: AT 0,J: CHR$ 134: AT 21,
J: CHR$ 134: NEXT J: FOR J=0 TO 2
0: PRINT PAPER 6: INK 1: AT J,0:
CHR$ 134: AT J,31: CHR$ 134: NEXT
J
100 PRINT #1: AT 0,1: "Would you
like a demonstration Y/N"
110 IF INKEY$="" THEN GO TO 11
0
120 IF INKEY$="Y" THEN GO TO 7
40
130 REM DRAW MAZE
140 PRINT #1: AT 0,0: , , , , : PRINT
AT Y,X: K$
150 PRINT #1: AT 0,1: , , : AT 0,1: "
When you have finished the maze"
160 PRINT #1: AT 1,0: , , : AT 1,1: "
PRESS KEY Q TO START THE MOUSE"
170 LET C$=INKEY$: PAUSE 2
180 IF C$="Q" THEN GO TO 280
190 LET Y=Y+1*(C$=CHR$ 54 OR C$
=CHR$ 10)+-1*(C$=CHR$ 55 OR C$=C
HR$ 11): LET X=X+1*(C$=CHR$ 56 O
R C$=CHR$ 9)+-1*(C$=CHR$ 53 OR C
$=CHR$ 8)

```

```

200 IF Y<1 OR Y>20 THEN LET Y=
1*(Y<1)+20*(Y>20)
210 IF X<1 OR X>30 THEN LET X=
1*(X<1)+30*(X>21)
215 IF X=30 AND Y=20 THEN LET
FLAG=1
220 PRINT AT Y,X: K$
230 LET M(X1,Y1)=1
240 IF Y1=Y AND X1=X THEN GO T
O 260
250 PRINT PAPER 6: INK 1: AT Y1
,X1: CHR$ (32*(M(X1,Y1)=0)+143*(M
(X1,Y1)=1))
260 LET Y1=Y: LET X1=X: GO TO 1
70
270 REM DISPLAY MAZE ARRAY
280 IF FLAG=0 THEN INPUT "": P
RINT #1: "YOU HAVE NOT FINISHED T
HE MAZE": PAUSE 100: INPUT "": G
O TO 150
285 PRINT #1: AT 0,0: , , , , : PRINT
#1: AT 0,1: "Would you like to se
e how the": AT 1,1: "mouse views t
he maze Y/N ?"
290 IF INKEY$="" THEN GO TO 29
0
300 IF INKEY$="Y" THEN GO TO 3
30
310 IF INKEY$<>"N" THEN GO TO
290
320 GO TO 410
330 FOR J=1 TO 30: FOR K=1 TO 2
0
340 IF M(J,K)=1 THEN PRINT PA
PER 6: INK 4: AT K,J: CHR$ 148
350 NEXT K: NEXT J
360 PRINT #1: AT 0,0: , , , , : AT 0,2
: "PRESS ANY KEY TO CONTINUE": PA
USE 0
370 FOR J=1 TO 30: FOR K=1 TO 2
0
380 IF M(J,K)=1 THEN PRINT PA

```



```

PER 6; INK 1; AT K, J; CHR# 143
390 NEXT K: NEXT J
400 REM MOUSE ROUTINE
410 LET GOES=0: LET C1=0: REM M
OVE
420 PRINT PAPER 6; INK 1; AT Y,
X; CHR# 143: LET M(1,1)=1: LET M(
30,20)=1: PRINT PAPER 6; INK 1;
AT 1,1; CHR# 143: PRINT PAPER 6;
INK 4; AT 20,30; CHR# 148
430 PRINT PAPER 6; INK 7; AT 1,
1; CHR# 42
440 BEEP .2,55: LET C1=C1+1: LE
T X=1: LET Y=1: LET X1=X: LET Y1
=Y: LET COUNT=0: LET A=1: IF C1=
5 THEN GO TO 650
450 IF A=3 AND COUNT>3 THEN LE
T M(X,Y)=2: LET T=0: GO TO 460
460 IF Y<1 OR Y>20 THEN LET Y=
1*(Y<1)+20*(Y>20)
470 IF X<1 OR X>30 THEN LET X=
1*(X<1)+30*(X>20)
480 IF X1=30 AND Y1=20 THEN GO
TO 670
490 PRINT PAPER 6; INK 1; AT Y1
,X1; CHR# 143: BEEP .005,60
500 REM PRINT NUMBER OF GOES
510 LET GOES=GOES+1: PRINT #1; A
T 0,0; , , , ; AT 0,3; "GOES= "; GOES
520 REM PRINT MOUSE
530 LET X1=X: LET Y1=Y: PRINT
PAPER 1; INK 7; AT Y, X; M#(M)
540 IF M(X+(1*(X<30)),Y)=1 OR M
(X,Y+(1*(Y<20)))=1 OR M(X,Y-(1*(
Y>1)))=1 OR M(X-(1*(X>1)),Y)=1 T
HEN LET A=1
550 IF M(X,Y+(1*(Y<20)))=A THEN
LET Y=Y+1: LET M(X,Y)=3: LET
A=1: LET COUNT=0: LET M=4: GO TO
450
560 IF M(X+(1*(X<30)),Y)=A THEN
LET X=X+1: LET M(X,Y)=3: LET

```

```

A=1: LET COUNT=0: LET M=1: GO TO
450
570 IF M(X,Y-(1*(Y>1)))=A THEN
LET Y=Y-1: LET M(X,Y+1*(Y<1))=
3: LET A=1: LET COUNT=0: LET M=3
: GO TO 450
580 IF M(X-(1*(X>1)),Y)=A THEN
LET X=X-1: LET M(X,Y)=3: LET A
=1: LET COUNT=0: LET M=2: GO TO
450
590 IF X=X1 AND Y=Y1 THEN LET
COUNT=COUNT+1: LET A=3: LET M(X,
Y)=2: IF COUNT>10 THEN PRINT P
APER 6; INK 1; AT Y, X; CHR# 143: G
O TO 440
600 GO TO 450
610 IF Y1<1 OR Y1>20 THEN LET
Y1=1*(Y1<1)+20*(Y1>20)
620 IF X1<1 OR X1>30 THEN LET
X1=1*(X1<1)+30*(X1>20)
630 LET X=X1: LET Y=Y1: GO TO 4
50
640 REM END GAME ROUTINE
650 FOR J=1 TO 20: BEEP .005,65
: PAUSE 3: PRINT FLASH 1; BRIGH
T 1; AT 10,6; "HELP I CAN'T GET OU
T!!": NEXT J
660 GO TO 720
670 LET FLAG=0: IF SCORE>GOES
AND TAG<>1 THEN LET SCORE=GOES
: LET FLAG=1
680 FOR J=1 TO 60: BEEP .01,J:
PRINT FLASH 1; BRIGHT 1; AT 10,2
; "I DID IT! I GOT THE CHEESE!!":
NEXT J: FOR J=1 TO 60: BEEP .01
,61-J: NEXT J
690 IF FLAG=1 AND TAG=0 THEN
PRINT : PRINT AT 12,2; "I BEAT MY
PREVIOUS LOW SCORE"
700 IF FLAG=0 AND TAG=0 THEN
PRINT AT 12,2; "I DIDN'T BEAT MY
PREVIOUS "; AT 13,2; "SCORE"

```



```

710 IF TAG=0 THEN PRINT AT 1
4,2;"LOWEST TIME=";SCORE;AT 16,
2;"THIS TIME=";GOES
720 PRINT #1;AT 0,0;,,,,;AT 0,0
;" PRESS ANY KEY FOR ANOTHER GO
": PAUSE 0
730 LET TAG=0: LET FLAG=0: GO T
0 50
740 LET TAG=1: REM DEMO MODE
750 PRINT #1;AT 0,0;,,,,;AT 0,1
;"Please wait a moment"
760 FOR A=1 TO 30: LET M(A,1)=1
: LET M(A,20)=1: PRINT PAPER 6;
INK 1;AT 1,A;CHR$ 143;AT 20,A;C
HR$ 143: NEXT A: LET B=RND*29+1
770 FOR A=1 TO 20: LET M(B,A)=1
: PRINT PAPER 6; INK 1;AT A,B;C
HR$ 143: NEXT A:
780 FOR J=1 TO 2: LET Y=INT (RN
D*16)+3: FOR X=1 TO 30: LET M(X,
Y)=1: PRINT PAPER 6; INK 1;AT Y
,X;CHR$ 143: NEXT X: NEXT J
790 FOR J=1 TO 5: LET X=INT (RN
D*26)+3: FOR Y=1 TO RND*15: LET
M(X,Y)=1: PRINT PAPER 6; INK 1;
AT Y,X;CHR$ 143: NEXT Y: NEXT J
800 FOR A=1 TO 10
810 LET X=INT (RND*29)+1: LET Y
=INT (RND*19)+1: LET D=INT (RND*
10)+1: LET L=INT (RND*19)+1
820 IF D>5 AND M(X,Y)<>1 THEN
GO TO 810
830 IF D<5 AND M(X,Y)<>1 THEN
GO TO 810
840 IF D=5 THEN GO TO 810
850 LET L=L-1: BEEP .008,L*3
860 LET M(X,Y)=1: PRINT PAPER
6; INK 1;AT Y,X;CHR$ 143
870 IF D<5 AND Y<20 THEN LET Y
=Y+1*(Y<20)
880 IF Y=20 THEN LET L=0
890 IF D>5 AND X<30 THEN LET X

```

```

=X+1*(X<30)
900 IF X=30 THEN LET L=0
910 IF L<>0 THEN GO TO 850
920 NEXT A
930 GO SUB 410
940 REM UDG'S
950 LET G=0
960 LET G=G+1
970 FOR N=0 TO 7: READ B: POKE
USR (CHR$ (143+G))+N,B: NEXT N
980 IF G>4 THEN GO TO 1050
990 GO TO 960
1000 DATA 48,76,128,248,252,250,
127,0
1010 DATA 12,50,1,31,63,95,254,0
1020 DATA 24,60,90,126,126,126,6
0,0
1030 DATA 0,60,126,126,126,90,60
,24
1040 DATA 1,3,5,7,23,61,219,126
1050 LET M$=CHR$ 144+CHR$ 145+CH
R$ 146+CHR$ 147
1060 RETURN
1070 REM INSTRUCTIONS
1080 PAPER 6: INK 1: BORDER 6: C
LS
1090 PRINT AT 1,10;"MICROMOUSE";
AT 2,9;"-----"
1100 PRINT : PRINT "This micro h
as a mouse! It lives under the PC
B, and the computer feeds it chee
ese every day.": PRINT "The chee
se is left at the bottomright ha
nd corner of the screen."
1110 PRINT "The mouse comes out
at the top left hand corner of
the screen to collect it."
1120 PRINT "It is your task to p
revent or delay the mouse from
reaching the cheese."
1130 PRINT "To do this you must
create a maze between the top

```



# SUPALANDA

Original program by M. Housley

There are countless versions of 'Lander' but they do, nevertheless represent a very exciting and addictive type of game. In this version, you are required to land your spacecraft on one of several landing pads. The pads are in various positions on the screen and their points value reflects how difficult they are to reach. Some of the landing pads are even within caves. In addition, various belts of asteroids impede your process.

The program is very fast indeed, and you only need to guide the space ship either left or right in order to land safely. Releasing the keys will allow the lander to drop.

You may elect to use either a Kempston joystick or the keyboard. If you use the keyboard, the following keys move the spaceship:

Z - Right  
M - Left

There are four levels to beat, good luck!

## Program Description

**10-20** POKE to force lower case characters, and then set the screen colours.

**30-230** Read the data for the user defined graphics and then install them.

**240-390** Print the instructions, and then request the player to select either the keyboard or joystick.

**400-470** The variables are set to represent the number of lives (5) and the level presently being played.

**480-530** Decode the keyboard or joystick commands and set variables accordingly.

**540-570** Check for collisions or crashes.

**580-780** Print the space ship, then test to see if it has landed. If so, increment the score accordingly.

**790-800** Print the score.

```
right and the bottom left corner of the screen, from which, hopefully,"
1140 PRINT "the mouse will never escape!"
1150 GO SUB 940: PRINT : PRINT "
PRESS ANY KEY TO CONTINUE": PAUSE 0
1160 CLS : PRINT "To create the maze you have to use the cursor keys (5-8)."
```

```
1170 PRINT "Pressing them will move a cursor around the screen, when a blue line will be left behind. This forms the tunnel of the maze."
1180 PRINT "The maze must start at the top left of the screen and finish at the bottom right corner."
1190 PRINT "Once you have finished your masterpiece then press KEY 0 to start the mouse."
1200 PRINT : PRINT "PRESS ANY KEY TO START": PAUSE 0: GO TO 50
```



**810-900** Print the level one screen. Prints READY, then when any key has been pressed, starts the game.

**940-1090** The level two screen.

**1100-1260** The level three screen.

**1270-1490** The level four screen.

**1510-1580** If the spacecraft has crashed then decrement the score and restart the game at the same level. If all lives have been lost go to the end of game routine.

**1610-1670** Print the score and high score, then play a little tune before restarting the program.

```
10 POKE 23658,0: REM FORCE LOW
ER CASE
20 PAPER 0: BRIGHT 0: BORDER 0
: RESTORE : LET hi=0: INK 7
30 DATA BIN 00111100,BIN 01111
110,BIN 01011010,BIN 01011010,BI
N 01111110,BIN 00111100,BIN 0010
0100,BIN 01100110
40 FOR f=0 TO 7: READ a: POKE
USR "a"+f,a: NEXT f
50 DATA BIN 00111000,BIN 01111
100,BIN 00111111,BIN 11111111,BI
N 01111111,BIN 01111100,BIN 0011
1110,BIN 00011000
60 FOR f=0 TO 7: READ a: POKE
USR "b"+f,a: NEXT f
70 DATA 3,15,31,63,63,127,127,
255
80 FOR f=0 TO 7: READ a: POKE
USR "c"+f,a: NEXT f
90 DATA 192,240,248,252,252,25
4,254,255
100 FOR f=0 TO 7: READ a: POKE
USR "d"+f,a: NEXT f
110 DATA 255,254,254,252,252,24
8,240,192
120 FOR f=0 TO 7: READ a: POKE
USR "e"+f,a: NEXT f
130 DATA 255,127,127,63,63,31,1
5,3
140 FOR f=0 TO 7: READ a: POKE
```

```
USR "f"+f,a: NEXT f
150 DATA BIN 1111111,BIN 1111111
1,BIN 01100110,BIN 01100110,BIN
01100110,BIN 01100110,BIN 111111
11,BIN 11111111
160 FOR f=0 TO 7: READ a: POKE
USR "g"+f,a: NEXT f
170 DATA 139,130,138,138,139,13
8,139,138,138,32,139,138,139,138
,139,136,139,138
180 DATA 131,138,138,138,139,13
0,139,138,138,32,139,138,138,138
,138,138,139,138
190 DATA 131,130,131,130,130,32
,130,130,131,130,130,130,130,130
,131,32,130,130
200 CLS : LET q=1
210 FOR g=0 TO 21 STEP 21: FOR
f=0 TO 31: PRINT INK q;AT g,f;C
HR$ 144
220 LET q=q+1: IF q=8 THEN LET
q=1
230 NEXT f: NEXT g
240 FOR g=0 TO 31 STEP 31: FOR
f=0 TO 21: PRINT INK q;AT f,g;C
HR$ 144
250 LET q=q+1: IF q=8 THEN LET
q=1: NEXT f: NEXT g
260 FOR j=1 TO 18: READ a: PRIN
T BRIGHT 1; FLASH 1; INK 4;AT 2
,6+j;CHR$ a: NEXT j: FOR j=1 TO
18: READ a: PRINT BRIGHT 1; FLA
SH 1; INK 4;AT 3,6+j;CHR$ a: NEX
T j: FOR j=1 TO 18: READ a: PRIN
T BRIGHT 1; FLASH 1; INK 4;AT 4
,6+j;CHR$ a: NEXT j
270 PRINT INK 7;AT 6,5;"Guide
your spacecraft to";AT 7,3;"one
of the landing pads at";AT 8,3;"
the bottom of the screen."
280 PRINT INK 7;AT 9,5;"Avoid
the asteroids which";AT 10,3;"ar
```



```

e scattered around the";AT 11,3;
"screen."
290 PRINT INK 7;AT 12,5;"The s
core for landing is";AT 13,3;"gi
ven at the side of each";AT 14,3
;"landing pad. The pads that";AT
15,3;"are harder to reach are";
AT 16,3;"worth more points."
300 PRINT INK 5;AT 18,3;"PRESS
ANY KEY TO CONTINUE": PAUSE 0
310 FOR f=6 TO 18: PRINT AT f,0
;,,: NEXT f
320 PRINT INK 7;AT 5,2;"You ma
y select either of the follow
ing."
330 PRINT INK 7;AT 8,5;"J = KE
MPSTON JOYSTICK"
340 PRINT INK 7;AT 11,9;"K = K
EYBOARD"
350 PRINT INK 7;AT 14,5;"ENTER
J or K TO START"
360 PAUSE 0
370 IF INKEY$="j" THEN GO TO 3
90
380 IF INKEY$="k" THEN FOR f=6
TO 18: PRINT AT f,0;,,: NEXT f:
PRINT INK 7;AT 7,6;"Use the fo
llowing keys";AT 9,7;"Key Z ....
move left";AT 11,7;"Key M ....mo
ve right";AT 13,6;"PRESS ANY KEY
TO PLAY": PAUSE 25: PAUSE 0
390 CLS : LET lev=1: LET inc=-3
: LET m=1: LET sc=0: LET liv=5
400 LET inc=inc+3
410 IF lev=1 THEN GO TO 790
420 IF lev=2 THEN GO TO 940
430 IF lev=3 THEN GO TO 1100
440 IF lev=4 THEN GO TO 1260
450 LET b=15
460 FOR g=2 TO 21
470 LET z=0
480 IF INKEY$="m" THEN LET z=1

```

```

490 IF INKEY$="z" THEN LET z=-
1
500 IF IN 31=2 THEN LET z=-1
510 IF IN 31=1 THEN LET z=1
520 IF b+z<0 THEN LET z=1
530 IF b+z>31 THEN LET z=-1
540 IF ATTR (g,b+z)=4 THEN GO
TO 1500
550 IF ATTR (g,b+z)=15 THEN GO
TO 1500
560 IF ATTR (g,b+z)=2 THEN GO
TO 650
570 IF ATTR (g,b+z)=1 THEN GO
TO 1500
580 PRINT INK 0;AT g+m,b;" "
590 LET b=b+z
600 PRINT INK 6;AT g,b;CHR$ 14
4
610 IF INKEY$="m" OR INKEY$="z"
THEN LET m=0
620 IF INKEY$="m" OR INKEY$="z"
THEN GO TO 470
630 LET m=-1
640 NEXT g
650 IF g=17 AND (b=14 OR b=15)
THEN LET sc=sc+100
660 IF lev=2 AND (b=27 OR b=28)
THEN LET sc=sc+200
670 IF b=8 OR b=9 THEN LET sc=
sc+100
680 IF lev=1 AND (b=27 OR b=28)
THEN LET sc=sc+150
690 IF lev=3 AND (b=14 OR b=15)
THEN LET sc=sc+300
700 IF b=1 OR b=2 THEN LET sc=
sc+100
710 IF b=17 OR b=18 THEN LET s
c=sc+200
720 IF g=21 AND (b=28 OR b=29)
THEN LET sc=sc+500
730 BEEP .25,25
740 FOR f=0 TO 100: NEXT f: LET

```



```

lev=lev+1
750 IF lev=5 THEN LET lev=1
760 LET m=0: CLS
770 IF lev=1 THEN GO TO 400
780 GO TO 410
790 PRINT INK 7;AT 0,0;"SCORE
";sc;AT 0,11;"LIVES ";liv;AT 0,2
1;"HIGH ";hi
800 FOR f=0 TO 10+inc: BEEP .05
,-50: PRINT INK 4;AT RND*8+4,RN
D*31;CHR$ 145: NEXT f
810 FOR f=15 TO 21: PRINT PAPE
R 1;AT f,0;,,,: NEXT f
820 PRINT INK 1;AT 15,11;CHR$
147; INK 0;AT 15,12;" "; IN
K 1;AT 15,18;CHR$ 146
830 PRINT INK 1;AT 16,12;CHR$
147; INK 0;AT 16,13;" "; INK
1;AT 16,17;CHR$ 146
840 FOR f=15 TO 19: PRINT AT f,
25;" ": NEXT f: PRINT INK 1;
AT 15,24;CHR$ 147;AT 15,29;CHR$
146: PRINT INK 2;AT 20,27;CHR$
150+CHR$ 150; INK 7; PAPER 1;AT
21,26;"150"
850 PRINT INK 2;AT 17,14;CHR$
150+CHR$ 150; INK 7; PAPER 1;AT
18,14;"100"
860 LET b=15
870 PRINT INK 7;AT 3,12;"READY
!"
880 FOR f=1 TO 7
890 PRINT INK f;AT 2,15;CHR$ 1
44
900 IF IN 31=16 OR INKEY$<>" " T
HEN GO TO 920
910 PAUSE 10: NEXT f: GO TO 880
920 PRINT AT 2,15;" ";AT 3,12;"
"
930 GO TO 450
940 PRINT INK 7;AT 0,0;"SCORE
";sc;AT 0,11;"LIVES ";liv;AT 0,2

```

```

0;"HIGH";hi
950 FOR f=0 TO 10+inc: BEEP .05
,-50: PRINT INK 4;AT RND*4+4,RN
D*31;CHR$ 145: NEXT f
960 FOR f=12 TO 21: PRINT PAPE
R 1;AT f,0;,,,: NEXT f
970 FOR f=12 TO 18: PRINT PAPE
R 0;AT f,7;" ": NEXT f
980 PRINT INK 2;AT 19,8;CHR$ 1
50+CHR$ 150: PRINT INK 1;AT 12,
6;CHR$ 147;AT 12,11;CHR$ 146
990 PRINT INK 7; PAPER 1;AT 20
,8;"100"
1000 FOR f=12 TO 15: PRINT AT f,
20;" ": NEXT f: PRINT INK 1;A
T 12,19;CHR$ 147;AT 12,23;CHR$ 1
46
1010 PRINT AT 15,20;" ";A
T 16,20;" ";AT 17,20;" "
": PRINT PAPER 1; INK 0;
AT 15,28;CHR$ 147; PAPER 0; INK
1;AT 18,28;CHR$ 146: PRINT INK
1;AT 14,23;CHR$ 149; PAPER 1; IN
K 0;AT 17,20;CHR$ 149
1020 PRINT AT 18,26;" ";AT 19,
26;" ": PRINT INK 2;AT 20,27;
CHR$ 150+CHR$ 150; INK 7; PAPER
1;AT 21,26;"200"
1030 PRINT INK 7;AT 3,12;"READY
!"
1040 FOR f=1 TO 7
1050 PRINT INK f;AT 2,15;CHR$ 1
44
1060 IF IN 31=16 OR INKEY$<>" "
THEN GO TO 1080
1070 PAUSE 10: NEXT f: GO TO 104
0
1080 PRINT AT 2,15;" ";AT 3,12;
" "
1090 GO TO 450
1100 PRINT INK 7;AT 0,0;"SCORE
";sc;AT 0,11;"LIVES ";liv;AT 0,2

```



```

0; "HIGH"; hi
1110 FOR f=0 TO 10+inc: BEEP .05
, -50: PRINT INK 4; AT RND*2+3, R
ND*31; CHR$ 145: NEXT f
1120 FOR f=8 TO 21: PRINT PAPER
1; AT f, 0; , ,: NEXT f
1130 PRINT INK 1; AT 8, 3; CHR$ 14
7; AT 8, 6; CHR$ 146: FOR f=8 TO 14
: PRINT AT f, 4; " ": NEXT f
1140 PRINT INK 1; AT 12, 6; CHR$ 1
49; PAPER 1; INK 0; AT 14, 4; CHR$
149
1150 PRINT AT 13, 6; " "
; AT 14, 6; " " : PRINT
PAPER 1; INK 0; AT 13, 17; CHR$ 147
; PAPER 0; INK 1; AT 15, 11; CHR$ 1
47
1160 FOR f=15 TO 19: PRINT AT f,
12; " " : NEXT f: PRINT INK
2; AT 20, 14; CHR$ 150+CHR$ 150
1170 PRINT INK 7; PAPER 1; AT 20
, 16; "300"
1180 FOR f=0 TO 3: BEEP .005, -50
: PRINT INK 4; AT RND*4+14, RND*5
+12; CHR$ 145: NEXT f
1190 PRINT INK 7; AT 3, 12; "READY
!"
1200 FOR f=1 TO 7
1210 PRINT INK f; AT 2, 15; CHR$ 1
44
1220 IF IN 31=16 OR INKEY$("<>") T
HEN GO TO 1240
1230 PAUSE 10: NEXT f: GO TO 120
0
1240 PRINT AT 2, 15; " "; AT 3, 12; "
"
1250 GO TO 450
1260 PRINT INK 7; AT 0, 0; "SCORE
"; sc; AT 0, 11; "LIVES "; liv; AT 0, 2
0; "HIGH "; hi
1270 FOR f=4 TO 21: PRINT PAPER
1; AT f, 0; , ,: NEXT f

```

```

1280 FOR f=4 TO 20: PRINT AT f, 1
; " " : NEXT f: PRINT INK 1; AT 4
, 0; CHR$ 147; AT 4, 3; CHR$ 146; AT 5
, 3; CHR$ 149; AT 8, 3; CHR$ 146
1290 PRINT AT 6, 3; "
" ; AT 7, 3; " "
1300 PRINT AT 8, 9; " " ; AT 9, 9; "
" : PRINT INK 1; AT 8, 8; CHR$ 147
; AT 8, 11; CHR$ 146; AT 9, 8; CHR$ 14
8; AT 9, 11; CHR$ 149
1310 FOR f=10 TO 20: PRINT AT f,
6; " " : NEXT f: PRINT PAP
ER 1; INK 0; AT 10, 6; CHR$ 146; AT
10, 13; CHR$ 147
1320 FOR f=1 TO 10: BEEP .05, -50
: PRINT INK 4; AT RND*6+11, RND*7
+6; CHR$ 145: NEXT f
1330 PRINT AT 19, 14; " " ; AT 2
0, 14; " " : PRINT INK 1; AT 1
8, 14; CHR$ 149; INK 0; PAPER 1; AT
19, 19; CHR$ 147
1340 PRINT INK 0; PAPER 1; AT 6,
18; CHR$ 147; INK 1; PAPER 0; AT 8
, 18; CHR$ 147
1350 FOR f=8 TO 14: PRINT AT f, 1
8; " " : NEXT f
1360 FOR f=10 TO 14: PRINT AT f,
18; " " : NEXT f
1370 PRINT INK 1; AT 9, 19; CHR$ 1
49; PRINT PAPER 1; INK 0; AT 14,
18; CHR$ 149
1380 FOR f=4 TO 20: PRINT AT f, 2
7; " " : NEXT f: PRINT INK 1; AT
4, 26; CHR$ 147; AT 4, 30; CHR$ 146;
AT 9, 26; CHR$ 148; AT 15, 26; CHR$ 1
47
1390 FOR f=0 TO 6: BEEP .05, -50:
PRINT INK 4; AT RND*4+10, RND*10
+18; CHR$ 145: NEXT f
1400 FOR f=4 TO 18 STEP 3: BEEP
.05, -50: PRINT INK 4; AT f, RND*
2+27; CHR$ 145: NEXT f

```



```

1410 PRINT INK 2;AT 21,1;CHR$ 1
50+CHR$ 150;AT 21,17;CHR$ 150+CH
R$ 150;AT 21,28;CHR$ 150;CHR$ 15
0
1420 PRINT INK 7; PAPER 1;AT 21
,3;"100";AT 21,19;"200";AT 21,25
;"500"
1430 PRINT INK 7;AT 3,12;"READY
!"
1440 FOR f=1 TO 7
1450 PRINT INK f;AT 2,15;CHR$ 1
44
1460 IF IN 31=16 OR INKEY$<>" " T
HEN GO TO 1480
1470 PAUSE 10: NEXT f: GO TO 144
0
1480 PRINT AT 2,15;" ";AT 3,12;"
"
1490 GO TO 450
1500 BEEP .1,-50
1510 PRINT AT g-1,b;" ";AT g,b;"
"
1520 LET liv=liv-1
1530 FOR g=1 TO 5: FOR f=0 TO 25
5 STEP 20: OUT 100,f: NEXT f: NE
XT g
1540 IF liv=0 THEN GO TO 1560
1550 CLS : GO TO 410
1560 FOR f=0 TO -50 STEP -1
1570 BEEP .01,f
1580 NEXT f
1590 CLS
1600 IF sc<hi THEN GO TO 1660
1610 LET hi=sc
1620 LET n$="NEW HIGH SCORE"
1630 FOR f=9 TO 22: BEEP .01,f*2
: PRINT INK 2; PAPER 7; FLASH 1
;AT 8,f;n$(f-8): PAUSE 20: NEXT
f
1640 PAUSE 75: BEEP .1,20: PAUSE
10: BEEP .1,20: BEEP .25,15
1650 PAUSE 5: BEEP .1,15: BEEP .

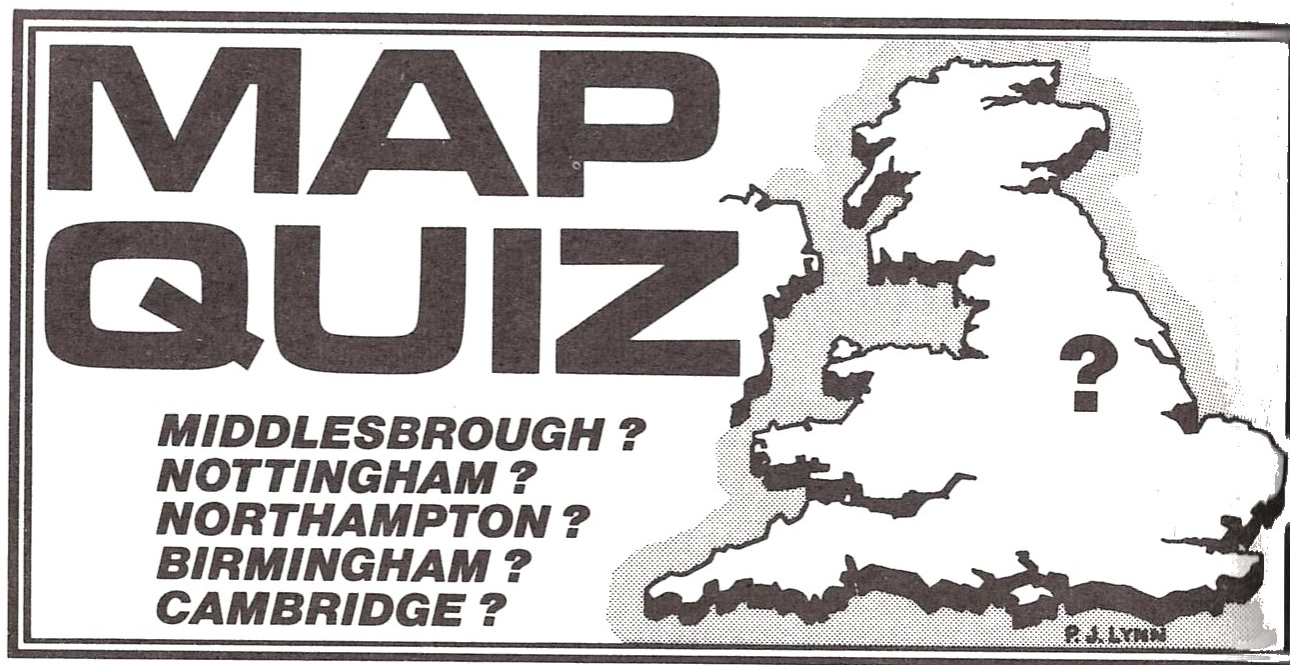
```

```

1,20: BEEP .1,20: BEEP .1,20: BE
EP .25,25
1660 PRINT INK 7;AT 12,9;"YOU S
CORED ";sc
1670 FOR f =0 TO 300: NEXT f: RE
STORE 170: GO TO 200

```





Original program by A. Wagstaff

Map Quiz is geographical multiple choice quiz on the towns and cities of Great Britain. A map of England, Wales and part of Scotland is displayed and a flashing dot appears, together with a list of four towns. You are invited to guess which of the four towns is represented by the dot. You must enter your answer exactly as it is printed on the screen. If you answer incorrectly, the correct town will be printed on the screen. Your running score is displayed as a percentage in a box in the top right hand corner of the screen.

The towns and cities are stored within data statements in the form: name, Y co-ordinate print position, X co-ordinate print position, then an X and Y offset. The position of the flashing dot along each axis is obtained by multiplying the co-ordinates by eight and then adding the offset values. It would be easy to enlarge the data to produce more questions, or to change the style of the quiz to test, for example, the player's knowledge of stately homes or archaeological sites.

## Program Description

- 10 POKE to force lower case lettering.
- 20 Set the screen colours to produce a green map on a blue background.
- 40-80 Read the data for the map and print the map on the screen.

The first two values of each set of data represent the X, and Y print positions, the remaining values represent the Spectrum graphics characters.

- 00-250 Data for the map.
- 000-330 Data for the towns and cities.
- 040-380 Dimension arrays and set the initial variable values then loads the data for the towns and cities into the array T\$. Draws the box at the top right hand side of the screen.
- 400-470 Randomly select towns from the array T\$ and stores them in the array Q\$(), checking each time that the towns have not already been selected. Sets one town to represent the town displayed on the map.
- 480-530 The names of the four towns are printed at the bottom of the screen and then plot the flashing dot.
- 040-550 The answer is taken from the keyboard. Also checks the user does not wish to quit the game.
- 060-580 Checks whether the answer is correct. If it is, the score is incremented and the percentage score calculated. If the answer is incorrect then the correct answer is printed.
- 090 If the game is finished, then print the final score.
- 070-750 Display the instructions.

```

10 POKE 23658,0: GO TO 670
20 LET SCORE=0: PAPER 1: INK 4
: BORDER 1: CLS
30 FOR J=1 TO 17
40 READ A,B: PRINT AT A,B;"";
50 IF A=0 AND B=0 THEN STOP
60 READ C: IF C=99 THEN GO TO
80
70 PRINT PAPER 4; INK 1; INVE
RSE 1;CHR$ C;: GO TO 60
80 NEXT J
90 DATA 1,6,133,142,143,143,14
3,142,140,140,140,140,140,99
100 DATA 2,6,129,143,143,143,14
3,143,143,143,143,143,139,9
9
110 DATA 3,5,140,143,143,143,14
3,143,143,143,143,143,131,99
120 DATA 4,7,143,143,143,143,14

```



```

3,143,143,143,130,99
130 DATA 5,6,133,131,131,143,14
3,143,143,143,140,143,140,140,99
140 DATA 6,6,129,128,128,141,14
3,143,143,143,143,143,143,143,14
2,99
150 DATA 7,8,141,143,131,143,13
1,135,143,143,143,143,143,140,99
160 DATA 8,13,143,143,143,143,
143,143,143,136,99
170 DATA 9,14,141,143,143,143,1
43,143,143,143,143,140,99
180 DATA 10,14,135,143,143,143,
143,143,143,143,143,139,99
190 DATA 11,9,140,141,143,143,1
43,143,143,143,143,143,143,143,1
43,143,143,139,140,140,136,99
200 DATA 12,10,133,143,143,143,
143,143,143,143,143,143,143,143,
143,143,143,143,143,143,142,99
210 DATA 13,7,132,140,140,141,1
43,143,143,143,143,143,143,143,1
43,143,143,143,143,143,143,143,1
43,139,99
220 DATA 14,7,135,131,131,135,1
35,143,143,143,135,143,143,143,1
43,143,143,143,143,143,143,139,1
31,99
230 DATA 15,10,132,140,140,140,
140,143,143,143,143,143,143,143,
143,143,143,139,131,99
240 DATA 16,7,132,140,143,143,1
43,143,131,131,131,131,131,131,1
31,131,131,131,131,131,131,130,9
9
250 DATA 17,5,140,140,139,131,1
31,131,131,130,99
260 DATA "Fort William",3,8,4,5
,"Kingussie",2,11,3,1,"Mancheste
r",10,16,5,3,"Stafford",12,16,7,
6,"Kidderminster",12,16,2,0
270 DATA "Monmouth",14,14,7,6,"

```

```

Luton",14,22,4,8,"Bournemouth",1
6,18,4,6,"Guildford",15,22,1,4,"
Launceston",16,9,2,4
280 DATA "Gainsborough",10,21,4
,2,"Kendal",8,15,3,1,"Moffat",6,
12,7,1,"Bedford",13,22,2,4,"King
's Lynn",12,24,8,4
290 DATA "Grimsby",10,23,1,2,"H
exam",7,17,0,4,"Blackpool",10,14
,1,7,"Exeter",16,12,1,5,"Oxford"
,14,19,5,5
300 DATA "Bradford",9,17,6,0,"J
edburgh",6,15,4,4,"St. Andrews",
4,14,7,4,"Aberdeen",2,17,1,3,"Br
econ",13,13,3,1
310 DATA "Swansea",14,11,1,4,"M
ontgomery",12,13,5,3,"Leicester"
,12,20,1,4,"Peterborough",12,22,
8,4,"Chester",11,14,7,6
320 DATA "Carlisle",7,14,4,3,"S
tirling",4,11,6,1,"Gloucester",1
4,16,3,7,"Bury",13,25,8,6,"Cambr
idge",13,24,1,6
330 DATA "Denbigh",11,13,0,6,"A
ppleby",8,15,7,4,"Portsmouth",16
,20,5,4,"Scarborough",9,21,7,7,"
Lanark",5,12,0,1
340 RESTORE 260: DIM Q$(4,15):
DIM T$(40,15): DIM T(40,4): LET
FLAG=1: LET KOUNT=0: LET SCORE=0
350 FOR J=1 TO 40: READ A$,T(J
,1),T(J,2),T(J,3),T(J,4): LET T$(
J,1 TO 2)=STR$(LEN A$): LET T$(
J,3 TO )=A$: NEXT J
360 PRINT PAPER 1: INK 6: AT 1,
23: "Score": PLOT INK 6: 168,175:
DRAW INK 6: 0,-28: DRAW INK 6:
72,0: DRAW INK 6: 0,28: DRAW IN
K 6: -72,0
370 PLOT INK 6: 8,96: DRAW INK
6: 56,0: DRAW INK 6: 0,-24: DRAW
INK 6: -56,0: DRAW INK 6: 0,24

```



```

380 LET KOUNT=KOUNT+1: LET A=IN
T (RND*40)+1: LET A#=T$(A, TO )
390 LET Y=((21-T(A,1))*8)+T(A,4
): LET X=(T(A,2)*8)+T(A,3)
400 LET P=INT (RND*4)+1: LET Q$(
P, TO )=A$( TO )
410 FOR J=1 TO 3
420 LET A=INT (RND*40)+1: LET B
=INT (RND*4)+1
430 IF CODE (Q$(B))<>32 THEN G
O TO 420
440 FOR K=1 TO 4: IF Q$(K, TO )
=T$(A, TO ) THEN LET FLAG=1
450 NEXT K
460 IF FLAG=1 THEN LET FLAG=0:
GO TO 420
470 LET FLAG=0: LET Q$(B, TO )=
T$(A, TO ): NEXT J
480 FOR J=1 TO 4
490 LET P=INT (RND*4)+1: IF COD
E Q$(P)=32 THEN GO TO 490
500 PRINT PAPER 1; INK 6; AT 19
*(J<3)+21*(J>2), 4*(J=1 OR J=3)+1
9*(J=2 OR J=4); Q$(P, 3 TO 2+VAL (
Q$(P, TO 2)))
510 LET Q$(P, TO )=""
520 NEXT J
530 PLOT FLASH 1; OVER 1; PAPE
R 4; INK 1; X, Y
540 INPUT "ANSWER ? "; LINE I$
550 IF I$="Quit" OR I$="quit" T
HEN GO TO 590
560 IF I$<>A$(3 TO 2+(VAL A$( T
O 2))) THEN PRINT AT 11,2;"WRON
G!": PRINT AT 2,23;INT ((SCORE/K
OUNT)*100);"% ": BEEP .08,25: BE
EP .2,10: PRINT AT 19,0;,,,,,,;A
T 20,7;"It was ";A$(3 TO ): PAUS
E 100: GO TO 580
570 IF I$=A$(3 TO 2+(VAL (A$( T
O 2)))) THEN PRINT AT 11,2;"RIG
HT": LET SCORE=SCORE+1: PRINT AT

```

```

2,23;INT ((SCORE/KOUNT)*100);"%
": FOR H=1 TO 20: BEEP .08,H: N
EXT H: FOR H=20 TO 1 STEP -1: BE
EP .08,H: NEXT H
580 FOR J=1 TO 4: LET Q$(J, TO
)="" : NEXT J: PRINT AT 19,0;,,,,
,,: PLOT FLASH 0; OVER 1; PAPER
4; INK 1; X, Y: PRINT AT 11,2;"
": GO TO 380
590 PRINT AT 19,0;,,,,,,; AT 19,
5;"Your final score was ";: LET
SC=INT ((SCORE/(KOUNT-1))*100):
PRINT SC;"%"
600 IF SC<10 THEN PRINT AT 20,
4;" VERY POOR BUY AN ATLAS!"
610 IF SC>10 AND SC<20 THEN PR
INT AT 20,10;" VERY POOR"
620 IF SC>19 AND SC<40 THEN PR
INT AT 20,11;"POOR"
630 IF SC>39 AND SC<60 THEN PR
INT AT 20,11;"POOR"
640 IF SC>59 AND SC<90 THEN PR
INT AT 20,11;"GOOD"
650 IF SC>89 THEN PRINT AT 20,
10;" VERY GOOD"
660 STOP
670 REM INSTRUCTIONS
680 PAPER 6: INK 1: BORDER 6: C
LS
690 PRINT AT 1,10;" MAP QUIZ":
FOR J=1 TO 10: PRINT AT 2,9+J;CH
R$ 131: NEXT J
700 PRINT "'Map Quiz' is a geog
raphical multiple choice quiz
based on towns and cities in
Britain."
710 PRINT "A map of Britain is
displayed on the screen and a
flashing dot"
720 PRINT "appears together wit
h a list of four towns."
730 PRINT : PRINT "You are invi

```



ted to enter the correct town from those listed. You must enter the names EXACTLY as they are printed."

```
740 PRINT : PRINT "Your present score will be shown in a box at the top right of the map. After a n incorrect answer"
```

```
750 PRINT "the correct one will be shown. If you wish to quit at anytime simply enter 'Quit'."
```

```
760 PRINT #1; AT 0,3; "PRESS ANY KEY TO START": PAUSE 0
```

```
770 GO TO 20
```

# MINI GRAND NATIONAL

Original program by M. I. Cowie

You have just entered a betting shop and you have ten pounds in your pocket. You decide to place a bet on the next race, and your horse wins at 4 to 1. You now have fifty pounds and are hooked on horse racing, so you decide to stay and make yourself a millionaire! In this exciting race game you stake money on a series of races. If you succeed in winning one million pounds, then you will be rewarded with a spectacular screen display.

## Program Description

0-9 POKE to force CAPS LOCK, then play the introductory music.

0 Dimensions arrays.

42-1805 Set RND, then selects a horse to run. Each horse is then moved forward a randomly selected number of moves. A check is made to determine if a given horse has reached the finishing line. Each horse character represents four characters printed in sequence to produce a smooth movement.

2000-2999 Routine to produce a large printed message on the screen if the total winnings equal one million.

3000-5999 Define variables.

6000-6190 Print the race track and horses on the starting line. Print at the bottom of the screen, the number of horses running, the amount of money the player has, and the value of the bet placed.

6200-6258 Decide if the player has won or lost the bet.

6260-6300 Print out the name of the winner in large letters and the amount of money left. Then invite the player to try again.

6350-6357 If all the stake money has been lost then the game will end.

6500-6579 Print the name of the winner.

6580-6660 Calculate the odds on winning and print the amount won.



**7000-7028** Calculate the running form of each horse, and update the information after each race.

**7029-7100** Print out the betting card.

**7110-7120** Print how much money the player has, and how many horses are running in each race.

**7140-7170** Request the player to select a horse and place a bet.

**8001** POKE to set keyboard click.

**8010-8060** Instructions.

**9000-9680** Read and install the user defined graphics characters,

**9712-9713** Data used in running the race.

```
1 REM *****
2 REM **MINI GRAND NATIONAL**
3 REM **FOR THE 48K SPECTRUM*
4 REM ***BY MARTIN.I.COWIE***
5 REM *****
6 POKE 23658,8
7 FOR N=1 TO 10: BEEP .05,N:
NEXT N
8 RESTORE
9 DIM Q(59): DIM Y(059)
10 GO SUB 5000: REM define var
20 GO TO 9000: REM define char
30 RESTORE : GO TO 8000: REM o
utline
40 GO TO 7000: REM bet
42 LET Q=INT (RND*255): RANDOM
IZE Q
50 GO TO 6000: REM draw board
60 LET X=INT (RND*16)+1
61 LET ZX=INT (RND*MUCH)+1
69 BEEP .003,X: BEEP .004,X+1:
BEEP .005,X+2: BEEP .003,X+3: B
EEP .004,X+4
70 LET Y=INT (RND*(MUCH*2))+4
71 IF ZX=1 THEN GO TO 150
80 IF ZX=2 THEN GO TO 340
90 IF ZX=3 THEN GO TO 550
100 IF ZX=4 THEN GO TO 760
110 IF ZX=5 THEN GO TO 970
120 IF ZX=6 THEN GO TO 1180
130 IF ZX=7 THEN GO TO 1390
```

```
140 IF ZX=8 THEN GO TO 1600
150 FOR V=1 TO Y
151 LET H1=H1+2
152 BEEP .004,H1
160 IF H1=9 THEN LET P1=P1+1
170 IF H1=9 THEN LET H1=1
190 IF H1=1 THEN GO TO 270
210 IF H1=3 THEN GO TO 290
230 IF H1=5 THEN GO TO 310
250 IF H1=7 THEN GO TO 325
270 PRINT AT 2,(P1);"DE": GO TO
330
290 PRINT AT 2,(P1);"HI": GO TO
330
310 PRINT AT 2,(P1);"LM": GO TO
330
325 PRINT AT 2,(P1);"aA": GO TO
330
330 IF P1=29 AND H1=7 THEN LET
WIN=1
331 IF P1=29 AND H1=7 THEN GO
TO 6200
332 NEXT V
335 GO TO 60
340 FOR V=1 TO Y
341 LET H2=H2+2
342 BEEP .005,H2
350 IF H2=9 THEN LET P2=P2+1
360 IF H2=9 THEN LET H2=1
380 IF H2=1 THEN GO TO 460
400 IF H2=3 THEN GO TO 480
420 IF H2=5 THEN GO TO 500
440 IF H2=7 THEN GO TO 520
460 PRINT AT 4,(P2);"DE": GO TO
530
480 PRINT AT 4,(P2);"HI": GO TO
530
500 PRINT AT 4,(P2);"LM": GO TO
530
520 PRINT AT 4,(P2);"aA": GO TO
530
530 IF P2=29 AND H2=7 THEN LET
```



```

WIN=2
531 IF P2=29 AND H2=7 THEN GO
TO 6200
532 NEXT V
540 GO TO 60
550 FOR V=1 TO Y
551 LET H3=H3+2
552 BEEP .005,H3
560 IF H3=9 THEN LET P3=P3+1
570 IF H3=9 THEN LET H3=1
590 IF H3=1 THEN GO TO 670
610 IF H3=3 THEN GO TO 690
630 IF H3=5 THEN GO TO 710
650 IF H3=7 THEN GO TO 730
670 PRINT AT 6,(P3);"DE": GO TO
740
690 PRINT AT 6,(P3);"HI": GO TO
740
710 PRINT AT 6,(P3);"LM": GO TO
740
730 PRINT AT 6,(P3);"aA": GO TO
740
740 IF P3=29 AND H3=7 THEN LET
WIN=3
741 IF P3=29 AND H3=7 THEN GO
TO 6200
742 NEXT V
750 GO TO 60
760 FOR V=1 TO Y
761 LET H4=H4+2
762 BEEP .005,H4
770 IF H4=9 THEN LET P4=P4+1
780 IF H4=9 THEN LET H4=1
800 IF H4=1 THEN GO TO 870
820 IF H4=3 THEN GO TO 890
840 IF H4=5 THEN GO TO 910
855 IF H4=7 THEN GO TO 930
870 PRINT AT 8,(P4);"DE": GO TO
940
890 PRINT AT 8,(P4);"HI": GO TO
940
910 PRINT AT 8,(P4);"LM": GO TO

```

```

940
930 PRINT AT 8,(P4);"aA": GO TO
940
940 IF P4=29 AND H4=7 THEN LET
WIN=4
941 IF P4=29 AND H4=7 THEN GO
TO 6200
942 NEXT V
950 GO TO 60
970 FOR V=1 TO Y
971 LET H5=H5+2
972 BEEP .004,H5
980 IF H5=9 THEN LET P5=P5+1
990 IF H5=9 THEN LET H5=1
1010 IF H5=1 THEN GO TO 1090
1030 IF H5=3 THEN GO TO 1110
1050 IF H5=5 THEN GO TO 1130
1070 IF H5=7 THEN GO TO 1150
1090 PRINT AT 10,(P5);"DE": GO T
O 1160
1110 PRINT AT 10,(P5);"HI": GO T
O 1160
1130 PRINT AT 10,(P5);"LM": GO T
O 1160
1150 PRINT AT 10,(P5);"aA": GO T
O 1160
1160 IF P5=29 AND H5=7 THEN LET
WIN=5
1161 IF P5=29 AND H5=7 THEN GO
TO 6200
1162 NEXT V
1170 GO TO 60
1180 FOR V=1 TO Y
1181 LET H6=H6+2
1182 BEEP .004,H6
1190 IF H6=9 THEN LET P6=P6+1
1200 IF H6=9 THEN LET H6=1
1220 IF H6=1 THEN GO TO 1300
1240 IF H6=3 THEN GO TO 1320
1260 IF H6=5 THEN GO TO 1340
1280 IF H6=7 THEN GO TO 1360
1300 PRINT AT 12,(P6);"DE": GO T

```



```

0 1370
1320 PRINT AT 12,(P6);"HI": GO T
0 1370
1340 PRINT AT 12,(P6);"LM": GO T
0 1370
1360 PRINT AT 12,(P6);"aA": GO T
0 1370
1370 IF P6=29 AND H6=7 THEN LET
WIN=6
1371 IF P6=29 AND H6=7 THEN GO
TO 6200
1372 NEXT V
1380 GO TO 60
1390 FOR V=1 TO Y
1391 LET H7=H7+2
1392 BEEP .004,H7
1400 IF H7=9 THEN LET P7=P7+1
1410 IF H7=9 THEN LET H7=1
1430 IF H7=1 THEN GO TO 1510
1450 IF H7=3 THEN GO TO 1530
1470 IF H7=5 THEN GO TO 1550
1490 IF H7=7 THEN GO TO 1570
1510 PRINT AT 14,(P7);"DE": GO T
0 1580
1530 PRINT AT 14,(P7);"HI": GO T
0 1580
1550 PRINT AT 14,(P7);"LM": GO T
0 1580
1570 PRINT AT 14,(P7);"aA": GO T
0 1580
1580 IF P7=29 AND H7=7 THEN LET
WIN=7
1581 IF P7=29 AND H7=7 THEN GO
TO 6200
1582 NEXT V
1590 GO TO 60
1600 FOR V=1 TO Y
1610 LET H8=H8+2
1611 BEEP .002,H8
1620 IF H8=9 THEN LET P8=P8+1
1630 IF H8=9 THEN LET H8=1
1650 IF H8=1 THEN GO TO 1730

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```

1670 IF H8=3 THEN GO TO 1750
1690 IF H8=5 THEN GO TO 1770
1710 IF H8=7 THEN GO TO 1790
1730 PRINT AT 16,(P8);"DE": GO T
0 1800
1750 PRINT AT 16,(P8);"HI": GO T
0 1800
1770 PRINT AT 16,(P8);"LM": GO T
0 1800
1790 PRINT AT 16,(P8);"aA": GO T
0 1800
1800 IF P8=29 AND H8=7 THEN LET
WIN=8
1801 IF P8=29 AND H8=7 THEN GO
TO 6200
1802 NEXT V
1805 GO TO 60
2000 CLS
2001 INK 0: PAPER 7: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2002 INK 1: PAPER 6: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2003 INK 2: PAPER 5: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2004 INK 3: PAPER 4: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2005 INK 4: PAPER 3: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2006 INK 5: PAPER 2: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2007 INK 6: PAPER 1: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"
2008 INK 7: PAPER 0: FLASH 1: PR
INT ;"pppppppppppppppppppppppppppppp
pppppp"

```











```

ppgkpfkpppkppppfkpppfkphpppfkph
pgpkpfkpppkppppfkpppfkphppfkppo
gppkpfkpppkppppfkpppfkppohpfkppp
pppkpfkpppkppppfkpppfkppohfopp
pppoppnoppmpnoppmpnoppmpnoppmpn
pppppppppppppppppppppppppppppp
2052 FLASH 1: INK 3: PAPER 0: PR
INT "kkkkkkkkkkkkkkkkkkkkkkkkkkk
kkkkkfffffffffffffffffffffffffff
ffffffkkkkkkkkkkkkkkkkkkkkkkkkk
kkkkkfffffffffffffffffffffffffff
ffffffkkkkkkkkkkkkkkkkkkkkkkkkk
kkkkkfffffffffffffffffffffffffff
ffffffkkkkkkkkkkkkkkkkkkkkkkkkk
kkkkk"
2053 FOR M=1 TO 4: FOR N=1 TO 7:
  BORDER N: BEEP .05,N: NEXT N: N
EXT M
2060 CLS : INK 1: PAPER 4: FLASH
  1: PRINT "hhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh"
2061 INK 0: PAPER 6: FLASH 0: PR
INT "ppppppppppppppppppppppppppp
pppppppppppppppppppppppppppppp
pppppiddhpdddhlpppphlppppphiddh
pdddhkppkpfppfkppppfkphpppfkppk
pfpppkppkpfppfkppppfkphpppfkppk
pfpppkmmnpfppfkppppfkppohpfkppk
pmmmfkppppfppfkppppfkppohpfkppk
ppppfkppppfppfkppppfkppppohfkppk
ppppfoppmpnoppmpnoppmpnoppmpn
pmmnpppppppppppppppppppppppppp
ppppp"
2062 INK 1: PAPER 4: FLASH 1: PR
INT "hhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh

```

```

hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh
hhhhhhhhhhhhhhhhhhhhhhhhhhhhhh"
2063 LET MIL=1: FOR M=1 TO 4: FO
R N=1 TO 7: BORDER N: BEEP .05,N
: NEXT N: NEXT M
2700 FOR N=1 TO 19
2710 BEEP Q(N),Y(N)
2720 NEXT N
2800 FLASH 0
2999 RETURN
5000 REM DEFINE VAR
5010 LET MONEY=50
5011 LET WIN=0
5020 DIM D(4)
5021 LET MIL=0
5030 DIM E(4)
5040 DIM F(4)
5050 DIM G(4)
5060 DIM H(4)
5070 DIM I(4)
5080 DIM J(4)
5090 DIM K(4)
5100 LET H1=1
5110 LET H2=1
5120 LET H3=1
5130 LET H4=1
5140 LET H5=1
5150 LET H6=1
5160 LET H7=1
5170 LET H8=1
5180 LET P1=8
5190 LET P2=7
5200 LET P3=6
5210 LET P4=5
5220 LET P5=4
5230 LET P6=3
5240 LET P7=2
5250 LET P8=1
5999 RETURN
6000 REM draw board

```



```

6001 BRIGHT 1: PAPER 4: BORDER 1
: INK 0: CLS
6010 FOR a=0 TO 31
6020 INVERSE 1: PRINT AT 0,a;"P"
: INVERSE 0
6030 PRINT AT 18,a;"P"
6040 NEXT a
6050 FOR a=1 TO 17
6060 PRINT AT a,31;"Q"
6070 NEXT a
6080 PRINT AT 2,7; FLASH 1;"1";
FLASH 0;"A"
6090 PRINT AT 4,6; FLASH 1;"2";
FLASH 0;"A"
6100 PRINT AT 6,5; FLASH 1;"3";
FLASH 0;"A"
6110 PRINT AT 8,4; FLASH 1;"4";
FLASH 0;"A"
6120 PRINT AT 10,3; FLASH 1;"5";
FLASH 0;"A"
6130 PRINT AT 12,2; FLASH 1;"6";
FLASH 0;"A"
6140 PRINT AT 14,1; FLASH 1;"7";
FLASH 0;"A"
6150 PRINT AT 16,0; FLASH 1;"8";
FLASH 0;"A"
6160 PRINT AT 19,0;"BET=£"; BET
6170 PRINT "HORSE="; HORSE
6180 PRINT "MONEY LEFT=£"; MONEY
6190 GO TO 60
6200 REM *****WIN/LOSE*****
6210 CLS
6221 BORDER 0: INK 7: BRIGHT 0:
PAPER 0: CLS
6240 IF WIN=1 THEN LET W$="RED
RUM"
6241 IF WIN=2 THEN LET W$="RAG
TRADE"
6242 IF WIN=3 THEN LET W$="GRIT
TER"
6243 IF WIN=4 THEN LET W$="HALL
O DANDY"

```

```

6244 IF WIN=5 THEN LET W$="RUBS
TIC"
6245 IF WIN=6 THEN LET W$="CORB
IERE"
6246 IF WIN=7 THEN LET W$="BEN
NEVIS"
6247 IF WIN=8 THEN LET W$="ALDA
NITI"
6250 IF HORSE=1 THEN LET T$="RE
D RUM"
6251 IF HORSE=2 THEN LET T$="RA
G TRADE"
6252 IF HORSE=3 THEN LET T$="GR
ITTAR"
6253 IF HORSE=4 THEN LET T$="HA
LLO DANDY"
6254 IF HORSE=5 THEN LET T$="RU
BSTIC"
6255 IF HORSE=6 THEN LET T$="CO
RBIERE"
6256 IF HORSE=7 THEN LET T$="BE
N NEVIS"
6257 IF HORSE=8 THEN LET T$="AL
DANITI"
6258 IF HORSE=WIN THEN GO TO 65
50
6259 GO SUB 6500
6260 PRINT AT 0,0;"pppppppemjpe
mipkpppppppppppppppppppppppp
pfpkpkpppppppppppppppppppppp
pfpkpkpppppppppppppppppppppp
pfpkpkpppppppppppppppppppppp
pppppppppppppppppppppppppppp
"
6261 GO SUB 6520
6262 FOR N=5 TO 1 STEP -1: FOR M
=7 TO 0 STEP -1: BORDER M: BEEP
.1,M: NEXT M: NEXT N
6263 INK 7: PAPER 0: CLS : PRINT
AT 0,0;"pppppppppppppppppppppp
pppppppppppppppppppppppppppp
pppppppppppppppppppppppppppp
pppppppppppppppppppppppppppp
pppppppppppppppppppppppppppp
"

```



```

6270 PRINT " YOU STAKED £";BET
6280 PRINT " ";W$;" WON SO YOU
LOSE"
6290 PRINT " YOU HAVE £";MONEY;
" LEFT"
6300 PRINT AT 15,10;"PRESS ~P~ T
O CONTINUE"
6310 IF INKEY$="P" THEN GO TO 6
320
6311 GO TO 6310
6320 CLS : GO SUB 5100
6330 IF MONEY<=0 THEN GO TO 635
0
6340 GO TO 7000
6350 CLS : PRINT AT 7,10;"END OF
GAME"
6351 PRINT AT 15,7;"PRESS ~P~ TO
PLAY"
6352 FOR N=1 TO 7
6353 BORDER N: BEEP .05,N
6354 IF INKEY$="P" THEN GO SUB
5000: GO TO 30
6355 NEXT N
6357 GO TO 6352
6500 REM RESULT
6510 IF WIN=1 THEN INK 0: PAPER
7: FLASH 1
6511 IF WIN=2 THEN INK 0: PAPER
6: FLASH 1
6512 IF WIN=3 THEN INK 0: PAPER
5: FLASH 1
6513 IF WIN=4 THEN INK 0: PAPER
4: FLASH 1
6514 IF WIN=5 THEN INK 6: PAPER
3: FLASH 1
6515 IF WIN=6 THEN INK 6: PAPER
2: FLASH 1
6516 IF WIN=7 THEN INK 6: PAPER
1: FLASH 1
6517 IF WIN=8 THEN INK 3: PAPER
6: FLASH 1
6518 RETURN

```

```

6520 IF WIN=1 THEN PRINT "pddhp
dddppddhppppppddhphpplpdppplhpfpkp
fpppfpkppppppfppkpfppkpfjplnfpfpkp
fpppfpkppppppfppkpfppkpfjpnfpamnp
emmpfppkppppppamnpfppkpfppppffjpp
fpppfpkppppppfjppfppkpfppppffpfpj
bddpbdgppppppfjpbddcpfppppffppppp
pppppppppppppppppppppppppppppppp"
6521 IF WIN=2 THEN PRINT "ppppp
pddhppddppppdddpppppppppppppppppp
pfpkpgppjppfpppppppppppppppppppp
pbdgpfppkppfpppppppppppppppppppp
pehppemmippfrippppppppppppppppppp
pfohpfppkppfppkpppppppppppppppppp
pnpoppnppoppmmpppppppppppppppppp
mmnpemjppgmjppemmjppemppppppppppk
ppppfpkpkppppfpfpkpfppppppppppppk
ppppamnpkdddffppkpbppppppppppppk
ppppfjppkppppfpfpkpfppppppppppppk
ppppfpjpkppppfbddgpbdddpppppppppp
pppppppppppppppppppppppppppppp"
6522 IF WIN=3 THEN PRINT "pdddp
ddhphpldddpldddppdddppddhppppffppp
fppkpfppppfppppfppffppppfpkppppfppp
bdgpfppppfppppfppffppppbdgppppfrip
ehppfppppfppppfppemppppehppppppfppk
fohpfppppfppppfppffppppfohppppmmpp
nppoppnppppnppppnppmmppnppoppnpppp
pppppppppppppppppppppppppppppp"
6523 IF WIN=4 THEN PRINT "phpph
ppddhpphpppphppppdddppppppppfppf
pgppohpfppppfppppfppkppppppppfppf
pfpppfpfpppppfppppfppkppppppppemmf
pemmmfpfpppppfppppfppkppppppppfppf
pfpppfpfpppppfppppfppkppppppppnppn
pnpppnppmmppmmppmmppppppppppddhp
plddhppdpppplpdddphpppplpppppfppk
lnppohpfjppkpfppfohpplnppppfpkpp
kppppfpfpjppkpfppfpohlnppppppfppk
kmmmmfpfpjppkpfppfpkfpppppppfppk
kppppfpfpjppkpfppfpkfpppppppmmnp
oppnppnppppppmmpppppppppppp"

```







```

;BET
6598 PRINT AT 8,0;"YOUR RETURN P
LUS YOUR STAKE IS £";(ODD*BET)+
BET
6599 LET MONEY=MONEY+(ODD*BET)+B
ET
6600 PRINT AT 15,4;"PRESS ^P~ TO
COINTINUE"
6650 IF INKEY$="P" THEN GO TO 6
655
6651 GO TO 6650
6655 IF MONEY>=1000000 AND MIL=0
THEN GO SUB 2000
6656 GO SUB 5100
6660 GO TO 7000
7000 REM BET
7001 LET D(1)=D(2): LET D(2)=D(3
): LET D(3)=D(4): LET D(4)=0
7002 LET E(1)=E(2): LET E(2)=E(3
): LET E(3)=E(4): LET E(4)=0
7003 LET F(1)=F(2): LET F(2)=F(3
): LET F(3)=F(4): LET F(4)=0
7004 LET G(1)=G(2): LET G(2)=G(3
): LET G(3)=G(4): LET G(4)=0
7005 LET H(1)=H(2): LET H(2)=H(3
): LET H(3)=H(4): LET H(4)=0
7006 LET I(1)=I(2): LET I(2)=I(3
): LET I(3)=I(4): LET I(4)=0
7007 LET J(1)=J(2): LET J(2)=J(3
): LET J(3)=J(4): LET J(4)=0
7008 LET K(1)=K(2): LET K(2)=K(3
): LET K(3)=K(4): LET K(4)=0
7009 IF WIN=1 THEN LET D(4)=1
7010 IF WIN=2 THEN LET E(4)=1
7011 IF WIN=3 THEN LET F(4)=1
7012 IF WIN=4 THEN LET G(4)=1
7013 IF WIN=5 THEN LET H(4)=1
7014 IF WIN=6 THEN LET I(4)=1
7015 IF WIN=7 THEN LET J(4)=1
7016 IF WIN=8 THEN LET K(4)=1
7027 PAPER 0: INK 6: CLS : BORDE
R 0

```

```

7028 INVERSE 1: PRINT AT 0,7;"BE
TTING CARD": INVERSE 0
7029 PRINT AT 2,4;"FORM HORSE
NUMBER"
7030 PRINT AT 4,4;D(1);D(2);D(3)
;D(4);" RED RUM 1"
7040 PRINT AT 5,4;E(1);E(2);E(3)
;E(4);" RAG TRADE 2"
7050 PRINT AT 6,4;F(1);F(2);F(3)
;F(4);" GRITTAR 3"
7060 PRINT AT 7,4;G(1);G(2);G(3)
;G(4);" HALLO DANDY 4"
7070 PRINT AT 8,4;H(1);H(2);H(3)
;H(4);" RUBSTIC 5"
7080 PRINT AT 9,4;I(1);I(2);I(3)
;I(4);" CORBIERE 6"
7090 PRINT AT 10,4;J(1);J(2);J(3)
;J(4);" BEN NEVIS 7"
7100 PRINT AT 11,4;K(1);K(2);K(3)
;K(4);" ALDANITI 8"
7110 PRINT AT 15,0;"YOU HAVE £";
MONEY
7112 LET MUCH=INT (RND*5)+4
7115 PRINT AT 13,4;"HORSES 1 TO
";MUCH;" ARE RUNNING"
7120 PRINT AT 17,0;"HOW MUCH DO
YOU WISH TO BET"
7125 INPUT "£";BET
7130 IF BET>MONEY OR BET<0 THEN
GO TO 7125
7140 PRINT AT 17,0;"WHICH HORSE
DO YOU WISH TO BACK "
7150 INPUT "NUMBER=";HORSE
7155 IF HORSE<1 OR HORSE>MUCH TH
EN GO TO 7150
7160 LET MONEY=MONEY-BET
7170 GO TO 50
8000 REM OUTLINE
8001 POKE 23609,100
8010 INK 6: PAPER 0: BORDER 0: C
LS
8020 FLASH 1: PRINT AT 0,7;"MINI

```



```

GRAND NATIONAL": FLASH 0
8030 PRINT AT 2,0;"YOU HAVE JUST
ENTERED A BETTING SHOP. YOU HAV
E £10 IN YOUR POCKET AND DE
CIDE TO PLACE A BETON THE NEXT R
ACE. YOUR HORSE WINS AT 4-1 G
IVING YOU A TOTAL OF £50. BY NO
W YOU ARE HOOKED ONHORSE RACING
AND DECIDE TO TRY AND MAKE YOUR
SELF A MILLIONAIRE."
8040 PRINT AT 15,10;"GOOD LUCK"
8050 PRINT AT 19,3;"PRESS ANY KE
Y TO CONTINUE"
8060 PAUSE 0
8065 CLS
8070 GO TO 40
9000 REM DEFINE CHAR
9010 FOR A=0 TO 7
9020 READ B
9030 POKE USR "A"+A,B
9040 NEXT A
9045 DATA 0,0,131,66,62,62,34,34
9130 FOR A=0 TO 7
9140 READ B
9150 POKE USR "D"+A,B
9155 DATA 0,0,32,16,15,15,8,16
9160 NEXT A
9170 FOR A=0 TO 7
9180 READ B
9190 POKE USR "E"+A,B
9195 DATA 0,0,192,128,128,128,12
8,64
9200 NEXT A
9290 FOR A=0 TO 7
9300 READ B
9310 POKE USR "H"+A,B
9315 DATA 0,0,8,4,3,3,2,2
9320 NEXT A
9330 FOR A=0 TO 7
9340 READ B
9350 POKE USR "I"+A,B
9355 DATA 0,0,48,32,224,224,32,32

```

```

9360 NEXT A
9450 FOR A=0 TO 7
9460 READ B
9470 POKE USR "L"+A,B
9475 DATA 0,0,2,1,0,0,0,1
9480 NEXT A
9490 FOR A=0 TO 7
9500 READ B
9510 POKE USR "M"+A,B
9515 DATA 0,0,12,8,248,248,136,4
9520 NEXT A
9610 FOR A=0 TO 7
9620 READ B
9630 POKE USR "P"+A,B
9635 DATA 0,0,0,85,255,255,255,2
55
9640 NEXT A
9650 FOR A=0 TO 7
9660 READ B
9670 POKE USR "Q"+A,B
9675 DATA 128,128,128,0,128,128,
128,0
9680 NEXT A
9700 FOR N=1 TO 19
9710 READ B: LET Q(N)=(B/10)
9711 READ B: LET Y(N)=B
9712 DATA 8,14,3,10,7,7,3,7,3,8,
3,8,3,8,3,8,8,10,3,7
9713 DATA 8,14,3,10,7,7,3,7,3,8,
3,8,3,8,3,8,10,7
9980 NEXT N
9990 GO TO 30

```



# CASTLE

Original program by M. J. Smith

In this game you must defend your castle from attacks by the local peasants. You do this by dropping cannon balls from the top of the battlements on to your attackers. The higher up the wall they get, the more points your score for hitting them. You have three lives with which to score the maximum number of points, and your controls are:

- 1 - Right
- 2 - Left
- 0 - Drop a cannon ball

At the end of each game your score and the current high score are displayed.

## Program Description

**10-40** POKE to force lower case letters, then dimensions arrays and sets initial variables.

**50-90** Print the castle walls, and then print the number of lives remaining.

**100-110** Randomly select a position at the bottom of the castle at which to start the attack.

**120** If key zero is pressed a cannon ball is released and travels down the wall. If it hits an attacker the score is increased and the routine loops back to start a new attack.

**130-150** Print the King at the top of the castle then move him left or right in response to a key press.

**160-210** Randomly move the attacker up the castle wall, between one and three characters positions each time, loop back to the start of the main routine.

**220-250** Ask if the player requires instructions.

**260-290** Print the instructions.

**300-310** Print 'get ready' message.

**320-370** Restore the data, read and install the UDG characters.

**380-390** Print the score and number of attackers killed.

**400-450** If the high score is beaten, then ask the player to input their name and then print the new high score.

```
10 POKE 23658,0: LET A$="A. NO
NYMOUS": LET hs=0
20 LET l=3: LET sc=0: LET q=.9
:
30 DIM w$(32): FOR j=1 TO 31:
LET w$(j)=CHR$(147): NEXT j
40 CLS: LET a=0: LET b=15: GO
SUB 220: CLS
50 FOR j=2 TO 20: PRINT ; INK
1; AT j,1; w$(): NEXT j
60 PRINT AT 1,1; "pmpmpmpmpmpmp
mpmpmpmpmpmpmpmpmpmp"
70 FOR c=1 TO 20: PRINT AT c,1
;"p"; AT c,31;"p": NEXT c
80 IF l=0 THEN GO TO 380
90 PRINT AT 21,4;"SCORE="; sc:
PRINT AT 21,21;"LIVES="; l
100 LET x=INT (RND*15)*2+2: LET
y=19
110 LET g=0
120 IF INKEY$="0" THEN LET g=1
: LET d=b+1: FOR m=0 TO 20: IF d
=x AND m>=y THEN BEEP .1,-30: P
RINT AT y+1,x; OVER 1;"C": LET s
c=sc+m: PRINT AT 21,10; sc: LET q
=q-.01: PRINT AT y+1,x; CHR$(147):
GO TO 80
130 PRINT AT a,b;" A "
140 IF INKEY$="2" AND b<29 THEN
LET b=b+1
150 IF INKEY$="1" AND b>1 THEN
LET b=b-1
160 IF RND<q THEN GO TO 200
170 FOR j=1 TO RND*3+1
180 PRINT AT y,x; INK 1;"B": PR
INT AT y+1,x; CHR$(147): IF ATTR (
y,x)=57 THEN LET y=y-1: IF y=1
THEN LET l=l-1: BEEP .2,-35: BE
EP 1,-40: PRINT AT y+1,x; CHR$(14
```



```

7: LET j=5: NEXT j: GO TO 80
190 NEXT j
200 IF g=1 THEN PRINT OVER 1;
AT m,d;"C": BEEP .01,m: PRINT O
VER 1;AT m,d;"C": NEXT m: LET g=
0
210 GO TO 120
220 PRINT "DO YOU NEED INSTRUCT
IONS ?(Y/N)"
230 IF INKEY#="n" THEN GO TO 3
10
240 IF INKEY#="y" THEN GO TO 2
60
250 GO TO 230
260 PAPER 4: BORDER 4: CLS : PR
INT AT 2,11; BRIGHT 1;"CASTLE";
BRIGHT 0: PRINT : PRINT "YOU ARE
DEFENDING YOUR CASTLE AGAINST
THE LOCAL PEASANTRY"
270 PRINT "AND MUST PREVENT THE
M CLIMBING THE WALLS.": PRINT :
PRINT "YOU HAVE THREE LIVES WIT
H WHICH TO SCORE THE MAXIMUM POS
SIBLE NUMBER OF POINTS.": PRIN
T : PRINT "THE HIGHER UP THE WAL
L YOUR ATTACKER GETS BEFORE
YOU HIT HIMBY DROPPING A CANNON
BALL ON HISHEAD";
280 PRINT ", THE MORE POINTS YO
U WILL SCORE.": PRINT : PRINT T
AB (3);"PRESS ANY KEY TO CONTINU
E": PAUSE 0
290 CLS : PRINT AT 8,10;"CONTRD
LS": PRINT AT 10,4;"PRESS 1 TO M
OVE LEFT";AT 12,4;"PRESS 2 TO MO
VE RIGHT";AT 14,1;"PRESS 0 TO DR
OP A CANNON-BALL"
300 FOR s=-15 TO 10 STEP .1: BE
EP .01,s: NEXT s
310 CLS : FOR s=0 TO 10: CLS :
PRINT AT 10,3;"GET READY HERE TH
EY COME ": BEEP .1,s: NEXT s

```

```

320 RESTORE : FOR z=144 TO 147:
FOR p=0 TO 7: READ a1: POKE USR
CHR# z+p,a1: NEXT p: NEXT z
330 DATA 24,36,24,60,90,24,36,6
6
340 DATA 24,60,24,60,90,24,36,3
6
350 DATA 0,0,0,0,24,60,60,24
360 DATA 255,255,102,102,255,25
5,153,153
370 RETURN
380 PAPER 7: BORDER 7: CLS : PR
INT INK 2;AT 2,7;"YOU SCORED ";
sc;" POINTS,";AT 4,12;"KILLING";
;AT 6,10; (.9-q)*100;" ATTACKERS.
"
390 PAUSE 200
400 IF sc>hs THEN LET hs=sc: P
RINT AT 10,8; INK 2; FLASH 1;"NE
W HIGH SCORE !": PRINT AT 20,0;"
ENTER NAME": INPUT a#
410 CLS : PRINT AT 3,8;"THE HIG
H SCORE IS:";AT 5,15;hs;AT 8,15;
"BY";AT 10,10;a#
420 PRINT AT 20,0;"DO YOU WANT
ANOTHER GO ?(Y/N)"
430 IF INKEY#="n" THEN CLS : P
RINT AT 10,13; FLASH 1;"BYE": FO
R j=1 TO 6: BEEP .05,5*j: NEXT j
: STOP
440 IF INKEY#="y" THEN GO TO 2
0
450 GO TO 430

```





Original program by J. Aughton

Splash! is an exciting, brand new board game for one or two players. It is played on a seven by seven squared board, and the object of the game is to capture more squares than your opponent. Thus, the first player to capture 25 or more squares will be the winner. Each player takes a turn to play in any uncaptured square. Playing in a square affects those surrounding it.

Initially all the squares are black. As the game progresses they change colour according to the following scheme:

RED → PURPLE → GREEN → YELLOW → WHITE

Playing in a square increases its colour by three steps, (the sequence of colours is printed at the side of the board to help you). The surrounding eight squares have their colours increased by two steps and the sixteen squares around these, by one step. Any squares which are white at the end of the move are then captured and cannot be played on in future moves.

If the one player option is selected then your opponent will be the computer. For this game there are three levels of play, level three being the most difficult. At all levels of play the computer will take some time to make its move, but as the board fills with captured squares, the time taken by the computer to make a move decreases. If you wish to quit the game, simply enter Q when prompted 'letter?'.  
 This game provides a very colourful challenge to anyone with a taste for board games. The score of each player is printed at the top of the screen during play, and the game will end automatically when all squares are captured.

## Program Description

10 Set PAPER, INK and BORDER colour.

30-40 POKE to set CAPS LOCK.

60-70 Read and install the UDG character used to produce the border line.

90-120 Dimension arrays and set variables to their initial values.

130-160 Ask how many players there will be, and then check that the number is within the correct range. If only one player is selected, then request which level of play is required (1-3), and check the value is within the correct range. Finally randomly select which player will move first.

180-250 Print out the screen display.

260 Set up a defined function to translate the letter and number co-ordinates on the board to Y, X co-ordinates for printing.

280-290 Print at the bottom of the screen which player is to move next. If the next move is the computer's then GO TO routine which decides the best move to make.

310-350 Request the player to make a move, then translate the instructions into Y, X co-ordinates.

360-390 Reset the pointer (PC) to select the next player to move. Print the scores at the top of the screen, then check that the game has not ended. If all squares are captured then GO TO end of game routine.

410-510 Check the colour attributes of the square "splashed" and reset its colour by three units. If the square is already taken, loop back to request a new input. Finally change the colour of the square.

520-660 Check the attributes of firstly the eight squares around the selected square, then the sixteen around those. Change the colours of these, and if they finally end up as white, capture them.

670-860 Basically the same routine as for lines 410-660, except that no changes occur, any square which would be changed to white is recorded by incrementing variable TOTE by one. On level one only every third square on the board is checked in this



way, on level three however all squares are checked.

**880-910** Select the square which yields the highest score, or if no square yields a score then randomly select any empty square.

**920** Print the move the computer will make then go to the routine that actually changes the colours of the squares.

**1000-1080** End of game routine.

**1090-1270** Instructions.

```
10 PAPER 7: INK 0: BORDER 7: C
LS
20 REM SPLASH
30 REM FORCE CAPS LOCK
40 POKE 23658,8
50 REM SET UP UDG
60 FOR N=0 TO 7: READ B: POKE
USR (CHR$ 144)+N,B: NEXT N
70 DATA 170,85,170,85,170,85,1
70,85
80 REM SET VARIABLES AND ARRAYS
90 LET D$=""
      ": REM 30 spaces
100 GO SUB 1090
110 PAPER 0: INK 5: BORDER 0: C
LS
120 LET PL=0: LET PLAY1=0: LET
PLAY2=0: DIM C(7): LET C(1)=2: L
ET C(2)=3: LET C(3)=4: LET C(4)=
6: LET C(5)=7: LET C(6)=7: LET C
(7)=7
130 PRINT AT 1,5;"How many play
ers 1 or 2?": INPUT P$: LET PLA
Y=CODE P$-48: IF PLAY<1 OR PLAY>
2 THEN GO TO 130
140 IF PLAY=1 THEN PRINT AT 2,
5;"What level do you wish 1-3)":
INPUT P$: LET LEVEL=CODE P$-48:
LET LEVEL=4-LEVEL: IF LEVEL<1 O
R LEVEL>3 THEN GO TO 140
150 LET PL=INT ((RND*1)+.5): PR
INT TAB 5;"PLAYER ";PL+1;" WILL
START FIRST": PAUSE 100
```

```
160 CLS
170 REM SET UP SCREEN
180 FOR K=0 TO 31: PRINT PAPER
6: INK 2: AT 0,K:CHR$ 144: AT 21,
K:CHR$ 144: NEXT K : FOR K=0 TO
21: PRINT PAPER 6: INK 2: AT K,0
:CHR$ 144: AT K,31:CHR$ 144: NEXT
K
190 LET A$="SPLASH!": FOR J=1 T
O LEN A$: PRINT PAPER 0: INK (R
ND*7)+1: AT 1,11+J:A$(J): NEXT J
200 PRINT AT 1,1;"PLAYER 1": AT
1,22;"PLAYER 2"
210 FOR J=1 TO 16 STEP 2: FOR K
=4 TO 18: PRINT PAPER 1: INK 1:
AT K,J+7:CHR$ 144: NEXT K: NEXT
J
220 FOR J=4 TO 18 STEP 2: FOR K
=1 TO 15: PRINT PAPER 1: INK 1:
AT J,K+7:CHR$ 144: : NEXT K: NEXT
J
230 FOR J=5 TO 18 STEP 2: PRINT
AT J,6:CHR$ ((64+J/2)-2): NEXT
J
240 FOR J=2 TO 15 STEP 2: PRINT
AT 3,J+7:(J/2): NEXT J
250 FOR J=2 TO 10 STEP 2: PRINT
PAPER 0: INK C((J/2)): AT 20-J,
24:CHR$ 143: PRINT AT (20-J)-1+2
*(J=10),24;"^": NEXT J
260 DEF FN X(X)=(X*2)+7: DEF FN
Y(Y)=(2*Y)+3
270 LET PL=PL+1
280 PRINT AT 20,1:D$: PRINT AT
20,12;"PLAYER ";PL;" "
290 IF PLAY=1 AND PL=2 THEN GO
TO 680
300 REM REQUEST MOVE
310 INPUT "LETTER?";I$: IF COD
E I$<65 OR CODE I$>71 THEN GO
TO 310: IF I$="Q" THEN RUN
320 INPUT "NUMBER?";P$: LET X=
```



```

CODE P=-48: IF X<1 OR X>7 THEN
  GO TO 320
330 LET Y=CODE (I)-64
340 LET Y=FN Y(Y): LET X=FN X(X
)
350 GO SUB 420
360 IF PL=2 THEN LET PL=0
370 REM PRINT SCORE
380 PRINT AT 2,3;PLAY1;AT 2,25;
PLAY2
390 IF PLAY1+PLAY2=49 THEN GO
TO 990
400 GO TO 270
410 REM MAIN ROUTINE TO CHECK C
OLOUR CHANGES
420 LET CHAR=143
430 LET P=ATTR (Y,X): IF P=5 TH
EN LET P=0: GO TO 450
440 LET P=P+-1*(P<5)+-2*(P>5)
450 IF P=5 THEN PRINT #1;AT 0,
5;"INVALID SPLASH": PAUSE 20: GO
TO 280
460 IF C(P+1)=7 THEN LET CHAR=
48+PL: LET PLAY1=PLAY1+1*(PL=1):
LET PLAY2=PLAY2+1*(PL=2)
470 REM IF UNIT TAKEN THEN MOV
E ON
480 IF CODE (SCREEN$(Y,X))<>32
THEN GO TO 500
490 PRINT PAPER 0; INK C(P+1);
AT Y,X;CHR$ CHAR
500 LET L=2: LET FLAG=0
510 LET Y1=Y-L: LET X1=X-L
520 REM CHANGE COLOUR OF UNITS
AROUND SELECTED UNIT
530 FOR J=0 TO L: FOR K=0 TO L:
LET CHAR=143
540 IF CODE (SCREEN$(Y1+J*2,X1
+K*2))<>32 THEN GO TO 630
550 LET P=ATTR (Y1+J*2,X1+K*2):
IF P=5 THEN LET P=0: GO TO 580
560 REM IF P=5 THEN GO TO 2070

```

```

570 LET P=P+-1*(P<5)+-2*(P>5)
580 IF C(P+1)=7 THEN LET P=5:
LET CHAR=48+PL: LET PLAY1=PLAY1+
1*(PL=1): LET PLAY2=PLAY2+1*(PL=
2)
590 IF Y1+J*2<4 OR Y1+J*2>17 TH
EN GO TO 630
600 IF X1+K*2<9 OR X1+K*2>21 TH
EN GO TO 630
610 REM PRINT NEW SPLASH
620 PRINT PAPER 0; INK C(P+1);
AT Y1+J*2,X1+K*2;CHR$ CHAR: BEEP
C(P+1)/100,C(P+1)*9
630 NEXT K: NEXT J
640 IF FLAG=1 THEN GO TO 660
650 LET FLAG=1: LET L=4: GO TO
510
660 RETURN
670 REM CHECK POSSIBLE SCORES FO
R COMPUTERS MOVE
680 PRINT AT 20,1;D$: PRINT AT
20,3;"Thinking! please be patien
t"
690 LET TOTE=0: LET BEST=0: LET
YY=0: LET XX=0: FOR T=1 TO 7: F
OR U=1 TO 7 STEP LEVEL
700 LET Y=FN Y(T): LET X=FN X(U
)
710 LET P=ATTR (Y,X): IF P=5 TH
EN LET P=0: GO TO 900
720 LET P=P+-1*(P<5)+-2*(P>5)
730 IF P=5 THEN GO TO 880
740 IF P>1 THEN LET TOTE=TOTE+
1
750 LET L=2: LET FLAG=0
760 LET Y1=Y-L: LET X1=X-L
770 FOR J=0 TO L: FOR K=0 TO L
780 IF CODE (SCREEN$(Y1+J*2,X1
+K*2))<>32 THEN GO TO 840
790 LET P=ATTR (Y1+J*2,X1+K*2):
IF P=5 THEN LET P=0: GO TO 810
800 LET P=P+-1*(P<5)+-2*(P>5)

```



```

810 IF P>(2*(FLAG=0)+3*(FLAG=1)
) THEN LET P=5: LET TOTE=TOTE+1
820 IF Y1+J*2<4 OR Y1+J*2>17 TH
EN GO TO 840
830 IF X1+K*2<9 OR X1+K*2>21 TH
EN GO TO 840
840 NEXT K: NEXT J
850 IF FLAG=1 THEN GO TO 880
860 LET FLAG=1: LET L=4: GO TO
760
870 REM SELECT HIGEST SCORING M
OVE
880 IF TOTE>BEST THEN LET BES
T=TOTE: LET TOTE=0: LET YY=T: LE
T XX=U
890 REM MOVE TO NEXT UNIT
900 LET TOTE=0: NEXT U: NEXT T
910 IF BEST=0 THEN LET YY=INT
(RND*7)+1: LET XX=INT (RND*7)+1
920 LET X=XX: LET Y=YY: LET BES
T=0: PRINT AT 20,1;D$:AT 20,2;"M
y move is ";CHR$(64+y);" ";x: G
O TO 340
990 REM END OF GAME ROUTINE
1000 FOR J=1 TO 20: PRINT AT J,1
;D$: NEXT J
1010 PRINT AT 5,9;"The winner is
"
1020 FOR J=1 TO 60 STEP 5: BEEP
.005,J: NEXT J: FOR J=60 TO 1 ST
EP -1: BEEP .005,J: NEXT J
1030 IF PLAY1>PLAY2 THEN PRINT
AT 7,11;"Player 1"
1040 IF PLAY2>PLAY1 THEN PRINT
AT 7,11;"Player 2"
1050 IF ABS (PLAY1-PLAY2)>=3 THE
N PRINT AT 9,9;"By a landslide!"
"
1060 IF ABS (PLAY1-PLAY2)=2 THEN
PRINT AT 9,9;"By a good margin
"
1070 IF ABS (PLAY1-PLAY2)=1 THEN

```

```

PRINT AT 9,9;"By a close shave
"
1080 PRINT AT 20,1;"Press any ke
y for another game": PAUSE 0: RU
N
1090 REM INSTRUCTIONS
1100 BORDER 1: PRINT #1; PAPER 1
; INK 1;AT 0,0;,,,,: FOR K=0 TO
31: PRINT PAPER 6; INK 2;AT 0,K
;CHR$ 144;AT 21,K;CHR$ 144: NEXT
K : FOR K=0 TO 21: PRINT PAPER
6; INK 2;AT K,0;CHR$ 144;AT K,3
1;CHR$ 144: NEXT K
1110 PRINT AT 1,11;"SPLASH!";AT
2,1;"This is a brand new board g
ame"
1120 PRINT AT 3,1;"for two playe
rs. It is played";AT 4,1;"on a s
even by seven board and"
1130 PRINT AT 5,1;"the object of
the game is to";AT 6,1;"capture
more squares than your";AT 7,1;
"opponent.";AT 8,1;"Thus, the fi
rst player to";AT 9,1;"capture t
wenty five or more"
1140 PRINT AT 10,1;"squares is t
he winner.";AT 11,1;"You take it
in turns to play";AT 12,1;"in a
ny free (ie uncaptured)";AT 13,1
;"square. "
1150 PRINT AT 14,1;"Playing in a
square affects";AT 15,1;"those
surrounding it.": PRINT AT 16,1;
"Initially, all squares are";AT
17,1;"black. As the game progres
ses";AT 18,1;"they change ";
1160 PRINT "colour according";AT
19,1;"to the following scheme:-
";AT 20,3;"PRESS ANY KEY TO CONT
INUE": PAUSE 0
1170 FOR J=1 TO 20: PRINT AT J,1
;D$: NEXT J

```



```

1180 FOR J=1 TO 3: PRINT AT J,1;
  PAPER 0; INK 0;D$: NEXT J: PRIN
T AT 2,9; PAPER 0; INK 2;CHR$ 14
3;"->"; PAPER 0; INK 3;CHR$ 143;
">"; PAPER 0; INK 4;CHR$ 143;"->
"; PAPER 0; INK 6;CHR$ 143;"->"
; PAPER 0; INK 7;CHR$ 143
1190 PRINT AT 4,1;"If a square i
s left white at";AT 5,1;"the end
of a move, it is then";AT 6,1;"
captured and initialled by the";
AT 7,1;"moving player."
1200 PRINT AT 8,1;"Playing in a
square increases";AT 9,1;"its co
lour by three steps";AT 11,1;"Th
e eight squares immediately";AT
12,1;"around it have their colou
rs"
1210 PRINT AT 13,1;"increased by
two steps and";AT 14,1;"the six
teen squares around";AT 15,1;"th
ose by one step."
1220 PRINT AT 17,1;"Any squares
left white at the";AT 18,1;"end
of the move are captured";AT 19,
1;"and cannot be played on";AT 2
0,1;"in further moves."
1230 PRINT #1;AT 0,3;"PRESS ANY
KEY TO CONTINUE": PAUSE 0: PRINT
  #1;AT 0,1;,,
1240 FOR J=1 TO 20: PRINT AT J,1
;D$: NEXT J
1250 PRINT AT 1,1;"There are thr
ee levels of play";AT 2,1;"when
playing against the";AT 3,1;"com
puter. Level three is";AT 4,1;"t
he most difficult.";AT 5,1;"At a
ll levels of difficulty";AT 6,1;
"the computer will take some"
1260 PRINT AT 7,1;"time to decid
e the best move.";AT 8,1;"If you
wish to quit the game";AT 9,1;"

```

```

at any time press KEY 0 when";AT
10,1;"asked 'letter?'. "
1270 PRINT AT 13,10;"GOOD LUCK";
AT 15,5;"PRESS ANY KEY TO PLAY":
  PAUSE 0: RETURN

```



# ROBOTANK

Original program by Bryn Phillips

In this game you must drive the Robotank around a battlefield strewn with a number of targets. On running the program the instructions will be displayed and the user defined graphics installed. The screen is set by pressing any key, and the battlefield is drawn, containing anti-tank traps, anti-tank guns, rocket launchers and command posts. The Robotank is positioned at the centre of the bottom line on the screen. To control the tank you enter a single letter as a command and then press ENTER. You are allowed thirty one such commands then the tank will start automatically.

As you enter each command it will be copied onto the top line in order that you may check your chain of commands. On running, the program will display each command as it is executed, again at the top of the screen. At the bottom of the screen will be displayed your running score, along with the highest score achieved. You will also be asked which level of play you require. Level one is the easiest, each level increases the number of targets and the points value of each target. You will have eight attempts to destroy all the targets, then the game will end, unless of course, you collide with any of the objects.

To instruct your tank, enter the following commands in whatever sequence you want:

- F — Forward one character space
- R — Turn right 90 degrees
- L — Turn left 90 degrees
- S — Shoot (range 5 character squares)

## Program Description

10 POKE to force CAPS LOCK.

40-50 Dimension and set up arrays.

80-100 Set variables to their initial values.

120 Print the tank at its starting position.

130-150 Request an input, then check that the number of commands entered so far does not exceed thirty one. Print the command entered at the top of the screen.

170-200 Decode the instruction string, then print the score at the bottom of the screen.

210 Sets variables controlling the direction of the tank, in accordance with the decoded instruction.

220-250 Check the variables controlling the direction of the tank and then check if the command being coded has been fired.

270-280 Set the co-ordinates for the tank position to their new values.

300 Checks the tank has not collided with any object.

310 Sets the pointers for the tank arrays, A1 and B1 to print the tank in the correct alignment.

320-340 Erases the old image of the tank by printing a blank space.

360-380 Prints the image of the tank in its new position.

400-430 Set the variables which control the position of the shell if the tank has fired, then check the shell does not print off the screen.

440-450 Check if the shell has hit a target.

460-470 Print the shell, then increment the loop counter to move the shell forward.

500 Loops back and decodes the next instruction.

510 Loops back to start the next turn.

530-570 Set up the character arrays A1 and B1 to represent the tank.

590-620 Read and install the user defined graphics characters.

630-840 Data for the UDGs.

860-970 Set up the screen display.

990-1050 Destroy the target and increment the score.

1080-1150 Destroy the tank, then clear the screen and print the score and high score. Invite the player to try again.

1150-1390 Instructions.

```
10 POKE 23658,8: GO TO 1160
```

```
20 PAPER 6: INK 0: BORDER 1: C
```

```
LS
```

```
30 REM DIMENSION & SET ARRAYS
```

```
40 DIM O$(30): DIM T$(6): DIM
```



```

A$(16): DIM B$(16): DIM R(4): LE
T R(1)=0: LET R(2)=1: LET R(3)=0
: LET R(4)=-1: LET HSCORE=0
50 GO SUB 520
60 RETURN
70 REM SET INITIAL VARIABLES
80 LET PY=19: LET PX=15: LET P
Y1=19: LET PX1=15: LET PN=1: LET
PN1=4: LET P1=4: LET P2=1
90 GO SUB 850
100 LET NO=0: LET FLAG=0: LET S
CORE=0
110 REM SET TANK DIRECTION & M
OVEMENT
120 PRINT PAPER 6; INK 0; AT PY
,PX; A$(PN TO PN1); AT PY+1, PX; B$(
PN TO PN1)
130 FOR G=1 TO 8: PRINT PAPER
1; INK 7; AT 0,0; ,,
140 REM REQUEST INPUT
150 INPUT "ORDER ? "; P$: IF P$<
>"F" AND P$<>"L" AND P$<>"R" AN
D P$<>"S" AND P$<>"P" AND P$<>"D
" THEN GO TO 150
153 IF P$="D" AND NO<>0 THEN P
RINT PAPER 1; INK 7; AT 0,NO; CHR
$(8); " ";: LET NO=NO-1: GO TO 1
50
154 IF P$="D" AND NO=0 THEN
GO TO 150
155 LET NO=NO+1: IF NO<31 AND
P$<>"P" THEN LET O$(NO)=P$: PRI
NT PAPER 1; INK 7; AT 0,0; O$( TO
NO): GO TO 150
160 REM DECODE INSTRUCTIONS
170 FOR Q=1 TO NO-1
180 LET K$=O$(Q)
190 PRINT PAPER 1; INK 7; AT 21
,2; "SCORE="; INT SCORE; AT 21,18;
"HI-SCORE="; INT HSCORE
200 PRINT PAPER 1; INK 7; AT 0,
0; ,,; AT 0,0; O$( TO Q)

```

```

210 LET P1=P1+(1*(K$="R"))+(-1*
(K$="L")): LET P2=P2+(1*(K$="R"
)))+(-1*(K$="L"))
220 REM CHECK DIRECTION
230 IF P1<1 OR P1>4 THEN LET P
1=4*(P1<1)+1*(P1>4)
240 IF P2<1 OR P2>4 THEN LET P
2=4*(P2<1)+1*(P2>4)
250 IF K$<>"F" THEN GO TO 310
260 REM SET TANK DIRECTION
270 LET PY=PY+R(P1): LET PX=PX+
R(P2)
280 LET SPY=PY: LET SPX=PX: LET
SPY=SPY+R(P1)+(1*(R(P1)=1)): LE
T SPX=SPX+R(P2)+(1*(R(P2)=1))
290 REM CHECK FOR COLLISION
300 IF ATTR (SPY,SPX)<>48 OR AT
TR (SPY+1*(R(P1)=0),SPX+1*(R(P2)
=0))<>48 THEN LET FLAG=1
310 LET PN=13*((R(P1)=0) AND (R
(P2)=1))+9*((R(P1)=0) AND (R(P2)
=-1))+1*((R(P1)=-1) AND (R(P2)=0
))+5*((R(P1)=1) AND (R(P2)=0)):
LET PN1=PN+3
320 REM ERASE OLD IMAGE OF TAN
K
330 PRINT PAPER 6; INK 0; AT PY
1,PX1; " "; AT PY1+1,PX1; " "
340 LET PY1=PY: LET PX1=PX
350 REM PRINT NEW TANK IMAGE
360 PRINT PAPER 6; INK 0; AT PY
,PX; A$(PN TO PN1); AT PY+1, PX; B$(
PN TO PN1): BEEP .005,46: BEEP
.005,60
370 IF FLAG=1 THEN GO TO 1080
380 IF K$<>"S" THEN GO TO 490
390 REM SHOOT
400 LET SPY=PY: LET SPX=PX: FOR
J=1 TO 5: LET SPY=SPY+R(P1)+(1*
(R(P1)=1 AND SPY=PY)): LET SPX=S
PX+R(P2)+(1*(R(P2)=1 AND SPX=PX)
)

```



```

410 REM CHECK SHELL IS NOT OFF
SCREEN
420 IF SPY>20 OR SPY<1 THEN LE
T J=6: GO TO 480
430 IF SPX>30 OR SPX<1 THEN LE
T J=6: GO TO 480
440 REM CHECK FOR A HIT
450 LET A1=ATTR (SPY,SPX): LET
A2=ATTR (SPY+(1*(R(P1)=0)),SPX+(
1*(R(P2)=0))): IF A1<>48 OR A2<>
48 THEN GO SUB 990
460 REM PRINT SHELL
470 PRINT PAPER 6; INK 2; AT SP
Y,SPX; CHR$ 46: PAUSE 4: PRINT P
APER 6; INK 0; AT SPY,SPX; " "
480 NEXT J
490 NEXT Q
500 NEXT Q
510 LET NO=0: LET O$="": NEXT G
: GO TO 1100
520 REM SET UP CHARACTER ARRAY
FOR TANK
530 LET I#=CHR$ 17+CHR$ 6
540 LET A#=I#+CHR$ 144+CHR$ 145
+I#+CHR$ 150+CHR$ 151+I#+CHR$ 15
2+CHR$ 153+I#+CHR$ 156+CHR$ 157
550 LET B#=I#+CHR$ 146+CHR$ 147
+I#+CHR$ 148+CHR$ 149+I#+CHR$ 15
4+CHR$ 155+I#+CHR$ 158+CHR$ 159
560 FOR J=1 TO 6: LET T$(J)=CHR
$ 164: NEXT J
570 RETURN
580 REM SET UP UDGs
590 LET A=0
600 LET A=A+1: FOR N=0 TO 7: RE
AD B: POKE USR CHR$ (143+A)+N,B:
NEXT N
610 IF A<21 THEN GO TO 600
620 RETURN
630 DATA 1,1,241,159,241,146,24
4,149
640 DATA 128,128,149,249,143,73

```

```

,47,169
650 DATA 245,148,243,144,240,14
4,255,2
660 DATA 175,41,207,9,15,9,255,
64
670 DATA 149,244,146,241,159,24
1,1,1
680 DATA 169,47,73,143,249,143,
128,128
690 DATA 1,255,144,240,144,243,
148,245
700 DATA 64,255,9,15,9,207,41,1
75
710 DATA 63,42,42,63,16,19,20,2
49
720 DATA 255,170,170,255,2,194,
35,162
730 DATA 248,20,19,16,63,42,42,
63
740 DATA 162,35,194,2,255,170,1
70,255
750 DATA 255,85,85,255,64,67,19
6,69
760 DATA 252,84,84,252,8,200,40
,159
770 DATA 69,196,67,64,255,85,85
,255
780 DATA 31,40,200,8,252,84,84,
252
790 DATA 255,231,219,219,231,25
5,102,102
800 DATA 48,25,46,70,255,231,23
1,66
810 DATA 129,129,126,60,255,255
,231,66
820 DATA 4,8,30,255,28,25,231,6
6
830 DATA 132,74,49,127,49,74,13
2,8
840 RETURN
850 REM SET UP SCREEN
860 FOR J=0 TO 31: PRINT PAPER

```



```

1; INK 1; AT 0, J; CHR# 143; AT 21,
J; CHR# 143: NEXT J: FOR J=0 TO 2
1: PRINT PAPER 1; INK 1; AT J, 0;
CHR# 143; AT J, 31; CHR# 143: NEXT
J
870 FOR J=1 TO 3*LEVEL
880 LET X=RND*25: LET Y=RND*20
890 IF ATTR (Y, X) <> 48 THEN GO
TO 880
900 PRINT PAPER 6; INK 1; AT Y,
X; T$( TO RND*5+1): NEXT J
910 FOR J=1 TO 4
920 LET CHAR=164-J
930 FOR K=1 TO 3+LEVEL
940 LET Y=RND*19: LET X=RND*29
950 IF ATTR (Y, X) <> 48 THEN GO
TO 940
960 PRINT PAPER 6; INK J+1; AT
Y, X; CHR# CHAR
970 NEXT K: NEXT J: RETURN
980 REM DESTROY TARGET
990 LET C=SPY+1*(R(P1)=0): LET
D=SPX+1*(R(P2)=0)
1000 IF A1=9 OR A2=9 THEN PRINT
PAPER 1; INK 1; AT SPY+R(P1), SP
X; " ": GO TO 490
1010 LET SCORE=SCORE+(10*G)*LEVE
L: IF HSCORE<SCORE THEN LET HS
CORE=SCORE
1020 FOR K=1 TO 2
1030 PRINT OVER 1; PAPER 6; INK
0; AT SPY, SPX; CHR# 42; AT C, D; CHR
# 42
1040 BEEP .1, 10: NEXT K
1050 PRINT PAPER 6; INK 0; AT SP
Y, SPX; " "; AT C, D; " "
1060 LET J=6: RETURN
1070 REM DESTROY TANK
1080 FOR J=1 TO 5: PRINT OVER 1
; BRIGHT 1; PAPER 6; INK 2; AT PY
, PX; "!/"; AT PY+1, PX; "-_"; AT PY, P
X; "\/"; AT PY+1, PX; "'~": PAUSE 2:

```

```

NEXT K: BEEP .01, 10*5: NEXT J
1090 REM END GAME
1100 FOR J=0 TO 21: BEEP .05, 60-
(J*2.6): PRINT PAPER 6; INK 0; A
T J, 0; ,, : NEXT J
1110 PRINT PAPER 6; INK 0; AT 5,
10; "HIGH SCORE"; AT 7, 12; HSCORE; A
T 10, 10; "YOUR SCORE"; AT 12, 12; SC
ORE
1120 PRINT PAPER 6; INK 0; AT 16
, 0; " DO YOU WANT TO TRY AGAIN Y
/N": INPUT P$: IF P#="N" THEN P
RINT PAPER 6; INK 0; AT 18, 13; "B
YE!": FOR J=1 TO 6: BEEP .05, 10*
J: NEXT J: STOP
1130 IF P#<>"Y" THEN GO TO 1120
1140 PRINT PAPER 6; INK 0; AT 20
, 7; "ENTER LEVEL": INPUT L$: LET
LEVEL=(CODE L#)-48
1145 IF LEVEL<1 OR LEVEL>3 THE
N GO TO 1140
1146 CLS : GO TO 80
1150 REM INSTRUCTIONS
1160 PRINT AT 1, 12; "ROBOTANK": P
RINT "You are the commander of t
he": PRINT "latest design in tan
ks, the": PRINT "'ROBOTANK'. You
control the tank"
1170 PRINT "by entering a series
of commands": PRINT "which will
be interpreted and": PRINT "the
n carried out."
1180 PRINT : PRINT "Each command
is represented by a single let
ter and you have to"
1190 PRINT "press the ENTER key
after typing in each one. You can
have a"
1200 PRINT "series of up to 31 c
ommands."
1210 PRINT : PRINT "Only the fol
lowing commands will be acted upon."

```



```

1215 PRINT #1;AT 0,3;"PRESS ANY
KEY TO CONTINUE": PAUSE 0
1218 CLS : PRINT : PRINT : PRIN
T : PRINT : PRINT
1220 PRINT : PRINT " F....forw
ard "
1230 PRINT " R....turn right"
1240 PRINT " L....turn left"
1250 PRINT " S....shoot"
1252 PRINT " D....delete last
instruction"
1253 PRINT " P....program comp
lete-GO"
1260 GO SUB 590: PRINT #1;AT 0,3
;"PRESS ANY KEY TO CONTINUE": PA
USE 0
1270 CLS : PRINT "The game start
s with a battle field being dr
awn on which a number of targ
ets will be shown."
1280 PRINT : PRINT "The targets
consist of anti-tanktraps, anti-
tank guns, rocket launchers, r
adar stations and command post
s."
1290 PRINT : PRINT "You have eig
ht attempts with which to des
troy all the targets"
1300 PRINT : PRINT "The 'ROBOTAN
K' will be displayed at the botto
m of the screen. As you enter yo
ur commands they": PRINT "will b
e copied onto the top of the sc
reen."
1310 PRINT : PRINT "Once you hav
e entered thirty onecommands the
tank will start off": PRINT "on
its mission."
1315 GO SUB 30: PRINT #1;AT 0,3;
"PRESS ANY KEY TO CONTINUE": PAU
SE 0
1320 CLS : PRINT : PRINT "If the

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tank collides with any object
then the game will end."
1330 PRINT : PRINT "During play
your current score and the high
score is displayed."
1350 PRINT : PRINT "The points v
alue of each target you destroy
increases with each attempt."
1360 PRINT : PRINT "There are th
ree levels of play each increas
ing the number of targets and
their value."
1370 PRINT : PRINT "Enter the le
vel of play (1-3)?"
1380 INPUT L$: LET LEVEL=(CODE L
$)-48: IF LEVEL<1 OR LEVEL>3 THE
N GO TO 1380
1390 PAPER 6: INK 0: BORDER 1: C
LS : GO TO 80

```



# MARTIAN ATTACK

Original program by N. Stojanovic

Martian Attack is an arcade-style game, in which you must save the earth from nasty green martians. To do this you use both a helicopter and a plane. The plane is used to shoot down the aliens while the helicopter attempts to reach the landing platform at the top of the screen. As you near the platform the alien modules change to heads and the points scored for destroying them increases. Once the helicopter reaches the platform you pass onto the next level of the game. At each successive level, the number of aliens increases.

You score 25 points for each module you destroy, 75 for heads and 50 for an octopus. If you land the helicopter on the platform you score an additional 100 points. To move the helicopter and plane use the following keys:

## Plane

Q – Up

M – Down

I – Turn around

P – Fire a missile

## Helicopter

[SHIFT]Q – Up

[SHIFT]M – Down

[SHIFT]I – Left

[SHIFT]P – Right

## Program Description

**20-60** Read and install the user defined graphic symbols. Three complete sets are defined at different stages of the game.

**110-148** Data for UDGs.

**160-170** Print the title.

**190-200** Draw a high resolution box, then play the introductory music.

**240-296** Instructions.

**310-360** Print the city and the martian headquarters.

**370-420** Print the score and high score.

**440-480** Dimension arrays and set variables to their initial values.

**490-520** Print both the plane and the helicopter in their starting positions.

**530** Play a tune.

**550-720** Detect which key has been pressed and go to the relevant subroutine. Set the initial values of some variables.

**730-840** If the invasion has been beaten then print the score and high score. Then print a message.

**850-1040** If the aliens win, play a tune and request the player to select another game.

**2000-2050** Subroutine to print the helicopter crash if it hits a module.

**2100-2150** Subroutine to print a helicopter crash if it hits an octopus.

**2200-2350** Print a collision between a missile and the helicopter.

**2400-2440** Print an explosion if a missile hits a head.

**2500-2540** Print an explosion if a missile hits an octopus.

**2600-2650** Print a collision between the plane and a module.

**2700-2750** Print a collision between the helicopter and the plane.

**2800-2950** Print a collision between a head and the plane.

**3300-3350** Clear the screen.

**3500-3560** Print the score.

**3600-3680** Routine to destroy the plane.

**3700-3780** Routine to destroy the helicopter.

**3800-3870** Routine for eliminating the heads, then print the score and high score.

**3900-3970** Routine for eliminating the modules, then print the score and high score.

**4500-4520** Subroutine to decide if an octopus is to be generated.

**4530-4550** Check that the octopus has not crashed.

**4560-4590** Check that the octopus has not moved off the screen then print the octopus.

**5000-5200** Randomly select a position at which to print a module, then check a crash will not occur. If a crash will not occur, then print a module.

**5500-5680** Change the modules to heads, and check a crash has



not occurred.

**5800-5900** Subroutine to eliminate an alien which has been hit.

**6000-6040** Move the plane up.

**6100-6160** Move the plane left.

**6200-6260** Move the plane right.

**6300-6430** Subroutine to check if the plane has crashed. This routine uses locations 23684 and 23685 in memory to check the last print position in the display file. If the print position is not zero then continue to check for a crash.

**6500-6650** Move the helicopter up.

**6800-6870** Check if the helicopter has crashed whilst moving up.

**7000-7160** Routine to move the plane downwards and to the left.

**7200-7260** Move the plane downward and to the right.

**7500-7570** Move the helicopter down.

**8000-8040** Change the direction in which the plane is moving.

**8500-8530** Move the helicopter left.

**8540-8650** Check that the helicopter has not crashed.

**9000-9430** Fire the missile either to the left or right depending upon which direction the plane is moving.

**9500-9650** Move the helicopter to the right and check for a hit when a missile is fired either left or right.

```
10 POKE 23658,0
20 REM graphics
30 FOR k=1 TO 3
40 FOR i=0 TO 167
50 READ blue: POKE USR "a"+i,b
lue
60 NEXT i
70 IF k=1 THEN GO TO 160
80 IF k=2 THEN GO TO 340
90 IF k=3 THEN GO TO 370
100 NEXT k
110 REM graphics data
120 DATA 49,74,132,132,132,132,
132,132,140,82,33,33,33,33,33,32
,0,0,0,0,0,0,64,128
121 DATA 56,69,131,131,131,131,
69,56
122 DATA 48,73,134,4,4,4,4,4,12
8,80,32,0,0,0,0,0
```

```
123 DATA 49,74,132,132,132,132,
132,132,128,64,32,32,32,32,40,16
124 DATA 8,16,32,64,64,32,34,28
125 DATA 31,2,4,4,4,2,2,1,248,
0,0,0,0,16,32,192,0,0,4,8,16,32,
64,128
126 DATA 60,66,129,128,128,129,
66,60
127 DATA 4,8,28,32,32,32,28,0
128 DATA 255,146,167,149,182,16
6,230,255,255,103,101,77,191,181
,165,255
129 DATA 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,
0,0,0,0,0,0,0,0,0,0,0,0,0,0
130 DATA 255,195,195,195,195,19
5,195,195,255,195,195,195,255,25
5,255,255,15,6,6,31,63,127,255,2
55,0,0,0,255,255,255,255,255,0,0
,0,248,252,254,255,255
131 DATA 0,4,12,28,60,62,127,25
5,1,7,15,15,7,3,1,0,255,255,255,
255,255,255,255,127,128,192,192,
224,192,192,128,0,60,28,24,24,24
,24,56,60
132 DATA 24,24,60,60,126,126,25
5,255
133 DATA 127,127,127,127,127,12
7,255,48,128,240,136,132,254,254
,255,12
134 DATA 0,0,15,16,112,127,255,
48,0,0,128,64,32,254,255,12
135 DATA 0,24,60,60,60,24,24,24
136 DATA 0,0,0,255,165,165,165,
165
137 DATA 0,24,60,36,126,66,66,2
55,15,31,31,8,7,128,255,255,255,
255,255,0,255,0,255,255,240,248,
248,16,224,1,255,255
138 DATA 25,4,30,35,67,67,63,12
,224,0,0,1,195,255,254,0
139 DATA 0,224,62,255,252,0,0,0
```







```

341 INK 6: PRINT AT 20,1;"BAB":
INK 4: PRINT AT 20,6;"GHI K KK
K GHI": INK 2: PRINT AT 2
0,9;"CE";AT 20,20;"CDE": INK 7:
PRINT AT 20,24;"BB"
342 INK 0: PRINT AT 21,0;"Q
P Q Q Q P Q Q QP": INK 6: P
RINT AT 21,1;"BAB": INK 1: PRINT
AT 21,4;"NO": INK 3: PRINT AT 2
1,7;"J": INK 7: PRINT AT 21,9;"B
A": INK 4: PRINT AT 21,12;"K";AT
21,17;"KK";AT 21,26;"K": INK 2:
PRINT AT 21,14;"LM": INK 6: PR
INT AT 21,20;"BAB": INK 7: PRINT
AT 21,24;"AB": INK 2: PRINT AT
21,27;"NO": INK 3: PRINT AT 21,2
9;"J"
350 INK 1: PRINT AT 1,15;"R";AT
2,10;"1333STU3332"
360 GO TO 100
370 INK 0: PRINT AT 0,0;"SCORE
0000 3 3 HI 0000": INK
1: PRINT AT 0,12;"HI": INK 2: P
RINT AT 0,18;:"EDC"
380 LET nj=0
390 INK 0: IF nj<10 THEN PRINT
AT 0,28;"000";nj: GO TO 440
400 INK 0: IF nj<100 THEN PRI
NT AT 0,28;"00";nj: GO TO 440
410 INK 0: IF nj<1000 THEN PRI
NT AT 0,28;"0";nj: GO TO 440
420 INK 0: PRINT AT 0,28;nj
430 REM set initial value of v
ariables
440 LET a=3: LET z=1
450 LET c=3: LET d=3: LET sc=0:
LET rc=0
460 INK 0: PRINT AT 0,15;d;AT 0
,22;c: GO SUB 3510
470 LET e=0: LET f=0: LET x=0:
LET y=0: LET w=0: LET b=0
480 DIM r(a): DIM m(a): DIM n(a)

```

```

): DIM s(a): DIM h(a): DIM g(a):
DIM u(a): DIM v(a): DIM k(a)
490 REM helicopter , plane, ini
tial positions
500 LET ax=12: LET ay=25: LET k
h=17: LET khh=4: LET kg=0: LET g
y=0: LET ex=0: LET ey=0: LET bm=
1: LET bg=0
501 LET hx=kh: LET hy=khk: LET
gx=kg
510 INK 1: PRINT AT hx,hy;"HI"
520 INK 2: PRINT AT ax,ay;"JKL"
530 BEEP .1,5: BEEP .2,10: BEEP
.1,12: BEEP .3,17: BEEP .35,21:
BEEP .05,19: BEEP .05,17: BEEP
.05,15: BEEP .05,11: BEEP .2,9:
BEEP .1,12: BEEP .2,15: BEEP .1,
11: BEEP .25,16: BEEP .1,21:
540 REM main part of program
550 RANDOMIZE
560 IF hx<7 THEN GO TO 5510
570 IF hx>=7 THEN GO TO 5010
580 LET t$=INKEY$
590 IF t$="q" THEN GO TO 6010
600 IF t$="Q" THEN GO TO 6510
610 IF t$="m" THEN GO TO 7010
620 IF t$="M" THEN GO TO 7510
630 IF t$="i" THEN GO TO 8010
640 IF t$="I" THEN GO TO 8510
650 IF t$="p" THEN GO TO 9010
660 IF t$="P" THEN GO TO 9510
670 IF b=1 THEN GO TO 4510
680 IF y>10-a THEN LET b=1: LE
T y=0: LET kg=3: LET gy=hy: GO T
O 4510
690 IF x>10-a THEN LET b=1: LE
T x=0: LET kg=ax-1: LET gy=INT (
31*RND): GO TO 4510
700 LET x=x+1: LET y=y+1
710 LET sc=sc+1
720 GO TO 560
730 REM defense

```



```

740 LET sc=sc+100: GO SUB 3510
750 INK 1: FLASH 1: PRINT AT 10
,10;" succes ! "" the invas
ion is suppresed ! ": FLASH 0:
PRINT AT 13,3;"prepare yourself
there is"" another fleet of i
nvaders"" comming !"
760 BEEP .1,3: BEEP .3,6: BEEP
.6,13: BEEP .2,9: BEEP .1,13: BE
EP .1,7: BEEP .4,11: BEEP .7,17:
PAUSE 60
770 GO SUB 3810: GO SUB 3910
780 GO SUB 3310
790 IF a=7 THEN GO TO 810
800 LET a=a+1: LET z=z-.2
810 IF sc<9999 THEN GO TO 460
820 PAPER 2: INK 7: FLASH 1: PR
INT AT 10,0;" you have obt
ained "" the best poss
ible score! ": FLASH 0: PAPER
5
830 BEEP .1,3: BEEP .3,6: BEEP
.6,13: BEEP .2,9: BEEP .1,13: BE
EP .1,7: BEEP .4,11: BEEP .7,17:
PAUSE 25
840 GO TO 940
850 REM invaders victory
860 INK 0: PRINT AT 0,15;d;AT 0
,22;c: GO SUB 3510
870 FOR i=1 TO 3
880 BORDER 1: BEEP .2,59: BRIGH
T 1: BEEP .2,63: BORDER 7: BEEP
.2,55: BORDER 1: BRIGHT 0: BEEP
.2,59: BORDER 2: BORDER 5
890 NEXT i
900 GO SUB 3310
910 FOR i=5 TO 15
920 INK 2: PRINT AT i-1,1;"
";AT i,3
;"the earth has been invaded!":
BEEP .2,3
930 NEXT i

```

```

940 GO SUB 3310
950 INK 0: PRINT AT 10,1;"do yo
u want another game (y/n)?"
960 LET t#=INKEY#
970 IF t#="n" THEN PRINT AT 12
,5;"maybe some other time!";AT 1
5,11;"good bye !": STOP
980 IF t#="y" AND sc>9999 THEN
RUN
990 IF t#="y" THEN GO TO 1010
1000 GO TO 960
1010 IF sc>nj THEN LET nj=sc
1020 GO SUB 3810: GO SUB 3910
1030 GO SUB 3310
1040 GO TO 390
2000 REM helicopter crash
2010 INK 0: PRINT AT m(i),n(i);"
S";AT m(i)+1,n(i);"T";AT hx,hy;"
ST": BEEP .5,3: PRINT AT m(i),n(
i);" ";AT m(i)+1,n(i);" ";AT h
x,hy;" "
2020 LET k(i)=1: FOR j=1 TO a: L
ET m(j)=0: LET u(j)=r(j): LET v(
j)=n(j): NEXT j: GO SUB 5810: FO
R j=1 TO a: LET r(j)=u(j): LET n
(j)=v(j): NEXT j
2030 GO SUB 3710
2040 GO SUB 3510
2050 GO TO 560
2100 REM octopus -helicopter cra
sh
2110 INK 0: PRINT AT gx,gy;"P";A
T hx,hy;"ST": BEEP .5,3: PRINT A
T gx,gy;" ";AT hx,hy;" "
2120 GO SUB 3710
2130 LET kg=0: LET gx=0: LET gy=
0: LET b=0
2140 GO SUB 3510
2150 GO TO 560
2200 REM MISSILE CRASH
2210 PRINT INK 0;AT m(i),n(i);"
S";AT m(i)+1,n(i);"T": BEEP .5,3

```



```

: PRINT AT m(i),n(i);" ";AT m(i)
+1,n(i);" "
2220 LET k(i)=1: FOR j=1 TO a: L
ET m(j)=0: LET u(j)=r(j): LET v(
j)=n(j): NEXT j: GO SUB 5810: FO
R j=1 TO a: LET r(j)=u(j): LET n
(j)=v(j): NEXT j
2230 LET sc=sc+25: GO SUB 3510
2240 GO TO 560
2300 REM helicopter-missile cras
h
2310 INK 0: PRINT AT hx,hy;"ST"
: BEEP .5,3: PRINT AT hx,hy;" "
2320 LET sc=sc-50: IF sc<0 THEN
LET sc=0
2330 GO SUB 3510
2340 GO SUB 3710
2350 GO TO 560
2400 REM missile crash
2410 INK 0: PRINT AT h(i),g(i);"
U": BEEP .5,3: PRINT AT h(i),g(i)
);" "
2420 LET k(i)=1: FOR j=1 TO a: L
ET h(j)=0: LET u(j)=s(j): LET v(
j)=g(j): NEXT j: GO SUB 5810: FO
R j=1 TO a: LET s(j)=u(j): LET g
(j)=v(j): NEXT j
2430 LET sc=sc+75: GO SUB 3510
2440 GO TO 560
2500 REM octopus - missile crash
2510 INK 0: PRINT AT gx,gy;"U"
: BEEP .5,3: PRINT AT gx,gy;" "
2520 LET sc=sc+50: GO SUB 3510
2530 LET kg=0: LET gx=0: LET gy=
0: LET b=0
2540 GO TO 560
2600 REM the module - plane cras
h
2610 INK 0: PRINT AT m(i),n(i);"
S";AT m(i)+1,n(i);"7";AT ax,ay;"
PQR": BEEP .5,3: PRINT AT m(i),n
(i);" ";AT m(i)+1,n(i);" ";AT ax

```

```

,ay;" "
2620 LET k(i)=1: FOR j=1 TO a: L
ET m(j)=0: LET u(j)=r(j): LET v(
j)=n(j): NEXT j: GO SUB 5810: FO
R j=1 TO a: LET r(j)=u(j): LET n
(j)=v(j): NEXT j
2630 GO SUB 3610
2640 GO SUB 3510
2650 GO TO 560
2700 REM helicopter - plane cra
sh
2710 INK 0: PRINT AT hx,hy;"ST";
AT ax,ay;"PQR": BEEP .5,3: PRINT
AT hx,hy;" ";AT ax,ay;" "
2720 LET sc=sc-100: IF sc<0 THEN
LET sc=0
2730 GO SUB 3510
2740 GO SUB 3610: GO SUB 3710
2750 GO TO 560
2800 REM the head - plane crash
2810 INK 0: PRINT AT h(i),g(i);"
P";AT ax,ay;"PQR": BEEP .5,3: PR
INT AT h(i),g(i);" ";AT ax,ay;"
"
2820 LET k(i)=1: FOR j=1 TO a: L
ET h(j)=0: LET u(j)=s(j): LET v(
j)=g(j): NEXT j: GO SUB 5810: FO
R j=1 TO a: LET s(j)=u(j): LET g
(j)=v(j): NEXT j
2830 GO SUB 3610
2840 GO SUB 3510
2850 GO TO 560
2900 REM octopus - plane crash
2910 INK 0: PRINT AT gx,gy;"P";A
T ax,ay;"PQR": BEEP .5,3: PRINT
AT gx,gy;" ";AT ax,ay;" "
2920 GO SUB 3610
2930 LET kg=0: LET gx=0: LET gy=
0: LET b=0
2940 GO SUB 3510
2950 GO TO 560
3300 REM clear screen

```



```

3310 PRINT AT 1,0;"
";AT 1,16;"
AT 2,0;" ";AT 2,21;"
"
3320 FOR i=3 TO 18
3330 PRINT AT i,0;"
"
3340 NEXT i
3350 RETURN
3500 REM score printing
3510 LET rc=sc
3520 PRINT INK 0: IF sc<10 THEN
PRINT AT 0,6;"000";sc: RETURN
3530 INK 0: IF sc<100 THEN PRIN
T AT 0,6;"00";sc: RETURN
3540 IF sc<1000 THEN PRINT AT 0
,6;"0";sc: RETURN
3550 INK 0: PRINT 0,6;sc
3560 RETURN
3600 REM plane destruction
3610 LET c=c-1
3620 IF c=0 THEN GO TO 860
3630 INK 0: PRINT AT 0,22;c
3640 LET ax=12: LET ay=25: LET f
=0
3650 INK 2: PRINT AT ax,ay;"JKL"
3660 BEEP .05,5: BEEP .1,10: BEE
P .15,15
3670 LET y=0
3680 RETURN
3700 REM helicopter destruction
3710 LET d=d-1
3720 IF d=0 THEN GO TO 860
3730 INK 0: PRINT AT 0,15;d
3740 LET kh=17: LET hx=17: LET k
hh=4: LET hy=4: LET e=0
3750 INK 1: PRINT AT hx,hy;"HI"
3760 BEEP .05,5: BEEP .1,10: BEE
P .15,15
3770 LET x=0:
3780 RETURN
3800 REM elimination of the heads

```

```

3810 FOR i=1 TO a
3820 PRINT AT h(i),g(i);" "
3830 LET s(i)=0: LET h(i)=0: LET
g(i)=0
3840 NEXT i
3850 LET w=0
3860 INK 0: PRINT AT 0,0;"SCORE"
;AT 0,25;"HI": INK 1: PRINT AT 0
,12;"HI": INK 2: PRINT AT 0,18;"
EDC"
3870 RETURN
3900 REM elimination of the modu
les
3910 FOR i=1 TO a
3920 PRINT AT m(i),n(i);" ";AT m
(i)+1,n(i);" "
3930 LET r(i)=0: LET m(i)=0: LET
n(i)=0
3940 NEXT i
3950 LET w=0
3960 INK 0: PRINT AT 0,0;"SCORE"
;AT 0,25;"HI": INK 1: PRINT AT 0
,12;"HI": INK 2: PRINT AT 0,18;"
EDC"
3970 RETURN
4500 REM octopus generation
4510 LET o=INT kg: LET kg=kg+1/z
/5: LET gx=INT kg: IF gx=3 AND h
x=3 THEN LET kg=4: LET o=4: LET
gx=4
4520 IF gx=0 THEN GO TO 4570
4530 REM check for a crash
4540 IF gx=hx AND (gy=hy OR gy=h
y+1) THEN PRINT AT o,gy;" ": GO
TO 2110
4550 IF gx=ax AND (gy=ay OR gy=a
y+1 OR gy=ay+2) THEN PRINT AT
o,gy;" ": GO TO 2910
4560 IF gx>18 THEN LET gx=18: G
O TO 860
4570 INK 2: PRINT AT o,gy;" ";AT
gx,gy;"0"

```



```

4580 BEEP .05*z,49
4590 GO TO 710
5000 REM module generation
5010 IF bm=0 THEN GO SUB 3810:
LET bm=1: LET bg=0
5020 IF w=a THEN GO TO 5090
5030 LET p=INT (31*RND)
5040 IF p/(10-a)-INT (p/(10-a))<
>0 THEN GO TO 5080
5050 LET w=w+1
5060 LET r(w)=4: LET m(w)=4: LET
n(w)=p
5070 INK 8: PRINT AT m(w),n(w);"
F";AT m(w)+1,n(w);"G"
5080 IF w=0 THEN GO TO 580
5090 FOR i=1 TO w
5100 LET o=INT r(i): LET r(i)=r(
i)+1/z/6+sc/20000: LET m(i)=INT
(r(i))
5110 IF m(i)=o THEN GO TO 5160
5120 REM check for crash
5130 IF m(i)+1=hx AND (n(i)=hy O
R n(i)=hy+1) THEN PRINT AT o,n(
i);" ";AT o+1,n(i);" ": GO TO 20
10
5140 IF m(i)+1=ax AND (n(i)=ay O
R n(i)=ay+1 OR n(i)=ay+2) THEN
PRINT AT o,n(i);" ";AT o+1,n(i);
" ": GO TO 2610
5150 IF m(i)>17 THEN LET m(i)=1
7: GO TO 860
5160 PRINT AT o,n(i);" ";AT o+1,
n(i);" "
5170 INK 1: PRINT AT m(i),n(i);"
F";AT m(i)+1,n(i);"G"
5180 BEEP .05*z,39:
5190 NEXT i
5200 GO TO 580
5500 REM head generation
5510 IF bg=0 THEN GO SUB 3910:
LET bg=1: LET bm=0
5520 IF w=a THEN GO TO 5590

```

```

5530 LET p=INT (31*RND)
5540 IF p/(10-a)-INT (p/(10-a))<
>0 THEN GO TO 5580
5550 LET w=w+1
5560 LET s(w)=10: LET h(w)=10: L
ET g(w)=p
5570 INK 2: PRINT AT h(w),g(w);"
N"
5580 IF w=0 THEN GO TO 580
5590 FOR i=1 TO w
5600 LET o=INT s(i): LET s(i)=s(
i)+1.2/z/6+sc/20000: LET h(i)=IN
T s(i)
5610 IF h(i)=o THEN GO TO 5650
5620 REM check for a crash
5630 IF h(i)=ax AND (g(i)=ay OR
g(i)=ay+1 OR g(i)=ay+2) THEN PR
INT AT o,g(i);" ": GO TO 2810
5640 IF h(i)>18 THEN LET h(i)=1
8: GO TO 860
5650 INK 2: PRINT AT o,g(i);" ";
AT h(i),g(i);"N"
5660 BEEP .05*z,29
5670 NEXT i
5680 GO TO 580
5800 REM ejection of hit invader
5810 LET w=w-1
5820 LET j=1
5830 FOR i=1 TO a
5840 IF k(i)=1 THEN GO TO 5870
5850 LET u(j)=u(i): LET v(j)=v(i
)
5860 LET j=j+1
5870 NEXT i
5880 FOR i=1 TO a: LET k(i)=0: N
EXT i
5890 FOR i=j+1 TO a: LET u(i)=0:
LET v(i)=0: NEXT i
5900 RETURN
6000 REM moving the plane up
6010 LET x=0
6020 LET ox=ax: LET oy=ay

```



```

6030 IF f=0 THEN GO TO 6110
6040 IF f=1 THEN GO TO 6210
6100 REM move up - left directi
on
6110 LET ax=ax-1: LET ay=ay-1
6120 IF ax<6 THEN LET ax=6: LET
ay=oy: GO TO 670
6130 IF ax<0 THEN LET ay=0: LET
ax=ox: GO TO 670
6140 GO SUB 6310
6150 INK 2: PRINT AT ox,oy;" "
;AT ax,ay;"JKL"
6160 GO TO 670
6200 REM move up - right direct
ion
6210 LET ax=ax-1: LET ay=ay+1
6220 IF ax<6 THEN LET ax=6: LET
ay=oy: GO TO 670
6230 IF ay>29 THEN LET ay=29: L
ET ax=ox: GO TO 670
6240 GO SUB 6310
6250 INK 2: PRINT AT ox,oy;" "
;AT ax,ay;"EDC"
6260 GO TO 670
6300 REM check for plane crash
6310 FOR i=0 TO 2
6320 PRINT AT ax,ay+i;
6330 LET sad=PEEK 23684+256*PEEK
23685
6340 IF PEEK sad<>0 THEN GO TO
6370
6350 NEXT i
6360 RETURN
6370 IF ax=hx AND (ay+2=hy OR ay
+1=hy OR ay=hy OR ay=hy+1) THEN
PRINT AT ox,oy;" ": GO TO 271
0
6380 FOR i=1 TO w
6390 IF (ax=m(i)+1 OR ax=m(i)) A
ND (ay=n(i) OR ay+1=n(i) OR ay+2
=n(i)) THEN PRINT AT ox,oy;"
": GO TO 2610

```

```

6400 IF ax=h(i) AND (ay=g(i) OR
ay+1=g(i) OR ay+2=g(i)) THEN PR
INT AT ox,oy;" ": GO TO 2810
6410 NEXT i
6420 IF ax=gx AND (ay=gy OR ay+1
=gy OR ay+2=gy) THEN PRINT AT o
x,oy;" ": GO TO 2910
6430 RETURN
6500 REM moving the helicopter
up
6510 LET o=INT kh: LET kh=kh-.3*
z: LET hx=INT kh
6520 LET ad=1
6530 GO SUB 6810
6540 IF hy>8 AND hy<21 AND hx=2
THEN LET hx=3: LET kh=3: GO TO
670
6550 IF hx=0 THEN LET hx=1: LET
kh=1: GO TO 670
6600 REM helicopter print posit
iom - vertical
6610 PRINT AT o,hy;" "
6620 INK 1: IF e=0 THEN PRINT A
T hx,hy;"HI"
6630 INK 1: IF e=1 THEN PRINT A
T hx,hy;"AB"
6640 BEEP .001,55
6650 GO TO 670
6800 REM check helicopter crash
(vertical move)
6810 IF hx=0 THEN BEEP .001,55:
GO TO 670
6820 IF hx=ax AND (hy=ay-1 OR hy
=ay OR hy=ay+1 OR hy=ay+2) THEN
PRINT AT o,hy;" ": GO TO 2710
6830 FOR i=1 TO w
6840 IF hx=m(i)+ad AND (hy=n(i)
OR hy+1=n(i)) THEN PRINT AT o,h
y;" ": GO TO 2010
6850 NEXT i
6860 IF hx=gx AND (hy=gy OR hy+1
=gy) THEN PRINT AT o,hy;" ": G

```



```

0 TO 2110
6870 RETURN
7000 REM move the plane down
7010 LET x=0
7020 LET ox=ax: LET oy=ay
7030 IF f=0 THEN GO TO 7110
7040 IF f=1 THEN GO TO 7210
7100 REM left move down
7110 LET ax=ax+1: LET ay=ay-1
7120 IF ax>18 THEN LET ax=18: L
ET ay=oy: GO TO 670
7130 IF ay<0 THEN LET ay=0: LET
ax=ox: GO TO 670
7140 GO SUB 6310
7150 INK 2: PRINT AT ox,oy;" "
;AT ax,ay;"JKL"
7160 GO TO 670
7200 REM move down right direct
ion
7210 LET ax=ax+1: LET ay=ay+1
7220 IF ax>18 THEN LET ax=18: L
ET ay=oy: GO TO 670
7230 IF ay>29 THEN LET ay=29: L
ET ax=ox: GO TO 670
7240 GO SUB 6310
7250 INK 2: PRINT AT ox,oy;" "
;AT ax,ay;"EDC"
7260 GO TO 670
7500 REM move helicopter down
7510 LET o=INT kh: LET kh=kh+.4*
z: LET hx=INT kh
7520 LET ad=0
7530 GO SUB 6810
7540 IF hx=2 AND (hy=9 OR hy=10
OR hy=20 OR hy=19) THEN LET hx=
1: LET kh=1: GO TO 670
7550 IF hy>10 AND hy<19 AND hx=2
THEN GO TO 740
7560 IF hx=18 THEN LET hx=17: L
ET kh=17: GO TO 670
7570 GO TO 6610
8000 REM rotate plane

```

```

8010 LET f=1-f
8020 INK 2: IF f=0 THEN PRINT A
T ax,ay;"JKL"
8030 INK 2: IF f=1 THEN PRINT A
T ax,ay;"EDC"
8040 GO TO 670
8500 REM move helicopter left
8510 LET y=0: LET e=1
8520 LET o=INT khh: LET khh=khh-
.7*z: LET hy=INT khh
8530 IF hy=0 THEN BEEP .001,55:
GO TO 670
8540 REM check for crash
8550 IF hx=ax AND hy=ay+2 THEN
PRINT AT hx,o;" ": GO TO 2710
8560 FOR i=1 TO w
8570 IF (hx=m(i)+1 OR hx=m(i)) A
ND hy=n(i) THEN PRINT AT hx,o;"
": GO TO 2010
8580 NEXT i
8590 IF hx=gx AND hy=gy THEN PR
INT AT hx,o;" ": GO TO 2110
8600 IF hx=1 AND hy=16 THEN LET
hy=17: LET khh=17: GO TO 670
8610 IF hx=2 AND hy=20 THEN LET
hy=21: LET khh=21: GO TO 670
8620 IF hy<0 THEN LET hy=0: LET
khh=0: GO TO 670
8630 INK 1: PRINT AT hx,o;" ";A
T hx,hy;"AB"
8640 BEEP .001,55
8650 GO TO 670
9000 REM missile firing
9010 IF sc-rc<4*z THEN GO TO 67
0
9020 LET rc=sc
9030 IF f=0 THEN GO TO 9110
9040 IF f=1 THEN GO TO 9310
9100 REM fire to the left
9110 LET ex=ax: LET ey=ay-1
9120 IF ey<0 THEN GO TO 670
9130 LET eh=hy+1: GO SUB 9710

```



```

9140 INK 0: PRINT AT ex,ey;"M"
9150 FOR j=1 TO 10
9160 LET sy=ey: LET ey=ey-1
9170 IF ey<0 THEN PRINT AT ex,s
y;" ": GO TO 670
9180 GO SUB 9860
9190 INK 0: PRINT AT ex,sy;" ";A
T ex,ey;"M"
9200 BEEP .001,59
9210 NEXT j
9220 PRINT AT ex,ey;" "
9230 GO TO 670
9300 REM fire to the right
9310 LET ex=ax: LET ey=ay+3
9320 IF ey>31 THEN GO TO 670
9330 LET eh=hy: GO SUB 9710
9340 INK 0: PRINT AT ex,ey;"M"
9350 FOR j=1 TO 10
9360 LET sy=ey: LET ey=ey+1
9370 IF ey>31 THEN PRINT AT ex,
sy;" ": GO TO 670
9380 GO SUB 9860
9390 PRINT AT ex,sy;" ";AT ex,ey
;"M"
9400 BEEP .001,59
9410 NEXT j
9420 PRINT AT ex,ey;" "
9430 GO TO 670
9500 REM move helicopter right
9510 LET y=0: LET e=0
9520 LET o=INT khh: LET khh=khh+
.5*z: LET hy=INT khh
9530 IF hy=0 THEN BEEP .001,55:
GO TO 670
9540 REM check for crash
9550 IF hx=ax AND hy+1=ay THEN
PRINT AT hx,o;" ": GO TO 2710
9560 FOR i=1 TO w
9570 IF (hx=m(i)+1 OR hx=m(i)) A
ND hy+1=n(i) THEN PRINT AT hx,o
;" ": GO TO 2010
9580 NEXT i

```

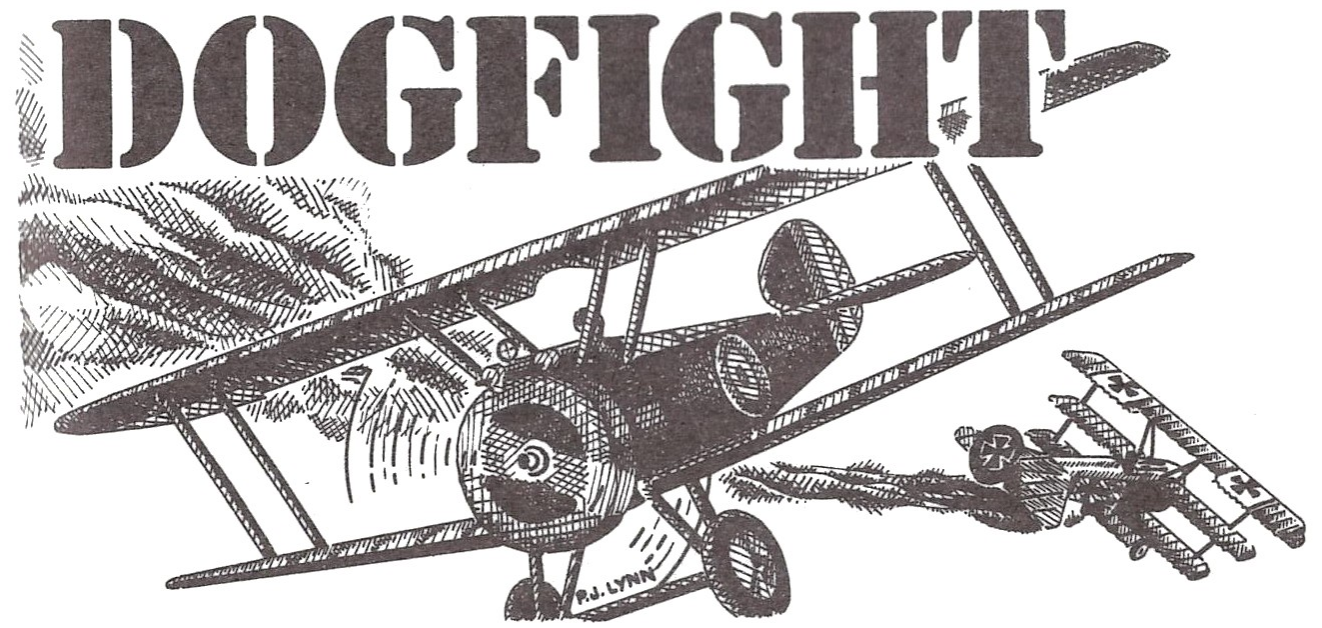
```

9590 IF hx=gx AND hy+1=gy THEN
PRINT AT hx,o;" ": GO TO 2110
9600 IF hx=1 AND hy=13 THEN LET
hy=12: LET khh=12: GO TO 670
9610 IF hx=2 AND hy=9 THEN LET
hy=8: LET khh=8: GO TO 670
9620 IF hy>30 THEN LET hy=30: L
ET khh=30: GO TO 670
9630 INK 1: PRINT AT hx,o;" ";A
T hx,hy;"HI"
9640 BEEP .001,55
9650 GO TO 670
9700 REM hit checking 1
9710 PRINT AT ex,ey;
9720 LET sad=PEEK 23684+256*PEEK
23685
9730 IF PEEK sad=0 THEN RETURN
9740 IF ex=hx AND ey=eh THEN GO
TO 2310
9750 FOR i=1 TO w
9760 IF (ex=m(i)+1 OR ex=m(i)) A
ND ey=n(i) THEN GO TO 2210
9770 IF ex=h(i) AND ey=g(i) THEN
GO TO 2410
9780 NEXT i
9790 IF ex=gx AND ey=gy THEN GO
TO 2510
9800 RETURN
9850 REM hit checking 2
9860 PRINT AT ex,ey;
9870 LET sad=PEEK 23684+256*PEEK
23685
9880 IF PEEK sad=0 THEN RETURN
9890 IF ex=hx AND ey=eh THEN PR
INT AT ex,sy;" ": GO TO 2310
9900 FOR i=1 TO w
9910 IF (ex=m(i)+1 OR ex=m(i)) A
ND ey=n(i) THEN PRINT AT ex,sy;
" ": GO TO 2210
9920 IF ex=h(i) AND ey=g(i) THEN
PRINT AT ex,sy;" ": GO TO 2410
9930 NEXT i

```



```
9940 IF ex=gx AND ey=gy THEN PR
INT AT ex,sy;" ": GO TO 2510
9950 RETURN
```



Original program by E. J. Barfield

Dogfight, is a two-player game which allows you to become a fighter pilot. The game consists of an air battle between two planes, the aim being to score thirty hits on your opponent's plane in order to destroy it.

The game start with a brief introduction, and then you will be asked if the game is for one or two players. It is more fun to play against a real opponent, although selecting one player will allow you to play against the computer. You will then be asked to select which type of plane you wish to fly, either a biplane or a modern jet. Bi-planes are much slower than jets but are more manouverable since jets have a larger turning circle.

To move your plane around the screen and fire your machine guns, use the following keys:

PLAYER 1

Q - Left  
W - Right  
A - Fire

PLAYER 2

O - Left  
P - Right  
L - Fire

Player one has the green aircraft, player two the yellow one. Keeping a control key pressed will result in the plane moving continuously either left or right, resulting in a circular motion. Once you get close enough to your opponent, you will be able to fire your machine guns and each burst of fire will register



between one and four hits. Your guns will not fire if you are located at the edge of the screen. At the bottom of the screen the number of hits registered on each plane is displayed. Once you have shot down your opponent, the score for each plane is displayed, and you are invited to play again, with the option of changing aircraft type.

An additional feature of this game is that you will be asked if you wish to have clouds. If this option is taken, several large white clouds will be drawn, though rather slowly. This is because this routine uses the spectrum CIRCLE command, but they are worth having. The planes are not printed onto the screen at a location covered by a cloud, giving the illusion of the planes disappearing behind them. You may fire your guns whilst flying through clouds, but you are not able to hit another plane if it is within the clouds. Dogfight is a zap-bang fun-to-play game with sound effects created by a short machine code routine.

## Program Description

**30** POKE to force CAPS LOCK.

**50** Set RAMTOP and install the machine code routine for the sound effects.

**100-180** Dimension strings and arrays, then set up variables.

**210-230** Print the number of hits on each plane, then detect if a key has been pressed.

**240-300** Set the direction of the plane and then check that it does not go out of the screen area.

**310** Sets the pointers for strings, A1 and B1 which represent the planes, to give correct image in accordance with the direction it is moving.

**330** Erases the previous image of the plane.

**350** Detects if a cloud is present in front of the plane, and if so, sets a flag to indicate this.

**390** Generates the sound effect with a call to the machine code routine, and then prints the image of the plane using strings A1 and B1.

**400** Detects if a key press represents fire.

**420-450** Fire the machine guns.

**460** Check to see if any of the bullets have hit the enemy. If a hit has been scored, then increment the plane's score counter.

**480** Mimics a key press if a one player game has been selected.  
**520-780** A repeat of the routines from 230 to 460 for player two's plane.

**800-810** Read and install the user defined graphics (UDGs) for the bi-plane.

**850-870** Read and install the UDGs for the jets.

**1090-1120** Set up character arrays A1 and B1 to represent the bi-plane.

**1140-1170** Set up character arrays to represent the jets.

**1190-1380** Routine to create an expansion effect for either plane once thirty hits have been registered.

**1390-1470** Routine to print the scores, and write a second game with the option of changing aircraft types.

**1490-1640** Instructions, with requests for the number of players and the type of aircraft required.

```

10 REM 1190=H1190: REM 1330=:
GO SUB 1330: REM 580=: GO SUB 58
0: REM 630=: GO SUB 630: REM 860
=: GO SUB 860: REM 900=: GO SUB
900
20 REM FORCE CAPS LOCK
30 POKE 23658,8
40 REM INSTALL MCH CODE FOR SO
UND
50 CLEAR 65343: LET CD=65343
60 FOR N=0 TO 22: READ B
70 POKE CD+N,B: NEXT N
80 DATA 6,25,197,6,25,62,1,211
,254,16,252,6,25,62,17,211,254,1
6,252,193,16,236,201
90 REM DIMENSION & SET ARRAYS
100 DIM A$(16): DIM B$(16): DIM
R(4): DIM S(3): LET R(1)=0: LET
R(2)=1: LET R(3)=0: LET R(4)=-1
: LET S(1)=79: LET S(2)=76: LET
S(3)=80: LET BP=0: LET EP=0
110 REM GO TO INSTRUCTIONS
120 GO TO 1480
130 REM SET INITIAL VARIABLES

```



```

140 LET HP=0: LET HE=0: LET SHO
OT=0
150 LET SPEED=2*(PLANE=1)+4*(PL
ANE=2): LET TAG=0: LET FLAG=0: L
ET P1=1: LET P2=2: LET E1=3: LET
E2=4
160 PAPER 1: INK 5: BORDER 1: C
LS
170 LET KEY=0: LET PY=1: LET PX
=1: LET PY1=1: LET PX1=1: LET PN
=1: LET PN1=4
180 LET KEE=0: LET EY=19: LET E
X=30: LET EY1=19: LET EX1=30: LE
T EN=5: LET EN1=8
190 REM CLOUDS
200 GO SUB 1190
210 REM PRINT SCORE AND DETECT
KEY PRESS
220 PRINT #1,AT 0,10;"HITS TAKE
N": PRINT #1; PAPER 1; INK 4;AT
0,1;A$(1 TO 4);"-": PRINT #1; IN
K 4;AT 1,1;B$(1 TO 4);"-": PRINT
#1; PAPER 1; INK 6;AT 0,27;"-";
A$(5 TO 8): PRINT #1; INK 6;AT 1
,27;"-";B$(5 TO 8)
230 PRINT #1;AT 0,7;" ";AT 0,7
;HP;AT 0,25;" ";AT 0,25;HE: LET
KEY=CODE (INKEY$)
240 REM SET PLANE DIRECTION &
MOVEMENT
250 LET P1=P1+(1*(KEY=87))+(-1*
(KEY=81)): LET P2=P2+(1*(KEY=87
))+(-1*(KEY=81))
260 IF P1<1 OR P1>4 THEN LET P
1=4*(P1<1)+1*(P1>4)
270 IF P2<1 OR P2>4 THEN LET P
2=4*(P2<1)+1*(P2>4)
280 LET PY=PY+R(P1)*SPEED: LET
PX=PX+R(P2)*SPEED
290 IF PY>19 OR PY<1 THEN LET
PY=1*(PY>19)+19*(PY<1)
300 IF PX>30 OR PX<1 THEN LET

```

```

PX=1*(PX>30)+30*(PX<1)
310 LET PN=1*((R(P1)=0) AND (R(
P2)=1))+5*((R(P1)=0) AND (R(P2)=
-1))+9*((R(P1)=-1) AND (R(P2)=0)
)+13*((R(P1)=1) AND (R(P2)=0)):
LET PN1=PN+3
320 REM ERASE OLD IMAGE OF PLA
NE
330 IF FLAG=0 THEN PRINT PAPE
R 1; INK 5;AT PY1,PX1;" ";AT PY
1+1,PX1;" "
340 REM DETECT A CLOUD
350 IF ATTR (PY+2,PX)=15 OR ATT
R (PY-1,PX)=15 THEN LET FLAG=1:
GO TO 400
360 IF ATTR (PY,PX+2)=15 OR ATT
R (PY,PX-1)=15 THEN LET FLAG=1:
GO TO 400
370 LET PY1=PY: LET PX1=PX
380 REM PRINT NEW PLANE IMAGE
390 RANDOMIZE USR CD: LET FLAG=
0: PRINT PAPER 1; INK 4;AT PY,P
X;A$(PN TO PN1);AT PY+1,PX;B$(PN
TO PN1)
400 IF KEY=65 AND (1*(PY>3 AND
PY<18)+1*(PX>3 AND PX<27))=2 THE
N BEEP .002,5: GO TO 430
410 GO TO 490
420 REM SHOOT
430 LET SPY=PY: LET SPX=PX: FOR
K=1 TO 2: FOR J=1 TO 3: LET SPY
=SPY+R(P1): LET SPX=SPX+R(P2)
435 IF ATTR (SPY,SPX)=15 OR A
TTR (SPY+1,SPX+1)=15 THEN GO T
O 460
440 PRINT OVER 1; PAPER 1; INK
4;AT SPY,SPX;CHR$(45*(R(P1)=0)
+124*(R(P2)=0));AT SPY+1,SPX+1;C
HR$(45*(R(P1)=0)+124*(R(P2)=0))
450 REM DETECT HIT
460 IF ATTR (SPY+R(P1),SPX+R(P2
))=14 OR ATTR (SPY+R(P1)+1,SPX+R

```



```

(P2)+1)=14 THEN LET HE=HE+1: IF
HE>30 THEN GO TO 1290
470 BEEP .008*(K<2),5: NEXT J:
LET SPY=PY: LET SPX=PX: NEXT K:
LET SPY=0: LET SPX=0: RANDOMIZE
USR CD
480 REM SET KEY PRESS FOR SPE
CTRUM
490 IF PLAY=1 THEN RANDOMIZE 0
: LET Z=INT (RND*100): IF Z<55 T
HEN LET KEE=S(INT (RND*3)+1): G
O TO 540
500 IF PLAY=1 THEN GO TO 540
510 REM DETECT KEY PRESS PLAY
ER 2
520 LET KEE=CODE (INKEY$)
530 REM SET VARIABLES FOR MOVE
MENT
540 LET E1=E1+(1*(KEE=80))+(-1*
(KEE=79)): LET E2=E2+(1*(KEE=80
))+(-1*(KEE=79))
550 IF E1<1 OR E1>4 THEN LET E
1=4*(E1<1)+1*(E1>4)
560 IF E2<1 OR E2>4 THEN LET E
2=4*(E2<1)+1*(E2>4)
570 LET EY=EY+R(E1)*SPEED: LET
EX=EX+R(E2)*SPEED
580 IF EY>19 OR EY<1 THEN LET
EY=1*(EY>19)+19*(EY<1)
590 IF EX>30 OR EX<1 THEN LET
EX=1*(EX>30)+30*(EX<1)
600 REM SET DIRECTION OF PLANE
610 LET EN=1*((R(E1)=0) AND (R(
E2)=1))+5*((R(E1)=0) AND (R(E2)=
-1))+9*((R(E1)=-1) AND (R(E2)=0)
)+13*((R(E1)=1) AND (R(E2)=0)):
LET EN1=EN+3
620 REM ERASE OLD IMAGE
630 IF TAG=0 THEN PRINT PAPER
1; INK 5; AT EY1,EX1; " "; AT EY1
+1,EX1; " "
640 REM DETECT CLOUD

```

```

650 IF ATTR (EY+2,EX)=15 OR ATT
R (EY-1,EX)=15 THEN LET TAG=1:
GO TO 710
660 IF ATTR (EY,EX+2)=15 OR ATT
R (EY,EX-1)=15 THEN LET TAG=1:
GO TO 710
670 LET EY1=EY: LET EX1=EX
680 REM PRINT PLANE IMAGE
690 RANDOMIZE USR CD: LET TAG=0
: PRINT PAPER 1; INK 6; AT EY,EX
;A$(EN TO EN1); AT EY+1,EX; B$(EN
TO EN1)
700 REM SHOOT
710 IF KEE=76 AND (1*(EY>3 AND
EY<18)+1*(EX>3 AND EX<27))=2 THE
N GO TO 730
720 GO TO 780
730 LET SPY=EY: LET SPX=EX: FOR
K=1 TO 2: FOR J=1 TO 3: LET SPY
=SPY+R(E1): LET SPX=SPX+R(E2)
735 IF ATTR (SPY,SPX)=15 OR A
TTR (SPY+1,SPX+1)=15 THEN GO T
O 760
740 PRINT OVER 1; PAPER 1; INK
6; AT SPY,SPX; CHR$(45*(R(E1)=0)
+124*(R(E2)=0)); AT SPY+1,SPX+1; C
HR$(45*(R(E1)=0)+124*(R(E2)=0))
750 REM DETECT A HIT
760 IF ATTR (SPY+R(E1),SPX+R(E2
))=12 OR ATTR (SPY+R(E1)+1,SPX+R
(E2)+1)=12 THEN LET HP=HP+1: IF
HP>30 THEN GO TO 1290
770 BEEP .008*(K<2),5: NEXT J:
LET SPY=EY: LET SPX=EX: NEXT K
780 LET SPY=0: LET SPX=0: LET K
EE=0: RANDOMIZE USR CD: GO TO 23
0
790 REM UDGS FOR BI-PLANE
800 RESTORE 840: LET A=0
810 LET A=A+1: FOR N=0 TO 7: RE
AD B: POKE USR (CHR$(143+A))+N,
B: NEXT N

```



```

820 IF A<21 THEN GO TO 810
830 RETURN
840 DATA 1,1,255,206,255,67,61,
1,128,128,255,115,255,194,188,12
8
850 REM UDGS FOR JETS
860 RESTORE 1000: LET A=0
870 LET A=A+1: FOR N=0 TO 7: RE
AD B: POKE USR (CHR$(143+A))+N,
B: NEXT N
880 IF A<16 THEN GO TO 870
890 RETURN
900 DATA 1,1,1,1,7,7,1,0,128,12
8,128,128,224,224,128,0
910 DATA 1,61,67,255,206,255,1,
1,128,188,194,255,115,255,128,12
8
920 DATA 0,1,7,7,1,1,1,1,0,128,
224,224,128,128,128,128
930 DATA 28,28,20,20,28,28,28,2
39,56,56,40,40,56,56,56,247
940 DATA 0,0,0,0,0,96,96,255,0,
0,0,0,0,6,6,255
950 DATA 239,28,28,28,20,20,28,
28,247,56,56,56,40,40,56,56
960 DATA 255,96,96,0,0,0,0,0,25
5,6,6,0,0,0,0,0
970 DATA 132,66,41,12,78,76,25,
49,33,66,148,48,114,50,152,140
980 DATA 152,73,10,40,64,88,9,1
6,25,146,80,20,2,34,144,8
990 DATA 198,207,127,126,126,25
5,243,70
1000 DATA 1,1,3,15,30,38,103,255
,128,128,192,240,120,100,203,255
1010 DATA 15,1,1,1,1,3,7,1,240,1
28,128,128,128,192,224,128
1020 DATA 255,103,38,30,15,3,1,1
,255,230,10,120,240,192,128,128
1030 DATA 1,7,3,1,1,1,1,15,128,2
24,192,128,128,128,128,240
1040 DATA 128,192,160,176,252,25

```

```

2,254,143,143,254,252,252,176,16
0,192,128
1050 DATA 1,3,5,13,63,63,127,241
,241,127,63,63,13,5,3,1
1060 DATA 0,0,0,0,1,65,97,255,25
5,97,65,1,0,0,0,0
1070 DATA 0,0,0,0,128,130,134,25
5,255,134,130,128,0,0,0,0
1080 REM SET UP CHARACTER ARRAY
FOR BI-PLANES
1090 LET I$=CHR$(17+CHR$ 1
1100 LET A$=I$+CHR$(154+CHR$ 152
+I$+CHR$(153+CHR$ 155+I$+CHR$(14
4+CHR$(145+I$+CHR$(150+CHR$(151
1110 LET B$=I$+CHR$(158+CHR$(156
+I$+CHR$(157+CHR$(159+I$+CHR$(14
6+CHR$(147+I$+CHR$(148+CHR$(149
1120 RETURN
1130 REM CHARACTER ARRAY FOR JE
TS
1140 LET I$=CHR$(17+CHR$ 1
1150 LET A$=I$+CHR$(156+CHR$(152
+I$+CHR$(154+CHR$(158+I$+CHR$(14
4+CHR$(145+I$+CHR$(150+CHR$(151
1160 LET B$=I$+CHR$(157+CHR$(153
+I$+CHR$(155+CHR$(159+I$+CHR$(14
6+CHR$(147+I$+CHR$(148+CHR$(149
1170 RETURN
1180 REM CLOUD ROUTINE
1190 PRINT "DO YOU WANT CLOUDS Y
/N": INPUT Z$: IF Z$<>"Y" THEN
CLS : RETURN
1200 PAPER 1: INK 5: BORDER 1: C
LS : LET CLOUD=INT (RND*3)+3
1210 FOR J=1 TO CLOUD
1220 LET PL=RND*180+20: LET PLL=
RND*100+20
1230 FOR K=1 TO 5
1240 LET CL=PL+RND*15+3: LET CLL
=PLL+RND*15+3: IF CL+10>255 OR C
LL+10>175 THEN GO TO 1240
1250 FOR P=0 TO 8: CIRCLE PAPER

```



```

1; INK 7;CL,CLL,P: NEXT P
1260 NEXT K: NEXT J
1270 RETURN
1280 REM EXPLOSION ROUTINE
1290 IF HE>30 THEN GO TO 1350
1300 PRINT PAPER 1; INK 7;AT PY
,PX;" ";AT PY+1,PX;" "
1310 FOR J=1 TO 2: PRINT PAPER
1; INK 6; OVER 1;AT PY,PX;CHR$ 1
62;AT PY+1,PX;CHR$ 160;AT PY,PX+
1;CHR$ 161;AT PY+1,PX+1;CHR$ 163
: RANDOMIZE USR CD: RANDOMIZE US
R CD: RANDOMIZE USR CD: NEXT J
1320 FOR J=1 TO 2: PRINT PAPER
1; INK 6; OVER 1;AT PY-1,PX;CHR$
162;AT PY+2,PX;CHR$ 160;AT PY,P
X+2;CHR$ 161;AT PY+2,PX+2;CHR$ 1
63: RANDOMIZE USR CD: RANDOMIZE
USR CD: RANDOMIZE USR CD:: NEXT
J
1330 LET EP=EP+1
1340 GO TO 1390
1350 PRINT PAPER 1; INK 7;AT EY
,EX;" ";AT EY+1,EX;" "
1360 FOR J=1 TO 2: PRINT PAPER
1; INK 6; OVER 1;AT EY,EX;CHR$ 1
62;AT EY+1,EX;CHR$ 160;AT EY,EX+
1;CHR$ 161;AT EY+1,EX+1;CHR$ 163
: RANDOMIZE USR CD: RANDOMIZE US
R CD: RANDOMIZE USR CD: NEXT J
1370 FOR J=1 TO 2: PRINT PAPER
1; INK 6; OVER 1;AT EY-1,EX;CHR$
162;AT EY+2,EX;CHR$ 160;AT EY,E
X+2;CHR$ 161;AT EY+2,EX+2;CHR$ 1
63: RANDOMIZE USR CD: RANDOMIZE
USR CD: RANDOMIZE USR CD:: NEXT
J
1380 LET BP=BP+1
1390 PAPER 1: INK 7: BORDER 1: C
LS
1400 REM SCORE ROUTINE
1410 PRINT AT 1,12;"SCORE": PRIN

```

```

T PAPER 1; INK 4;AT 4,4;A$(1 TO
4);"-";AT 5,4;B$(1 TO 4);"- ";A
T 7,5;BP: PRINT PAPER 1; INK 6;
AT 4,21;" -";A$(5 TO 8);AT 5,21;
" -";B$(5 TO 8);AT 7,23;EP
1420 PRINT AT 8,3;"Another try Y
/N": INPUT Z$: IF Z$="N" THEN S
TOP
1430 PRINT AT 10,2;"1...Bi-plane
s 2...Jets": INPUT PLAN
1440 IF PLAN=PLANE THEN LET PLA
NE=PLAN: GO TO 140
1450 PRINT "Please wait while i
take them out of the hangers."
1460 GO SUB 800*(PLAN=1)+850*(PL
AN=2): GO SUB 1090*(PLAN=1)+1140
*(PLAN=2): LET PLANE=PLAN: GO TO
140
1470 STOP
1480 PAPER 6: INK 1: BORDER 6: C
LS
1490 REM INSTRUCTIONS
1500 PRINT AT 1,11;"DOG FIGHT";A
T 3,1;"This is your chance to be
come";AT 4,1;"a fighter ace of t
he past or";AT 5,1;"present. You
may fly a slow but";AT 6,1;"rel
iable bi-plane or a sleek";AT 7,
1;"modern jet"
1510 PRINT AT 7,11;". You can ch
allenge a";AT 8,1;"friend to aer
ial combat, or if";AT 9,1;"you p
refer your opponent will";AT 10,
1;"be the notorious Von Spectrum
!"
1520 PRINT AT 12,9;"How many pla
yers?";AT 13,13;"1 or 2"
1530 INPUT Q$: LET PLAY=(CODE Q$
)-48: IF PLAY<1 OR PLAY>2 THEN
GO TO 1530
1540 PRINT AT 15,4;"Which type o
f plane do you";AT 16,4;"want to

```



```

fly?";AT 17,12;"1 Bi-plane";AT
18,12;"2 Modern jet"
1550 INPUT Q$: LET PLANE=(CODE Q
$)-48: IF PLANE<1 OR PLANE>2 THE
N GO TO 1550
1560 CLS : PRINT AT 1,1;"While I
get the planes out of";AT 2,1;"
the hangers, here are your";AT 3
,1;"flight instructions:-"
1570 PRINT AT 5,1;"You must scor
e thirty hits on";AT 6,1;"the en
emy plane in order to";AT 7,1;"d
estroy it. Your machine guns";AT
8,1;"will allow you to score be
tween"
1580 PRINT AT 9,1;"one and four
hits per burst.";AT 11,4;"PLAYER
1";AT 11,20;"PLAYER 2";AT 12,17
;"(Von Spectrum)";AT 13,4;"KEY Q
-Left";AT 13,20;"KEY O-Left"
1590 PRINT AT 14,4;"KEY W-Right"
;AT 14,20;"KEY P-Right";AT 15,4;
"KEY A-Fire";AT 15,20;"KEY L-Fir
e";AT 16,4;"(Green)";AT 16,20;"(
Yellow)";AT 17,1;"Holding a move
ment key down";AT 18,1;"will cau
se your plane to circle";AT 19,1
;"Jets move faster than bi-plane
s"
1600 PRINT AT 20,1;"and have a l
arger turning";AT 21,1;"circle."
1610 GO SUB 800*(PLANE=1)+850*(P
LANE=2): GO SUB 1090*(PLANE=1)+1
140*(PLANE=2)
1620 PRINT #1;AT 1,3;"PRESS ANY
KEY TO CONTINUE": PAUSE 0
1630 CLS : PRINT AT 0,1;"You wil
l also see clouds drawn.";AT 1,1
;"Your plane will disappear once
";AT 2,1;"it enters a cloud, and
then";AT 3,1;"re-appear on the
other side.";AT 6,12;"GOOD LUCK!"

```

```

1640 PRINT #1;AT 1,3;"PRESS ANY
KEY TO START": PAUSE 0: GO TO 14
0

```



# PLANE ATTACK

Original program by B. Houlsworth

Plane Attack is an all action game, requiring skill and determination to succeed. You are the pilot of a heavy bomber, and your mission is to destroy the enemy factories and then land your plane.

Your armaments are machine guns loaded with 500 rounds of ammunition, and unlimited number of high explosive bombs and six cluster bombs. Each cluster bomb is equivalent to three ordinary bombs. During the game your fuel level will be displayed at the bottom of the screen, along with the number of cluster bombs and bullets you have left. In addition, the number of hits your plane has received from anti-aircraft fire will be shown.

The game starts with factory buildings of various heights being drawn, along with anti-aircraft guns and trucks. Your plane will appear at the top left-hand side of the screen and will fly continuously across it; you can only move the plane either up or down. There are six anti-aircraft batteries firing at you, three of which are visible and may be bombed. Your plane can withstand twelve hits from these guns before it explodes!

You are advised to fly as low as possible in order to avoid being hit and to increase the rate at which you can bomb. Both buildings and ground targets can be machine-gunned but flying low enough to do this requires both skill and daring.

Your fuel is limited to ten thousand pounds, and will be consumed faster if you climb. Eventually your fuel will be so low, you will be unable to move your plane up and it will gradually lose height and crash!!

To control your plane and fire the weapons use the following keys:

- Q – Up
- A – Down
- B – Drop bombs

- C – Drop cluster bombs
- M – Fire your machine guns

Just as with a real aircraft, there will be a delay between pressing a key to drop a bomb and the bomb actually dropping. You should therefore keep the key pressed as the front of the aircraft passes over the target.

This program has the unusual feature of using SCREEN\$ function to detect the user defined graphics (UDGs). To do this the RAM locations, 23606 and 23607, which normally hold a value which is 256 less than the start of the character set held in ROM, are reset. These addresses are temporarily changed to point to the UDGs, the test using SCREEN\$ is then made, and then the addresses are changed back to point to the normal character set. When the test is made SCREEN\$ will return a value of zero if a UDG is not present, and a value of between 32 and 52 if a UDG is found (graphics characters A-U).

As a result of this local switching of character sets, should you, for any reason, stop the program using CAPS SHIFT and BREAK, during this routine, then your Spectrum will produce garbled text. Don't panic, simply use DELETE in the normal way to move the cursor to the left hand side of the screen. Ignore the printed garble and type in the normal way POKE P1, A1 then press ENTER, move the cursor to the left again and type POKE P2, A2 then press ENTER, and all will be restored. You will not be able to see what you type but the Spectrum will understand and obey.

This program will run on a 16K Spectrum if the instructions (lines 1390-1520) are typed in as a separate program, in which case the GOSUB in lines 1450 and 1490 are to be removed. An extra line at the end of this program could load the main program. The main program can then be typed in with the following changes. Line 60 should read GOTO 560, remove the RETURN statements from lines 770 and 830, then change line 1090 to read GOTO 70.

## Program Description

10 Tape loading instructions.

20 POKE to force CAPS LOCK.

40-50 Initialize the variables and dimension the strings. Variables P1 and P2 are the RAM addresses for the start of the character set,



A1 and A2 are used to point to the normal character set, while A3 and A4 are used to point to the user defined graphics.

**70-80** Initialize the variables to set the initial fuel level and the starting position of the plane.

**100** Detect a key press.

**130-190** Set the variables to register if a bomb has been dropped or if the plane is to be moved.

**200-250** Move the plane forward and either up or down if required to do so.

**260-310** Drop either a normal bomb or a cluster bomb.

**320-330** Explode a normal bomb.

**340-360** Explode a cluster bomb and decrease the number of cluster bombs left by one.

**380** Fire the machine guns and decrease the number of bullets left by 20.

**400-500** Decide at random if an anti-aircraft gun is to fire then fire the gun.

**470** Detect if the plane has been hit, and if so then increase the number of hits scored so far by one.

**500** Detect if the plane has landed safely, and if so GO TO the end of game routine.

**520-530** Decrease the amount of fuel by five pounds, then test if the number of hits on the plane is greater than 12. If it is then GO TO the end of game routine. Finally, update the display at the bottom of the screen.

**560-570** Read and install the UDGs.

**580-770** Data for the UDGs (graphics characters A-S)

**790-830** Set up the character arrays to represent the plane and the machine gun bullets.

**850-1090** Set up the screen display by printing random height buildings, three anti-aircraft batteries and eight trucks. The fuel and ammunition status is printed at the bottom of the screen. Finally, the plane (A\$) is printed at the top of the screen.

**1100-1140** Set the RAM locations, 23606 and 23607 to point to the UDG character set, then use SCREEN\$ to detect if a UDG is present at a given location. If a UDG is located there, then the plane has collided with an object and the program will GO TO the plane explode routine. If no UDG is detected then the program will RETURN to the main loop.

**1160-1170** Explode the plane then GO TO the end of game routine.

**1180-1230** Set the variable to move the plane one place forward, then test to see if the plane has either collided or landed. Move the plane forward and then RETURN to the main program loop.

**1250-1370** The end of game routine which rapidly and continuously produces sound and changes the border colour. The number of bombs, cluster bombs and bullets used as well as the number of hits received is printed. The program then asks if you require another game.

**1380-1520** Instructions.

```

10 REM TO LOAD TYPE LOAD""
20 POKE 23658,8: REM FORCE CAP
S LOCK
30 REM SET VARIABLES AND DIME
NSION ARRAYS
40 LET KOUNT=0: LET END=0: LET
BUL=500: LET CLU=6: LET MC=0: L
ET EX=0: LET SK=1: LET GR=4: LET
D=1: LET D1=7: DIM D$(4): DIM A
$(16)
50 LET P1=23606: LET P2=23607:
LET A1=PEEK P1: LET A2=PEEK P2:
LET A=USR "A"-256: LET A3=A-256
*INT (A/256): LET A4=INT (A/256)
60 GO SUB 1390
70 LET BOM=0: LET HIT=0: LET F
UEL=10000: LET Y=0: LET X=0: LET
Y1=Y: LET X1=X: LET YY=0: LET X
X=31
80 LET STAT=0: LET AK=6: LET V
=0: LET H=0: LET EX=0: LET B1=0:
LET B2=0
90 REM DETECT KEY PRESS
100 LET KEY=CODE (INKEY$)
110 REM MAIN PROGRAM LOOP
120 REM SET POINTERS TO DETECT
BOMB RELEASE ETC
130 IF KEY=66 AND STAT<>1 THEN
LET BOM=1: LET KOUNT=KOUNT+1: L
ET B1=Y+2: LET B2=X+3: LET CHAR=
152: LET EX1=1

```



```

140 IF KEY=67 AND 1*(STAT=0)+1*
(CLU>0)=2 THEN LET BOM=1: LET B
1=Y+2: LET B2=X+3: LET CHAR=153:
LET EX1=2
150 IF KEY=77 THEN LET MC=1
160 LET X=X+1: IF X>26 THEN LE
T X=ABS (27-X)
170 IF KEY=81 THEN LET FUEL=FU
EL-40
180 LET Y=Y+1*(KEY=65)-1*(KEY=8
1 AND Y>0): IF Y<21-(FUEL/100) T
HEN LET Y=21-(FUEL/100)
190 IF Y>20 THEN LET Y=20
200 REM MOVE PLANE
210 IF Y1<>Y THEN PRINT AT Y1,
X1;" " " ";AT Y1+1,X;" "
220 LET V=0: LET H=0: GO SUB 11
10
230 PRINT AT Y,X;" " ;A$( TO B);
AT Y+1,X;" " ;A$(9 TO ): LET Y1=Y
: LET X1=X
240 IF X=26 THEN PRINT AT Y1,X
1;" " ";AT Y1+1,X;" "
250 IF BOM=0 THEN GO TO 380
260 REM DROP BOMB
270 LET STAT=1: LET V=B1+1: LET
H=B2: GO SUB 1110: IF COD<>0 TH
EN LET EX=1
280 IF COD=43 THEN LET AK=AK-1
290 IF B1+1=21 THEN LET EX=1
300 PRINT PAPER SK*(B1<20)+GR*
(B1>19);AT B1,B2;" " ;AT B1+1,B2;
CHR$ CHAR: BEEP .005,B1+40: LET
B1=B1+1
310 LET V=0: LET H=0: GO SUB 11
10: GO SUB 1180
320 REM EXPLODE BOMB
330 IF EX=1 AND EX1=1 THEN PRI
NT BRIGHT 1; PAPER 6; INK 2;AT
B1,B2;CHR$ 161: BEEP .2,10: PRIN
T PAPER SK*(B1<20)+GR*(B1>19);A
T B1,B2;" " : LET BOM=0: LET EX=0

```

```

: LET STAT=0
340 REM EXPLODE CLUSTER BOMB
350 IF EX=1 AND EX1=2 THEN LET
PP=SK*(B1<20)+GR*(B1>19): FOR K
=1 TO 3: PRINT BRIGHT 1; PAPER
6; INK 2;AT B1,(B2-2)+K;CHR$ 161
: BEEP .2,10: PRINT PAPER PP;AT
B1,(B2-2)+K;" " : GO SUB 1110: G
O SUB 1180: NEXT K: LET BOM=0: L
ET EX=0: LET STAT=0: LET CLU=CLU
-1
360 IF BOM<>0 THEN GO TO 270
370 REM FIRE GUNS
380 IF MC=1 AND BUL>0 THEN LET
PP=SK*(Y+2<20)+GR*(Y+2>19): PRI
NT PAPER PP; INK 2;AT Y+1,X+5;M
$: BEEP .005,10: BEEP .01,20: BE
EP .01,30: BEEP .01,30: PRINT P
APER PP;AT Y+1,X+5;" " : LET M
C=0: LET BUL=BUL-20
390 REM FIRE ANTI-AIRCRAFT GUN
S
400 IF INT (RND*12)>AK THEN GO
TO 520
410 IF STAT=1 THEN GO TO 520
420 FOR K=1 TO 2: LET AA=RND*Y+
1: LET AA1=RND*26
430 LET V=AA: LET H=AA1: GO SUB
1110
440 PRINT PAPER 0; INK 6;AT AA
,AA1;CHR$ 161;: BEEP .01,15: PRI
NT PAPER SK*(AA<20)+GR*(AA>19);
AT AA,AA1;" "
450 GO SUB 1180
460 REM DETECT A HIT ON PLANE
470 IF COD>31 AND COD<40 THEN
LET HIT=HIT+1
480 NEXT K
490 REM DETECT IF LANDED
500 IF Y=20 AND X=25 THEN GO T
O 1250
510 REM UPDATE STATUS DISPLAY

```



```

520 PRINT #1;AT 1,8;" ";AT 1,7
;HIT: IF HIT>12 THEN GO TO 1160
530 LET FUEL=FUEL-5: PRINT #1;A
T 1,1;" ";AT 1,1;FUEL
540 PRINT #1;AT 1,15;" ";AT 1,
15;CLU;AT 1,25;" ";AT 1,25;BUL
: GO TO 100
550 REM READ UDG'S
560 FOR J=0 TO 18: FOR N=0 TO 7
: READ B
570 LET T#=CHR# (144+J): POKE U
SR T#+N,B: NEXT N: NEXT J
580 DATA 48,120,252,252,252,252
,199,187
590 DATA 0,0,1,1,1,1,255,255
600 DATA 0,0,0,0,0,31,242,242
610 DATA 0,0,0,0,0,240,72,68
620 DATA 199,127,63,31,0,0,0,0
630 DATA 252,251,247,255,0,0,0,
0
640 DATA 63,223,224,223,63,31,0
,0
650 DATA 255,255,127,63,192,128
,0,0
660 DATA 153,153,90,60,60,60,60
,24
670 DATA 64,226,231,71,18,56,56
,16
680 DATA 255,153,153,255,255,15
3,153,255
690 DATA 24,24,24,126,126,60,10
2,195
700 DATA 195,165,153,153,165,19
5,129,255
710 DATA 24,36,90,219,165,153,1
29,129
720 DATA 0,0,252,228,231,255,25
5,102
730 DATA 102,0,204,0,0,0,0,0
740 DATA 1,99,255,254,0,0,0,0
750 DATA 137,74,40,32,134,129,3
6,65

```

```

760 DATA 171,171,171,171,171,17
1,171,171
770 RETURN
780 REM CHR# ARRAYS FOR PLANES
AND CODES FOR OBJECTS
790 LET D#=CHR# 17+CHR# D+CHR#
16+CHR# D1: LET A#( TO 4)=D#: LE
T A#(5 TO 8)=CHR# 144+CHR# 145+C
HR# 146+CHR# 147
800 LET A#(9 TO 12)=D#: LET A#(
13 TO 16)=CHR# 148+CHR# 149+CHR#
150+CHR# 151
810 LET E#=CHR# 21+CHR# 1+D#+CH
R# 160: LET EXPL=161: LET B=152:
LET CL=153: LET W=154: LET G=15
5: LET FR=156: LET TF=157: LET J
P=158: LET BU=159
820 LET M#=CHR# 159+CHR# 159+CH
R# 159
830 RETURN
840 REM SET UP SCREEN
850 PAPER SK: INK 0: BORDER SK:
CLS : PRINT PAPER GR; INK 0;AT
20,0,,,
860 LET N=13
870 FOR J=1 TO N
880 POKE P1,A3: POKE P2,A4
890 LET Y=20: LET X=INT (RND*26
)+3: IF CODE (SCREEN# (Y,X))<>0
THEN GO TO 890
900 LET H=INT (RND*12)+2
910 FOR K=0 TO H
920 LET CHAR=162: IF RND*10<5 T
HEN LET CHAR=154
930 PRINT PAPER 6; INK 0;AT Y-
K,X;CHR# CHAR
940 NEXT K: NEXT J
950 LET N=13
960 FOR J=1 TO N
970 LET Y=20: LET X=INT (RND*26
)+3: IF CODE (SCREEN# (Y,X))<>0
THEN GO TO 970

```



```

980 LET H=INT (RND*12)+2
990 FOR K=0 TO H
1000 LET CHAR=FR: IF K=H THEN LET CHAR=TF
1010 PRINT PAPER SK*(Y-K<20)+GR*(Y-K>19); INK 2; AT Y-K,X; CHR$ C HAR
1020 NEXT K: NEXT J
1030 LET N=3: LET CHAR=155: LET IN=1: GO SUB 1050: LET N=8: LET CHAR=158: LET IN=0: GO SUB 1050: POKE P1,A1: POKE P2,A2
1040 GO TO 1080
1050 FOR J=1 TO N
1060 LET Y=21: LET X=INT (RND*26)+3: IF CODE (SCREEN$ (Y,X))<>0 THEN GO TO 1060
1070 PRINT PAPER 4; INK IN; AT Y,X; CHR$ CHAR: NEXT J: RETURN
1080 PRINT #1; AT 0,1; "Fuel"; AT 0,7; "Hits"; AT 0,13; "Cluster"; AT 0,22; "Bullets"
1090 RETURN
1100 REM DETECT UDG'S USING SCREEN$
1110 POKE P1,A3: POKE P2,A4: LET COD=CODE (SCREEN$ (V,H))
1120 IF CODE (SCREEN$ (Y,X+5))<>0 AND CODE (SCREEN$ (Y+1,X+5))<>0 THEN POKE P1,A1: POKE P2,A2: GO TO 1160
1140 POKE P1,A1: POKE P2,A2: RETURN
1150 REM EXPLODE PLANE
1160 PRINT PAPER 6; INK 2; OVER 1; AT Y,X+2; CHR$ 161; AT Y,X+3; CHR$ 161; AT Y+1,X+2; CHR$ 161; AT Y+1,X+3; CHR$ 161: PAUSE 100
1170 BEEP .005,15: BEEP .1,25: BEEP .001,55: BEEP .1,20: BEEP .1,5: PRINT PAPER SK*(Y+1<20)+GR*(Y+1>19); INK 7; AT Y,X; " "; A

```

```

T Y+1,X;" ": PAUSE 100: GO TO 1250
1180 LET X=X+1: IF X>26 THEN LET X=ABS (27-X)
1190 IF Y>20 THEN LET Y=20
1200 IF Y=20 AND X=25 THEN GO TO 1250
1210 PRINT AT Y,X;" "; A$( TO 8); AT Y+1,X;" "; A$(9 TO ): LET Y1=Y: LET X1=X
1220 IF X=26 THEN PRINT AT Y1,X1;" "; AT Y1+1,X;" "
1230 RETURN
1240 REM END OF GAME
1250 PAPER 6: INK 1: BORDER 6: CLS
1260 LET K=0
1270 LET K=(K+1)*(1*(K<121))
1280 LET A=K*(K<61)+((120-K)*(K>60)): IF A=0 THEN LET A=1
1290 IF Y<>20 AND X<>25 THEN PRINT AT 7,8; "YOU BLEW IT !!"
1300 IF Y=20 AND X=25 THEN PRINT AT 7,11; "WELL DONE"; AT 9,7; "YOU LANDED SAFELY"
1310 PRINT AT 11,11; "YOU USED"
1320 PRINT AT 13,7; 500-BUL;" ... ..BULLETS"; AT 15,7; 6-CLU;" .... ..CLUSTER BOMBS"; AT 17,7; KOUNT;" .....BOMBS"
1330 PRINT AT 19,7; "YOU RECEIVED "; HIT;" HITS"
1340 BEEP .005,A: BEEP .008,60-A: BORDER (RND*7)+.5
1350 PRINT AT 20,3; "Do you want another try Y/N!": IF INKEY$="N" THEN STOP
1360 IF INKEY$="Y" THEN RESTORE : RUN
1370 GO TO 1270
1380 REM INSTRUCTIONS
1390 PRINT AT 0,9; "PLANE ATTACK"

```



```

;AT 1,8;"#####"
1400 PRINT : PRINT "You are the
pilot of a heavy bomber. Your
mission is to"
1410 PRINT "destroy the enemy fa
ctories": PRINT "and land your p
lane."
1420 PRINT : PRINT "Your plane i
s equipped with unlimited or
dinary bombs, six cluster bomb
s, and machine guns. One cluster
bomb equals three ordinary bom
bs."
1430 PRINT : PRINT "Your plane w
ill move constantly from left to
right, and you may move only up
or down."
1440 PRINT : PRINT "In addition
to buildings you will see ene
my trucks and anti-aircraft bat
teries, which you can bomb."
1450 GO SUB 560: PRINT #1;AT 0,3
;"PRESS ANY KEY TO CONTINUE": PA
USE 0
1460 CLS : PRINT "There are also
three more anti-aircraft batte
ries which you cannot see or
bomb. Your plane can take twelv
e hits from anti-aircraft fire
before it explodes!": P
RINT : PRINT "Your fuel tanks co
ntain ten thousand pounds of
";
1470 PRINT " fuel, which is con
sumed faster when you climb.
Once your fuel is exhausted
you will start to descend
and then crash!!"
1480 PRINT : PRINT "You are advi
sed to fly as low as possible
to avoid the anti-aircraft fir
e, and to speed up your bombing

```

```

rate.": PRINT : PRINT "Once all
the targets have been destroye
d you must land."
1490 GO SUB 790: PRINT #1;AT 0,3
;"PRESS ANY KEY TO CONTINUE": PA
USE 0
1500 CLS : PRINT AT 1,13;"CONTRO
LS"
1510 PRINT AT 3,2;"Press KEY Q .
..to move up";AT 4,2;"Press KEY
A ...to move down";AT 5,2;"Press
KEY M ...to fire guns";AT 6,2;"
Press KEY B ...to drop bombs";AT
7,2;"Press KEY C ...to drop clu
ster";AT 8,20;"bombs"
1520 PRINT #1;AT 0,3;"PRESS ANY
KEY TO CONTINUE": PAUSE 0: GO SU
B 840: RETURN

```





Original program by W. G. T. Walker

You are the commander of a tank in the North African desert. Your mission is to destroy the enemy convoy travelling along the Cairo road. To steer the tank you must adjust the speed of each caterpillar track. When both tracks are in operation the tank will move forward in a straight line.

To operate the tracks and fire the gun use the following:

- P — Right track (turn right)
- Q — Left track (turn left)
- S — Shoot

The game starts with a battlefield being drawn, on which a number of targets will be shown. The targets consist of anti-tank traps, enemy tanks and trucks. In addition, you will see at the top of the screen, the convoy of tanks and trucks moving from right to left. At the bottom of the screen, your score and the present high score along with the number of shells you have left, will be displayed.

The number of shells you start with is slightly more than the number of targets. If the tank collides with any object the game will end. There are three levels of play, each increasing both the number of targets and their value. At the highest level of play (3) you will only have three more shells than targets, so make them count!

The program illustrates well how good graphics and movement can create an exciting arcade-style game.

## Program Description

- 10 POKE to force CAPS LOCK.
- 20 Set screen colours.
- 30-50 Dimension and set up arrays for graphics characters and direction of movement.
- 80-100 Set the variables to their initial values.
- 110-140 Set the number of shells equal to the number of targets and add between three and five additional shells. Print the tank.
- 150-160 Print the string representing the convoy at the top of the screen, after it has been shuffled one character to the left.
- 180-190 Request an input, then print the score, high score and the number of shells left, at the bottom of the screen.
- 200 If a shell has been fired (key S has been pressed) then decrement the number of shells left.
- 210-240 Set the variables that control the direction of the tank to represent the command entered.
- 270-300 Set the Y, X co-ordinates of the tank to their new values.
- 320-330 Check that the tank has not hit an object, then select the correct view of the tank.
- 340-380 Erase the old image of the tank, then print the tank at its new position.
- 430-460 If a shell has been fired, print the shell and move it forwards, checking at each position that the shell is not off screen.
- 480-510 Check if the shell has hit a target, and if so call the explosion routine. If the shell has not hit a target then loop back and move the shell one space forward.
- 520 Check that either all the targets have been destroyed, or there are no more shells left. If either of these conditions is true then GO TO the end of game routine.
- 530 Loop back to the start of the routine again.
- 540-660 Set up the character arrays to represent the tank (B\$). The convoy array contains fifteen tanks and fifteen trucks, the total number of targets is then increased by thirty.
- 670-710 Read and install the UDG characters (A-M).
- 720-850 Data for the UDGs.
- 870-1010 Clear the screen, and print the targets and the hills on



the screen. Each time a target is printed, then the total number of targets (variable TOTE) is increased by one.

**1030-1150** Destroy the target. If the target is part of the convoy then the region of the B\$ representing this is replaced with a blank character. The total number of targets is decremented by one, and the score incremented by ten time the level of play.

**1160-1170** If the tank has collided then this explosion routine prints at the tank position, and then moves onto the end of game routine.

**1190-1230** End of game routine, the screen is cleared and the score and high score displayed. The player is then invited to try again.

**1240-1430** Instructions.

```
10 POKE 23658,8: GO TO 1250
20 PAPER 6: INK 0: BORDER 6: C
LS
30 REM DIMENSION & SET ARRAYS
40 DIM O$(30): DIM T$(6): DIM
A$(12): DIM B$(250): LET AR=0: L
ET COL=2: LET O=146: LET OO=147:
DIM R(4): LET R(1)=0: LET R(2)=
1: LET R(3)=0: LET R(4)=-1: LET
HSCORE=0
50 LET TOTE=0
60 GO SUB 540
70 RETURN
80 REM SET INITIAL VARIABLES
90 LET PY=21: LET PX=1: LET PY
1=21: LET PX1=1: LET PN=1: LET P
N1=4: LET P1=4: LET P2=1
100 GO SUB 860
110 LET SHELL=TOTE+6-LEVEL
120 LET NO=0: LET FLAG=0: LET S
CORE=0
130 REM SET TANK DIRECTION & M
OVEMENT
140 PRINT PAPER 7: INK 2: AT PY
,PX: A$(PN TO PN1)
150 LET B$=B$(2 TO )+B$(1)
160 PRINT PAPER 7: INK 2: AT 1,
```

```
2: B$( TO 28): AT 0,2: , "
": REM 14 SPACES
170 REM REQUEST INPUT
180 LET K$=INKEY$: PAUSE 3: LET
K$=INKEY$
190 PRINT #1: PAPER 6: INK 0: AT
0,2: "SCORE= ": INT SCORE: AT 0,18
: "HI-Score= ": INT HSCORE: AT 1,9:
"SHELLS= ": SHELL
200 IF K$="S" THEN LET SHELL=S
HELL-1: GO TO 390
210 LET P1=P1+(1*(K$="P"))+(-1*
(K$="Q")): LET P2=P2+(1*(K$="P"
))+(-1*(K$="Q"))
220 REM CHECK DIRECTION
230 IF P1<1 OR P1>4 THEN LET P
1=4*(P1<1)+1*(P1>4)
240 IF P2<1 OR P2>4 THEN LET P
2=4*(P2<1)+1*(P2>4)
250 REM IF K$<>"F" THEN GO TO
310
260 REM SET TANK DIRECTION
270 LET PY=PY+R(P1): LET PX=PX+
R(P2)
280 IF PY>21 THEN LET PY=21
290 IF PX<0 OR PX>30 THEN LET
PX=0+30*(PX>30)
300 LET SPY=PY: LET SPX=PX: LET
SPY=SPY+R(P1): LET SPX=SPX+R(P2
)
310 REM CHECK FOR COLLISION
320 IF ATTR (SPY,SPX)<>48 OR AT
TR (SPY,SPX+1*(R(P2)=0))<>48 THE
N LET FLAG=1
330 LET PN=9*((R(P1)=0) AND (R(
P2)=1))+5*((R(P1)=0) AND (R(P2)=
-1))+1*((R(P1)=-1) AND (R(P2)=0)
)+1*((R(P1)=1) AND (R(P2)=0)): L
ET PN1=PN+3
340 REM ERASE OLD IMAGE OF TAN
K
350 PRINT PAPER 6: INK 0: AT PY
```



```

1,PX1;" "
360 LET PY1=PY: LET PX1=PX
370 REM PRINT NEW TANK IMAGE
380 PRINT PAPER 6; INK 0;AT PY
,PX;A$(PN TO PN1): BEEP .005,46
: BEEP .005,60
390 IF FLAG=1 THEN GO TO 1170
400 REM LET K#=INKEY#
410 IF K#<>"S" THEN GO TO 520
420 REM SHOOT
430 LET SPY=PY: LET SPX=PX: FOR
J=1 TO 7: BEEP .05,50+J: LET SP
Y=SPY+R(P1)+(1*(R(P1)=1 AND SPY=
PY)): LET SPX=SPX+R(P2)+(1*(R(P2
)=1 AND SPX=PX))
440 REM CHECK SHELL IS NOT OFF
SCREEN
450 IF SPY>21 OR SPY<0 THEN LE
T J=9: GO TO 510
460 IF SPX>31 OR SPX<0 THEN LE
T J=9: GO TO 510
470 REM CHECK FOR A HIT
480 LET A1=ATTR (SPY,SPX): LET
A2=ATTR (SPY,SPX+1*(R(P2)=0)): I
F A1>49 OR A2>49 THEN GO SUB 10
30
490 REM PRINT SHELL
500 PRINT PAPER 6; INK 0;AT SP
Y,SPX;CHR# 156: PAUSE 4: PRINT
PAPER 6; INK 0;AT SPY,SPX;" "
510 NEXT J
520 IF SHELL<1 OR TOTE<1 THEN
GO TO 1180
530 LET NO=0: GO TO 150
540 REM SET UP CHARACTER ARRAY
FOR TANK
550 LET I#=CHR# 17+CHR# 6
560 LET A#=I#+CHR# 144+CHR# 145
+I#+CHR# 146+CHR# 147+I#+CHR# 14
8+CHR# 149
570 FOR J=1 TO 15
580 LET T=INT (RND*200)+25

```

```

590 FOR K=0 TO 4: IF CODE (B$(T
-2+K))<>32 THEN GO TO 620
600 NEXT K: LET B$(T TO T+5)=CH
R# 0+CHR# 00
610 GO TO 630
620 GO TO 580
630 NEXT J
640 IF AR=1 THEN GO TO 660
650 LET O=152: LET OO=153: LET
AR=1: LET COL=3: GO TO 570
660 LET TOTE=TOTE+30 : RETURN
670 REM SET UP UDGs
680 LET A=0
690 LET A=A+1: FOR N=0 TO 7: RE
AD B: POKE USR CHR# (143+A)+N,B:
NEXT N
700 IF A<13 THEN GO TO 690
710 RETURN
720 DATA 1,3,6,247,143,255,143,
240
730 DATA 128,192,96,239,241,255
,241,15
740 DATA 3,255,15,127,85,182,18
2,85
750 DATA 128,128,200,252,84,218
,218,84
760 DATA 1,1,19,63,42,91,91,42
770 DATA 192,255,240,254,170,10
9,109,170
780 DATA 255,255,255,254,254,25
2,246,192
790 DATA 255,255,255,127,127,63
,31,3
800 DATA 3,4,5,255,199,187,60,2
4
810 DATA 254,254,254,254,206,18
3,120,48
820 DATA 16,68,37,148,59,18,68,
41
830 DATA 132,74,49,127,49,74,13
2,8
840 DATA 0,32,32,0,0,0,0,0

```



```

850 RETURN
860 REM SET UP SCREEN
870 PRINT PAPER 7; INK 1; AT 0,
0; , , ,
880 FOR J=0 TO 16: PLOT 0,175-J
: DRAW J+5+(RND*2),0: PLOT 255,1
75-J: DRAW -(J+5+(RND*2)),0: NEX
T J
890 FOR J=1 TO 3*LEVEL: LET TOT
E=TOTE+1
900 LET Y=(RND*18)+3: LET X=(RN
D*30)
910 IF ATTR (Y,X)>49 AND ATTR (
Y,X+1)>49 THEN GO TO 900
920 PRINT PAPER 6; INK 4; AT Y,
X; CHR$ 155: NEXT J
930 FOR J=1 TO 2*LEVEL: LET TOT
E=TOTE+1
940 LET Y=(RND*18)+3: LET X=(RN
D*30)
950 IF ATTR (Y,X)>49 AND ATTR (
Y,X+1)>49 THEN GO TO 940
960 PRINT PAPER 6; INK 3; AT Y,
X; CHR$ 152; AT Y,X+1; CHR$ 153: NE
XT J
970 FOR J=1 TO 2*LEVEL: LET TOT
E=TOTE+1
980 LET Y=(RND*18)+3: LET X=(RN
D*30)
990 IF ATTR (Y,X)>49 AND ATTR (
Y,X+1)>49 THEN GO TO 980
1000 PRINT PAPER 6; INK 2; AT Y,
X; CHR$ 146; AT Y,X+1; CHR$ 147: NE
XT J
1010 RETURN
1020 REM DESTROY TARGET
1030 LET C=SPY: LET D=SPX+1*(R(P
2)<>0)
1040 IF SPY=1 AND B$(PX-1+1*(PX=
1))=" " THEN LET J=9: GO TO 510
1050 IF B$(PX-1+1*(PX=1))<>" " A
ND SPY=1 THEN LET B$(SPX-1+1*(P

```

```

X=1))=" ": LET B$(SPX-1+(1*(B$(S
PX)<>" "))-1*(B$(SPX-2)<>" " ))="
"
1060 PRINT AT 1,PX; CHR$ 154: PAU
SE 3: PRINT PAPER 7; INK 2; AT 1
,2; B$( TO 28)
1070 LET SCORE=SCORE+(10*LEVEL):
IF HSCORE<SCORE THEN LET HSCO
RE=SCORE
1080 FOR K=1 TO 4
1090 IF ATTR (SPY+R(K),SPX)>49 T
HEN PRINT PAPER 6; INK 2; AT SP
Y+R(K),SPX; CHR$ 154: BEEP .1,10:
PRINT PAPER 6; INK 0; AT SPY+R(
K),SPX; " ": LET TOTE=TOTE-1
1100 IF ATTR (SPY,SPX+R(K))>49 T
HEN PRINT PAPER 6; INK 2; AT SP
Y,SPX+R(K); CHR$ 154: BEEP .1,10:
PRINT PAPER 6; INK 0; AT SPY,SP
X+R(K); " ": LET TOTE=TOTE-1
1110 NEXT K
1120 REM PRINT OVER 1; PAPER 6
; INK 0; AT SPY,SPX; CHR$ 154; AT C
,D; CHR$ 154
1130 BEEP .1,10: PAUSE 3: NEXT K
1140 PRINT PAPER 6; INK 0; AT SP
Y,SPX; " "; AT C,D; " "
1150 LET J=8: RETURN
1160 REM DESTROY TANK
1170 FOR J=1 TO 5: PRINT OVER 1
; BRIGHT 1; PAPER 6; INK 2; AT PY
,PX; CHR$ 154; AT PY,PX+1; CHR$ 154
: PAUSE 3: NEXT K: BEEP .01,10*5
: NEXT J
1180 REM END GAME
1190 FOR J=0 TO 10: BEEP .05,60-
(J*2.6): PRINT PAPER 1; INK 7; A
T J,0; , , ; AT 21-J,0; , , : NEXT J
1200 PRINT PAPER 1; INK 7; AT 5,
10; "HIGH SCORE"; AT 7,12; HSCORE; A
T 10,10; "YOUR SCORE"; AT 12,12; SC
ORE

```



```

1210 PRINT PAPER 1; INK 7; AT 16
,0;" DO YOU WANT TO TRY AGAIN Y
/N": INPUT p$: IF p$="N" THEN P
RINT PAPER 1; INK 7; AT 18,13;"B
YE!": FOR J=1 TO 6: BEEP .05,10*
J: NEXT J: STOP
1220 IF p$<>"Y" THEN GO TO 1210
1230 PRINT PAPER 6; INK 0; AT 20
,7;"ENTER LEVEL": INPUT LEVEL: C
LS : LET TOTE=30: GO TO 90
1240 REM INSTRUCTIONS
1250 PRINT AT 1,11;"TRANK": PRIN
T : PRINT "You are the commander
of a tank": PRINT "somewhere in
North Africa.": PRINT "Your mis
sion is to destroy the"
1260 PRINT "enemy convoy travell
ing along the Cairo road.": PR
INT : PRINT "To steer the tank y
ou must adjust the speed of
each track. When both tracks ar
e in operation the tank
will move in a straight";
1270 PRINT " line. To operate th
e tracks and fire the gun, use t
he following keys."
1280 PRINT : PRINT " P....Rig
ht track(turn right)"
1290 PRINT " Q....Left track
(turn left)"
1300 PRINT " S....Shoot"
1310 GO SUB 680: PRINT #1; AT 0,3
;"PRESS ANY KEY TO CONTINUE": PA
USE 0
1320 CLS : PRINT "The game start
s with a battle field being dr
awn, on which a number of targ
ets will be shown."
1325 PRINT
1330 PRINT "The targets consist
of anti-tanktraps, enemy tanks,
and trucks. In addition at the t

```

```

op of the screen you will see
the convoy"
1340 PRINT "moving from right to
left. At the bottom of the sc
reen will be"
1350 PRINT "your present score a
nd high score as well as the
number of shells you have left
."
1360 PRINT : PRINT "The number o
f shells you have isslightly gre
ater than the total": PRINT "num
ber of targets."
1370 PRINT "If the tank collides
with any object then the game
will end."
1380 PRINT "There are three leve
ls of play each increasing the
number of targets and their va
lue."
1390 GO SUB 30: PRINT #1; AT 0,3;
"PRESS ANY KEY TO CONTINUE": PAU
SE 0
1400 CLS : PRINT "At the highest
level (3) you willonly have thre
e more shells thantargets, so ma
ke them count!"
1410 PRINT : PRINT "Enter the le
vel of play (1-3)?"
1420 INPUT LEVEL: IF LEVEL<1 OR
LEVEL>3 THEN GO TO 1420
1430 PAPER 6: INK 0: BORDER 6: C
LS : GO TO 90

```



# LANDER

Nine scientists are working on the planet Delta Foxtrot Four, when it comes under attack from the Red Planet, C.34. Your mission, as a Lander commander is to save them and take them back to the main building.

Four anti-landing crosses litter the sky above the landing pads. Two of the crosses will explode when touched, losing you a life, so try to avoid them if you can. You have to manoeuvre your lander very skillfully, because the landing pads are just wide enough to take your lander, and you will lose a life if you miss.

Gravity pulls you down to Delta Foxtrot Four, but your Lander is equipped with motors which control left and right movement, and thrusters which will increase your altitude. Remember, though, that using the thrusters will diminish your fuel supply.

Your lander responds to these three keys:

- Q – Left
- P – Right
- O – Thrusters

Good luck on your mission. Those scientists will be very glad to see you!

## Program Description

- 1 Calls subroutines to set up user-defined-graphics (UDGs), and print the instructions.
- 2 Initializes number of scientists to zero.
- 3 Initializes screen colours.
- 5-32 Initializes remaining variables.
- 60 Call subroutine to set up screen.
- 65-99 Prints fuel, score and lives. Also chooses positions for the anti-landing crosses and prints them on screen.
- 199 Calls control subroutine.
- 200 Sends the program back to call the control subroutine repeatedly. This is the main loop in the program, and calling the control subroutine in this way gives you continuous control over the Lander.

**1050-1100** This is the control subroutine, which checks for key presses, checks the lander is flying in free space (or is in contact with the non-explosive anti-landing crosses), and updates the fuel level, score and the number of lives.

**3000-3500** Subroutine to set up the screen.

**3000-4040** Tests to check for crashes, and adjustments to variables ready for the next time through the control subroutine.

**5000-5490** Messages for the captain, according to the progress made with the game.

**5500-5530** Sets start position of the lander.

**7000-7050** The thruster routine, which decrements the fuel level, and adjusts the lander's screen position.

**8003-8120** Decrements the number of lives and checks if any remain.

**8500-8560** The end of game routine. A tune is played before GAME OVER appears. You are asked if you want another go.

**9000-9020** POKEs to set up UDGs.

**9030-9200** Data for UDGs.

**9800-9970** Instructions.

```
1 GO SUB 9000: GO SUB 9800
2 LET number=0
3 INK 7: BORDER 0: PAPER 0: C
LS
5 LET score=0: LET screen=1:
LET fuel=20: LET lives=3
6 LET hazards=2
7 LET bs=0
8 LET g=0
10 LET a=2: LET b=15
20 LET hazard=1
32 LET s=INT (RND*2)+1
60 GO SUB 3000
65 PRINT AT 0,0;"ppppppppppppppp
pppppppppppppppppppppp"
70 PRINT AT 0,22; INK 4; PAPER
7;"FUEL="; INK 2;fuel
75 PRINT AT 0,12;"SCORE="; scor
e
80 PRINT AT 0,4; INK 4; PAPER
7;"LIVES="; INK 2;lives
```



```

85 IF hazard=1 THEN GO TO 86:
IF hazard=0 THEN GO TO 100
89 FOR a=1 TO hazards
90 LET z=INT (RND*15)+2
91 LET x=INT (RND*30)
93 LET u=INT (RND*15)+2
94 LET y=INT (RND*30)
95 PRINT AT z,x;"JM"
96 PRINT AT z+1,x;"KL"
97 PRINT AT u,y; INK 2;"JM"
98 PRINT AT u+1,y; INK 2;"KL"
99 NEXT a
199 GO SUB 1000
200 GO TO 100
1050 IF INKEY$="p" THEN LET b=b
+1: PRINT AT a,b-1;" "
1055 IF b<3 THEN LET b=3
1060 IF INKEY$="q" THEN LET b=b
-1: PRINT AT a,b+1;" "
1064 IF b>29 THEN LET b=29
1065 IF INKEY$="o" AND fuel>0 TH
EN GO SUB 7000
1078 LET a=a+1
1079 IF a<3 THEN LET a=3
1080 IF a=z AND b=x OR a+1=z AND
b=x OR a-1=z AND b=x OR a=x AND
b-1=x OR a=x AND b+1=x OR a+1=z
AND b-1=x OR a-1=z AND b+1=x TH
EN GO SUB 8000
1081 IF b>29 THEN LET b=29
1082 IF a=u AND b=y OR a+1=u AND
b=y OR a-1=u AND b=y OR a=u AND
b-1=y OR a=u AND b+1=y OR a+1=u
AND b-1=y OR a-1=u AND b+1=y TH
EN GO SUB 8000
1083 IF number=0 THEN GO TO 108
5: IF number=1 THEN GO TO 1084
1084 IF bs=1 AND a>14 AND b>0 AN
D b<7 OR a>14 AND b>13 AND b<30
THEN GO TO 8000
1085 BEEP .007,-20: LET score=sc
ore+1: PRINT AT 0,18;score: PRIN

```

```

T AT a,b;" DB "
1086 PRINT AT a-1,b;" CA "
1090 PRINT AT a-2,b;" "
1095 PRINT AT a+1,b;" "
1102 IF a>=17 THEN GO SUB 3000
1105 GO TO 3999
1110 RETURN
3000 IF bs=1 THEN GO TO 3400
3001 IF screen=2 THEN GO SUB 32
00
3002 IF screen=3 THEN GO SUB 33
00
3005 IF screen=1 THEN GO SUB 30
10
3009 RETURN
3010 PRINT AT 19,0;"F GpF Gppp
pF GppF p GF "
3015 IF s=1 THEN LET f=9: LET e
=18
3016 IF s=2 THEN LET e=19: LET
f=14
3020 PRINT AT 18,0;" H
H H "
3030 PRINT AT 20,0;"pppppppppppp
pppppppppppppppppppppp"
3040 PRINT AT e,f;"G"; INK 1;"II
"; INK 7;"F"
3100 RETURN
3200 PRINT AT 20,0;"pppppppppppp
pppppppppppppppppppppp"
3210 PRINT AT 19,0;"pppF GpppF G
ppppF GH H GpppF"
3220 PRINT AT 18,0;"FHH HGF
FHF "
3230 LET f=12: LET e=18
3240 PRINT AT e,f;"G"; INK 3;"II
"; INK 7;"F"
3250 RETURN
3300 PRINT AT 20,0;"pppppppppppp
pppppppppppppppppppppp"
3310 PRINT AT 19,0;"H GppppF HGp
pppppF H GppppppF H"

```



```

3320 PRINT AT 18,0;" GF H H
HGFH GFGFHH"
3330 IF s=1 THEN LET e=18: LET
f=3
3340 IF s=2 THEN LET e=18: LET
f=11
3350 PRINT AT e,f;"G"; INK 4;"II
"; INK 7;"F"
3360 RETURN
3400 INK 5: PRINT AT 20,0;"ppppp
pppppppppppppppppppppppppppppp"
3410 INK 5: PRINT AT 19,0;"ppppp
pp pppp pp pppppp pppp"
3420 INK 5: PRINT AT 18,0;"ppp p
pp ppppp p pppppppppp "
3430 INK 5: PRINT AT 17,0;"ppp p
pp pp p ppp pp pppp "
3440 INK 5: PRINT AT 16,0;"ppp p
pp pp p ppp pp pppp"
3450 LET e=19: LET f=7
3460 PRINT AT e,f; INK 2;"IIII"
3500 RETURN
3999 IF a=e-1 AND b=f THEN GO T
O 5000: GO TO 4001
4005 IF a=0 THEN LET a=3
4006 IF b=23 THEN LET b=23
4010 IF a>=18 THEN GO TO 8000
4040 GO TO 1110
5000 PRINT AT 10,10; INK 1;"G";
INK 2;"O"; INK 3;"O"; INK 4;"D "
; INK 5;"L"; INK 6;"A"; INK 7;"N
"; INK 1;"D"; INK 2;"I"; INK 3;"
N"; INK 4;"G!"
5005 IF number=0 THEN GO SUB 75
00
5007 IF number=1 THEN GO SUB 53
00
5010 FOR a=1 TO 3: BEEP .05,20:
BEEP .08,-5: PAUSE 5: NEXT a: FO
R a=1 TO 3: BEEP .07,-5: BEEP .0
7,-10: BEEP .07,-15: NEXT a: BEE
P 1,-25

```

```

5020 FOR a=1 TO 20: LET score=sc
ore+5: BEEP .05,5: PRINT AT 0,18
;score: NEXT a
5025 GO SUB 7600
5030 LET screen=screen+1: IF scr
een=4 THEN LET screen=1: LET g=
g+1: IF g=3 THEN GO TO 5500
5035 IF number=1 THEN GO TO 505
0: IF g=3 THEN GO TO 5500
5036 IF score>1000 AND score<110
0 OR score>2000 AND score<2100 O
R score>3000 AND score<3100 THEN
LET lives=lives+1
5040 LET fuel=fuel+5: CLS : GO
TO 10
5050 CLS : PRINT ; FLASH 1;"
W E L L D O N E "
5060 PRINT ; FLASH 1;" = =
= = = = = "
5070 PRINT : PRINT : PRINT ; INK
6;"YOU ARE NOW A:-"
5080 PRINT ; INK 2;" H
ERO!!!!"
5090 PRINT : PRINT : PRINT : PRI
NT :
5100 PRINT ; INK 1;"CONGRATULATI
ONS "; INK 2;"CONGRATULATIONS ";
INK 3;"CONGRATULATIONS "; INK 4
;"CONGRATULATIONS "; INK 5;"CONG
RATULATIONS "; INK 6;"CONGRATULA
TIONS "; INK 7;"CONGRATULATIONS
"; INK 1;"CONGRATULATIONS "
5105 FOR s=1 TO 2
5110 FOR a=1 TO 20: FOR b=1 TO 1
0: BEEP .05,a: LET a=a+1: NEXT b
: LET a=-20: FOR b=1 TO 20: BEEP
.05,a: LET a=a-1: NEXT b
5112 BEEP .2,2: BEEP .3,5: PAUSE
2: BEEP .2,7: BEEP .3,10: BEEP
.3,11: BEEP 1,15
5120 NEXT s
5125 CLS

```



```

5130 PRINT ; INK 4;" Don't forg
et a hero's job is never done!
": PRINT " There are more scien
tists to rescue so off you go a
nd rescue them. You have a 200 p
oint bonusand 10 extra fuel unit
s."
5150 PAUSE 100: LET score=score+
200: LET screen=1: LET fuel=fuel
+10: LET bs=0: LET number=0: LET
g=0: LET hazards=hazards+1: CLS
: GO TO 10
5320 FOR y=1 TO 9
5350 PRINT AT a,b;"DB"
5360 PRINT AT a-1,b;"CA"
5370 BEEP .009,5: PRINT AT a,b+2
;"N"
5375 PAUSE 7
5377 PRINT AT a,b+2;" "
5380 BEEP .009,10: PRINT AT a,b+
3;"N"
5385 PAUSE 7
5390 BEEP .009,15: PRINT AT a,b+
3;" "
5400 NEXT y
5490 RETURN
5500 LET a=20: LET b=15
5510 LET number=1
5520 LET bs=1
5525 CLS
5530 GO TO 20
7000 BEEP .005,-4: PRINT AT a+2,
b; INK 6;" EE": BEEP .005,20: PA
USE 2: PRINT AT a+2,b;" "
7010 LET fuel=fuel-1: PRINT AT 0
,27; PAPER 7; INK 4;fuel;" "
7020 LET a=a-2
7050 RETURN
7530 FOR c=1 TO b
7540 LET d=20
7550 BEEP .008,20: PRINT AT d,c;
INVERSE 1;"N"; INVERSE 0

```

```

7560 BEEP .008,-20: PRINT AT d,c
-1;" "
7562 BEEP .008,-30: PRINT AT d,c
;"p"
7563 BEEP .008,30: PRINT AT d,c+
1; INVERSE 1;"N": INVERSE 0
7565 PAUSE 10
7570 NEXT c
7580 RETURN
7600 BEEP .02,24: PRINT AT d,c;"
p"
7605 PAUSE 5
7610 RETURN
8003 PRINT AT a,b; INK 2;"E"; IN
K 7;"D"; INK 6;"E"; INK 7;"B"; I
NK 2;"E"
8010 PRINT AT a-1,b-1;"EEEEEEEE"
8020 PRINT AT a-2,b; INK 2;"E";
INK 7;"C"; INK 6;"E"; INK 7;"A";
INK 2;"E"
8030 BEEP 1,-20
8040 PAUSE 40
8100 LET lives=lives-1: IF lives
=0 THEN GO TO 8500
8110 LET screen=screen
8120 CLS : GO TO 10
8500 PRINT AT 10,10;"G A M E "
8505 PRINT AT 12,10;"O V E R "
8510 FOR a=1 TO 2: BEEP .05,-10:
PAUSE 2: BEEP .05,-15: PAUSE 5:
BEEP .08,-20: PAUSE 5: NEXT a:
BEEP 1,-40
8520 PRINT AT 10,10;" AGAIN ?"
8530 PRINT AT 12,10;" (Y/N) "
8540 IF INKEY$="y" THEN GO TO 2
8550 IF INKEY$="n" THEN STOP
8560 GO TO 8540
9000 FOR a=USR "a" TO USR "n"+8
9010 READ b: POKE a,b
9020 NEXT a
9030 DATA 0,0,0,128,128,240,136,
132

```



```

9040 DATA 252,252,248,240,64,64,
240,0
9050 DATA 0,0,0,1,1,15,17,34
9060 DATA 63,31,15,7,2,2,7,0
9070 DATA 10,12,33,129,24,33,37,
12
9080 DATA 0,16,48,176,250,254,25
4,255
9090 DATA 0,1,23,29,61,123,127,1
55
9100 DATA 0,8,24,28,92,126,126,2
55
9110 DATA 0,255,0,255,0,255,0,25
5
9120 DATA 0,172,204,48,24,12,6,3
,1
9130 DATA 3,6,12,24,48,204,172,0
9140 DATA 64,96,48,24,12,31,31,3
1
9150 DATA 31,12,24,48,96,64,128,
192
9160 DATA 56,56,16,84,146,40,68,
130
9200 RETURN
9800 PAPER 0: BORDER 0: INK 7: C
LS
9810 PRINT AT 0,0;"      +  L A
N D E R  +      "
9820 PRINT AT 1,0; INK 2;"
- - - - -"
9830 POKE 23658,0: INK 5: PRINT
: PRINT " It is your job to resc
ue some stranded scientists fr
om the planet 'Delta Foxtrot
4' which is at this very moment
under attack from the red pl
anet C34 "
9840 PRINT " You must rescue 9
and then return them to the m
ain building from where they will
be transported home. Th
ere are antilanding crosses susp

```

```

ended above the planet, these mu
st be dodged as they will destroy
your ship if you hit them, but
don't worry too much as only two
on each screen are live. If
you miss the landing pad you
will also be destroyed."
9850 PRINT INVERSE 1;"      F
PRESS ANY KEY      "
9860 PAUSE 0: CLS
9870 PRINT AT 0,0; INK 2;"
THE GAME ITSELF "
9880 PRINT AT 1,0; INK 7;"
=== ===== "
9890 PRINT AT 5,5; INK 2;"JM"
9900 PRINT AT 6,5; INK 2;"KL"
9910 PRINT AT 5,7;" _ _ _ ANTI LA
NDING CROSS"
9915 PRINT AT 8,5;"CA"
9920 PRINT AT 9,5;"DB"
9925 PRINT AT 8,7;" _ _ _ YOUR SH
IP"
9930 PRINT AT 11,5;" N _ _ _ A SC
IENTIST"
9945 PRINT AT 14,5; INK 5;"II _ _
_ A LANDING PAD"
9947 PRINT : PRINT INK 2;" Q=
LEFT P=RIGHT O=THRUST"
9948 PRINT : PRINT INK 6;"
OR USE YOUR KEMPSTON
JOYSTICK."
9950 PRINT AT 21,0; INVERSE 1;"
PRESS ANY KEY TO PLAY "
9960 PAUSE 0
9970 RETURN

```



# FROGGER

In the guise of Phileas Frog and his friends, you must reach home in under 80 days. Cross Riverside Road safely in this version of the arcade favourite. After the road comes the river, which must be crossed on logs and the backs of turtles.

You score five points for every lane passed, 25 points for every frog home, and a bonus of ten points for every day under 80.

Control the frogs using the cursor keys:

- 5 – Left
- 6 – Backwards
- 7 – Forwards
- 8 – Right

## Program Description

**20** Introductory REMs.

**30-60** Sets up user defined graphics (UDGs).

**70-210** Data for the UDGs.

**220** Defines the BORDER, PAPER and INK colours and clears the screen.

**230** Calls the subroutine starting at line 1250, which prints the instructions.

**240** Prints the high score. The value is zero at the start of the game.

**250** Sets the high score to zero.

**250-310** Defines six strings containing graphics.

**340** Prints the score. The value at the start of each turn is zero.

**350** Sets the number of lives to five.

**360** Prints DAY, and sets E and h to zero.

**370** Defines another series of spaces.

**380-440** Draws the screen display.

**450-490** Plays the game's tune using the data in line 490.

**500-860** The main game routine.

**900-970** The 'Game Over' routine, including a short tune.

**980** Updates the high score.

**1007-1160** Checks that the frog has landed in an allowable position.

**1250** Dimension string variable to hold hold instructions.

**1260-1320** Print instructions, using "\*" as an end-of-line marker.

**1330-1340** Wait for key-press.

**1360** Dimension strings that will be used for clearing screen.

```
20 REM  Bv Andrew Seaman
30 FOR f=0 TO 119
40 READ a
50 POKE USR "a"+f,a
60 NEXT f
70 DATA 0,255,255,255,65,255,4
8,0
80 DATA 0,188,164,164,60,252,2
4,0
90 DATA 7,15,15,127,128,95,64,
63
100 DATA 31,32,255,255,255,255,
0,0
110 DATA 128,248,192,254,1,249,
2,254
120 DATA 0,16,255,255,255,255,6
4,63
130 DATA 0,15,18,18,127,255,255
,96
140 DATA 0,128,64,64,224,240,24
0,96
150 DATA 0,27,7,15,15,7,27,0
160 DATA 0,216,224,248,248,224,
216,0
170 DATA 15,8,11,10,10,10,10,11
180 DATA 8,8,8,11,10,11,8,31
190 DATA 254,2,186,170,170,170,
170,186
200 DATA 2,234,2,186,170,186,2,
255
210 DATA 153,189,189,126,126,12
6,60,195
220 BORDER 1: PAPER 1: INK 7: C
LS
230 GO SUB 1250
240 PRINT INK 7: PAPER 1: AT 1,
26: "000000"
```



```

250 LET hi=0
260 LET a$="DFD   FDF   DFDF
   DF   DF"
270 LET b$="IJJIJ  IJJI  I
JII  IJ "
280 LET c$="FDFD   DFDFDF
   DFDF   "
290 LET d$="  CECECE   CECE
CECECE   CE"
300 LET e$=" GHGH   GHGHGH
GHGH   GH "
310 LET f$="ABAB   AB  ABAB
   ABABAB   "
340 LET sc=0: PRINT INK 7: PAPER
1: AT 1,0: "000000 0 0 0 0 0"
350 LET L=5
360 LET E=0: LET h=0: PRINT IN
K 7: PAPER 1: AT 1,18: "DAY "
370 LET g$="a
   "
380 FOR a=3 TO 6: PRINT PAPER
4:g$: NEXT a
390 FOR a=4 TO 5: RESTORE 420:
FOR b=1 TO 5: READ c: PRINT INK
1: PAPER 1: AT a,c: "XXX": NEXT b
: NEXT a
400 FOR a=6 TO 12: PRINT PAPER
5: AT a,0:g$: NEXT a
410 PRINT PAPER 4:g$
420 FOR A=1 TO 7: PRINT PAPER
0:G$: NEXT A
430 PRINT PAPER 4:G$
440 DATA 1,8,17,22,26
450 FOR a=1 TO 14
460 READ D,P
470 BEEP D/3,P
480 NEXT A
490 DATA 2,0,1,5,1,5,1,0,1,0,1,
2,1,2,1,-3,1,-3,1,-2,1,-2,1,0,1,
0,2,5
495 PAPER 8
500 LET s=21: LET x=10: LET y=21

```

```

510 LET a#=a$(2 TO )+a$(1): LET
c#=c$(2 TO )+c$(1): LET e#=e$(2
TO )+e$(1): LET b#=b$(32)+b$: L
ET d#=d$(32)+d$: LET f#=f$(32)+f
$
550 LET k=0
570 IF INKEY$<>" " THEN LET k=P
EEK 23560
590 IF k<>0 AND k>52 AND k<57 T
HEN PRINT AT Y,X: " ": BEEP .01,
20
595 PAPER 5: PRINT INK 4: AT 7,
0:a$: INK 1: AT 9,0:b$: INK 4: AT
11,0:c$: PAPER 0: PRINT INK 5: A
T 15,0:d$: INK 2: AT 17,0:e$: INK
7: AT 19,0:f$
596 PAPER 8
600 IF k<>0 AND k>52 AND k<57 T
HEN GO SUB 20*k
620 IF y<7 THEN GO TO 750
630 PRINT INK 6: AT y,x: "0"
640 GO SUB 1000+y
650 IF y<s THEN LET s=y: LET s
c=sc+5
660 IF E<80 THEN LET E=E+0.5:
PRINT AT 1,22: INT E: " "
700 PRINT AT 1,6-LEN STR$ sc;sc
710 IF Y=9 THEN LET X=X+1
720 IF Y=7 OR Y=11 THEN LET X=
X-1
730 IF Y<13 AND X=-1 OR X=32 TH
EN GO TO 755
740 GO TO 510
750 IF SCREEN$ (y,x)="X" THEN
GO TO 770
755 BEEP 1,-10: IF L>0 THEN LE
T L=L-1: PRINT AT 1,7+L*2: " ": G
O TO 500
760 IF 1=0 THEN GO TO 900
770 LET Z=1
780 IF x>7 THEN LET Z=8
790 IF x>16 THEN LET Z=17

```



```

800 IF x>21 THEN LET Z=22
810 IF x>25 THEN LET Z=26
820 PRINT INK 0; PAPER 4; AT 4,
Z; "aKM"; AT 5, Z; "aLN": LET SC=SC+
25
830 BEEP .25,8: BEEP .25,0: BEE
P .25,8
840 LET h=h+1
850 IF h=5 THEN LET sc=100+sc+
10*(80-E): GO TO 360.
860 GO TO 500
900 PRINT AT 9,11: FLASH 1: INK
1; PAPER 4; "Game Over"; AT 11,2;
"Press any key to play again"
910 FOR a=1 TO 10
920 READ D,P
930 BEEP D/5,P
940 NEXT a
950 DATA 3,7,1,8,2,7,2,5,2,3,2,
2,4,0
960 DATA 4,0,4,-5,8,0
970 IF INKEY#="" THEN GO TO 97
0
980 IF sc>hi THEN LET hi=sc: P
APER 1: INK 7: PRINT AT 1,32-LEN
STR# hi;hi
990 GO TO 340
1007 IF a$(x+1)=" " THEN GO TO
755
1008 RETURN
1009 IF b$(x+1)=" " THEN GO TO
755
1010 RETURN
1011 IF c$(x+1)=" " THEN GO TO
755
1013 RETURN
1015 IF d$(x+1)<>" " THEN GO TO
755
1016 RETURN
1017 IF e$(x+1)<>" " THEN GO TO
755
1018 RETURN

```

```

1019 IF f$(x+1)<>" " THEN GO TO 755
1021 RETURN
1060 IF x>0 THEN LET X=X-2
1065 RETURN
1080 IF y<20 THEN LET y=y+2
1085 RETURN
1100 LET y=y-2
1105 RETURN
1120 IF x<30 THEN LET x=x+2
1160 RETURN
1250 DIM A$(403)
1260 LET A#=" In this version
of the arcade*game 'FROGGER', yo
u play Phileas*Frog and his frie
nds. Five of *you must reach h
ome in under 80 *days. You must
first get safely *across Riversi
de Rd, then over *the river on
logs and the backs *of turtles.
You get 5 pts for *every new l
ane passed, 25 pts *for each f
rog home plus a bonus *of 10 pts
for every day under *80. Use
the cursor keys to move *Phileas
"
1270 LET y=0: LET x=0
1280 FOR a=1 TO 403
1285 IF a$(a)="*" THEN LET x=x+
1: LET y=0: NEXT a
1290 BEEP .01,10: PRINT AT x,y;a
$(a)
1300 LET y=y+1
1320 NEXT a
1330 PRINT #1:" ANY KEY TO .C
ONTINUE"
1340 IF INKEY#="" THEN GO TO 13
40
1350 CLS
1360 DIM a$(32): DIM b$(32): DIM
c$(32): DIM d$(32): DIM e$(32):
DIM f$(32)
7999 RETURN

```



# HOLY GRAIL

Your days as a contented and not-very-fierce dragon are over. A cowardly wizard has entranced you, and sent you to recover the Holy Grail, which has been stolen by a rival wizard.

The wizard has worked some spells which will help you on your quest. You can throw lightning bolts, and are invulnerable to two blasts of hellfire, fired by a ghost.

You must hit the wizard seven times in each of the ten screens to defeat him. The lightning will have no effect on the undead creatures, though. Be careful not to use up your 100 lightning bolts per screen, or your quest will end prematurely.

You score ten points for hitting a ghost, 25 for hitting a skeleton, and 75 for hitting the wizard. You will gain a bonus of 200 points for clearing a screen, and an extra life for clearing five screens.

The dragon is controlled using the following keys:

- Q – Up
- A – Down
- 0 – Fire

Good Luck!

## Program Description

- 1-2 Clears the screen and sets up screen colours.
- 3 Prints title and asks if instructions are needed.
- 4-6 Checks answer and calls instructions subroutine if needed.
- 7 Clears the screen.
- 8 Initializes the high score.
- 10-75 Sets up user defined graphics (UDGs).
- 100-130 Initializes variables.
- 200-320 Sets up screen.
- 600-800 The main loop of the game.
- 600-630 Check keyboard for 'a', 'q' or '0' keys being pressed and update dragon's position.
- 640 Update ghost's position.
- 660 Update skeleton's position.
- 680-700 Update sorcerer's position.

- 1000-1060 The firing routine.
- 2000-2140 Routine to allow the ghosts to fire.
- 3000-3010 Routine to remove UDGs.
- 4000-4200 The bonus points routine.
- 5000-6200 The victory routine.
- 8000-8450 Instructions.
- 8500-9060 End-of-game routine.
- 9100-9400 Ask player if they want another game, and act accordingly.

```
1 POKE 23658,0: CLS
2 PAPER 0: INK 7: BORDER 0: C
LS
3 PRINT AT 4,11; INK 6; INVER
SE 1; "HOLY GRAIL"; AT 7,4; "by W.
Kerr February 1984"; AT 14,3; "Do
you want instructions?"; AT 17,1
1; "(y) or (n)"
4 IF INKEY$="n" THEN GO TO 7
5 IF INKEY$<>"y" THEN GO TO
4
6 GO SUB 8000
7 CLS
8 LET hi=0
9 REM u.d.g's data
10 FOR n=USR "a" TO USR "k"+7:
READ a: POKE n,a: NEXT n
15 DATA 60,52,62,60,8,28,31,60
20 DATA 60,124,124,252,24,24,3
0,0
25 DATA 4,12,56,124,84,124,56,
124
30 DATA 254,254,56,56,28,12,4,
2
35 DATA 28,42,62,28,8,62,73,93
40 DATA 73,28,8,28,34,34,34,99
45 DATA 56,124,254,130,170,146
,68,56
50 DATA 0,62,62,62,28,8,8,28
60 DATA 0,0,0,170,85,0,0,0
```



```

70 DATA 0,0,96,246,240,246,96,
0
75 DATA 60,124,124,252,120,204
,103,0
99 REM initialisation
100 LET ay1=1: LET ay2=20: LET
ay3=1
110 LET ax1=16: LET ax2=22: LET
ax3=30
120 LET y=11: LET x=1
130 LET sc=0: LET li=3: LET d=7
: LET shot=0: LET screen=0
199 REM set-up screen
200 FOR f=1 TO 15: PRINT INK 3
;AT 0,f;"d";AT 21,f;"m"
210 NEXT f
220 FOR g=17 TO 21: PRINT INK
3;AT 0,g;"d";AT 21,g;"m"
230 NEXT g
240 FOR h=23 TO 29: PRINT INK
3;AT 0,h;"d";AT 21,h;"m"
250 NEXT h
260 PRINT AT 0,31; INK 3;"p";AT
21,31;"p";AT 0,0;"p";AT 21,0;"p
"
270 FOR f=1 TO 10: PRINT INK 3
;AT f,31;"o";AT f,0;"p"
280 NEXT f
290 PRINT AT 11,31; INK 6;"H";A
T 11,0; INK 3;"p"
300 FOR g=12 TO 20: PRINT INK
3;AT g,31;"I";AT g,0;"p"
310 NEXT g
320 PRINT AT y,x; INK 4;"A";AT
y+1,x;"B": PRINT AT ay1,ax1;"C";
AT ay1+1,ax1;"D";AT ay2,ax2;"F";
AT ay2-1,ax2;"E": PRINT AT ay3,a
x3; INK d;"G"
599 REM main loop
600 IF INKEY$="q" AND y>1 THEN
LET y=y-1: PRINT AT y,x; INK 4;
"A";AT y+1,x;"B";AT y+2,x;" "

```

```

620 IF INKEY$="a" AND y<19 THEN
LET y=y+1: PRINT AT y,x; INK 4
;"A";AT y+1,x;"B";AT y-1,x;" "
630 IF INKEY$="0" THEN GO SUB
1000
640 LET ay1=ay1+1: PRINT AT ay1
,ax1;"C";AT ay1+1,ax1;"D";AT ay1
-1,ax1;" ": IF ay1=19 THEN LET
ay1=1: IF ay1=1 THEN PRINT AT 1
9,ax1;" ";AT 20,ax1;" "
650 GO SUB 2000
660 LET ay2=ay2-2: PRINT AT ay2
,ax2;"F";AT ay2-1,ax2;"E";AT ay2
+1,ax2;" ";AT ay2+2,ax2;" ": IF
ay2=2 THEN LET ay2=20: IF ay2=2
0 THEN PRINT AT 1,ax2;" ";AT 2,
ax2;" "
670 LET dy=INT (RND*3)+1
680 LET ay3=ay3+dy: IF ay3>=21
THEN LET ay3=1: IF ay3=1 THEN
PRINT AT 18,ax3;" ";AT 19,ax3;"
";AT 20,ax3;" "
700 PRINT INK d;AT ay3,ax3;"G"
;AT ay3-dy,ax3;" "
800 GO TO 600
999 REM fire routine
1000 FOR f=4 TO 30 STEP 2
1010 PRINT AT y,f; INK 5;"I";AT
y,f-2;" ": BEEP .002,f
1020 IF f=30 THEN PRINT AT y,30
;" ": BEEP .005,f*1.5
1025 NEXT f
1026 LET shot=shot+1
1028 IF shot=100 THEN GO TO 850
0
1030 IF y=ay1 OR y=ay1+1 THEN P
RINT AT ay1,ax1;" ";AT ay1+1,ax1
;" ": LET sc=sc+10: LET ay1=1: R
ETURN
1040 IF y=ay2 OR y=ay2-1 THEN P
RINT AT ay2,ax2;" ";AT ay2-1,ax2
;" ": LET sc=sc+25: LET ay2=20:

```



```

RETURN
1050 IF y=ay3 THEN PRINT AT ay3
,ax3;" ": LET sc=sc+75: LET d=d-
1: LET ay3=1: IF d=0 THEN GO TO
4000: RETURN
1060 RETURN
1999 REM ghost fire routine
2000 LET b=RND
2010 IF b<.90-screen/50 THEN RE
TURN
2020 FOR f=13 TO 1 STEP -2
2030 PRINT AT ay1,f; INK 2;"J";A
T ay1,f+2;" ": BEEP .005,f
2034 IF f=1 THEN PRINT AT ay1,1
;" ": BEEP .005,-15
2038 NEXT f
2040 IF ay1=y OR ay1=y+1 THEN G
O TO 2100
2050 RETURN
2100 PRINT AT y,x;" ";AT y+1,x;"
": BEEP 1,10: BEEP 2,-30
2110 LET li=li-1: IF li=0 THEN
GO TO 9000
2120 LET y=11: PRINT AT y,x; INK
4;"A";AT y+1,x;"B"
2140 RETURN
2999 REM remove u.d.g's
3000 PRINT AT ay1,ax1;" ";AT ay1
+1,ax1;" ";AT ay2,ax2;" ";AT ay2
-1,ax2;" ";AT ay3,ax3;" ";AT y,x
;" ";AT y+1,x;" "
3010 RETURN
3999 REM bonus
4000 LET screen=screen+1: LET sc
=sc+200: LET d=7: LET shot=0
4025 GO SUB 3000
4050 LET ay1=1: LET ay2=20: LET
ay3=1: LET y=11
4060 PRINT FLASH 1; INK 5;AT 11
,7;"BONUS!BONUS!BONUS!"
4070 IF screen=6 THEN LET li=li
+1: PRINT INK 6; FLASH 1;AT 14,

```

```

8;"PLUS EXTRA LIFE!"
4075 FOR f=1 TO 10: BEEP .05,f:
BEEP .05,f+2: BEEP .05,f+4: NEXT
f
4100 IF screen=10 THEN GO TO 50
00
4150 CLS
4200 GO TO 200
4999 REM victory routine
5000 GO SUB 3000
5050 PRINT AT 11,7;"
"
5100 FOR g=1 TO 30
5200 PRINT AT 11,g; INK 4;"A";AT
12,g;"B": FOR f=1 TO 20: NEXT f
: PRINT AT 12,g; INK 4;"K": FOR
f=1 TO 20: NEXT f: PRINT AT 11,g
;" ";AT 12,g;" "
5300 NEXT g
5400 PAPER 2: INK 7: BORDER 2: C
LS
5500 FOR f=7 TO 11
5600 PRINT INK 6;AT f,12;"ppppp
ppp"
5700 NEXT f
5800 PRINT INK 6;AT 12,13;"pppp
pp"
5900 PRINT INK 6;AT 13,14;"pppp
"
6000 FOR f=14 TO 16
6050 PRINT INK 6;AT f,15;"pp"
6070 NEXT f
6080 PRINT INK 6;AT 17,13;"pppp
pp"
6090 PLOT 96,112: DRAW OVER 1;6
4,0: DRAW OVER 1;0,8: DRAW OVE
R 1;-64,0: DRAW OVER 1;0,-8
6100 PRINT INK 6;AT f,15;"pp"
6110 FOR f=1 TO 4
6120 DRAW OVER 1;8,-8: DRAW OV
ER 1;8,8
6130 NEXT f

```



```

6140 PRINT AT 2,8;"CONGRATULATIO
NS!"
6150 FOR f=1 TO 20: BEEP .05,f
6160 NEXT f
6180 PRINT AT 4,1;"YOU HAVE DEFE
ATED THE SORCERER"
6190 PRINT AT 19,6;"GAINED THE H
OLY GRAIL";AT 21,6;"AND WON YOUR
FREEDOM."
6195 PAUSE 700
6200 GO TO 9000
7999 REM instructions
8000 CLS : PRINT " In this game
you are a          contented and
not very fierce   dragon. Alas
you have been     entranced by a
cowardly wizard. You are sent t
o recover the     magical Holy G
rail which has    been stolen by
a rival sorcerer."
8100 PRINT "" The wizard has wo
rked some         spells to enhance
your natural      powers. You can th
row lightning     bolts. You have al
so been given a  certain degree o
f                 invulnerability whi
ch will          protect you from t
wo blasts of     hellfire, which is
fired by the     ghost."
8150 PRINT AT 19,3;"PRESS ANY KE
Y TO CONTINUE": PAUSE 0
8200 CLS : PRINT " To defeat the
sorcerer, and    gain the Grail
, you must hit   him seven time
s, in each screen (and there are
ten screens). Butbeware if your
lightning hits  one of his und
ead creatures   first it will
have no effect  on him."
8210 PRINT "" Due to losing his
magic Grail     the wizard can onl
y give you a    limited number of

```

```

lightning       bolts (100) per sc
reen.           If you use up all
of these yourgame is over."
8240 PRINT AT 19,3;"PRESS ANY KE
Y TO CONTINUE": PAUSE 0: CLS
8250 PRINT AT 0,4;"Use the follo
wing keys: "
8300 PRINT AT 2,6;"Q :- up      A
:- down"
8350 PRINT AT 4,11;"0 :- fire"
8360 PRINT AT 6,0;" You score 10
pts for hitting a ghost, 25pts
for hitting a    skeleton and
75pts for hitting the sorcerer.
"
8370 PRINT AT 12,0;" There is a
bonus of 200pts for clearing a s
creen and an extra life after c
learing five screens"
8400 PRINT AT 19,2;"PRESS ANY KE
Y TO START GAME": PAUSE 0
8450 RETURN
8499 REM end of game
8500 CLS : PRINT AT 11,0;" You h
ave run out of lightning bolts
!"
8600 FOR f=1 TO 200: NEXT f
9000 CLS : PRINT AT 5,7;"Your sc
ore was ";sc
9050 IF sc>hi THEN LET hi=sc
9060 PRINT AT 10,8;"High score =
";hi
9100 PRINT AT 16,0;"Do you want
another game (y/n) ?"
9200 IF INKEY$="y" THEN PAPER 0
: INK 7: BORDER 0: CLS : GO TO 1
00
9300 IF INKEY$<>"n" THEN GO TO
9200
9400 STOP
9500 SAVE "holy grail" LINE 1
9900 REM Graphics:-

```



A - A    B - B    C - C    D - D  
E - E    F - F    G - G    H - H  
I - I    J - J    K - K

# BERTIE BUG

Bertie the caterpillar has spent the day munching his way through the vegetables at the vegetable patch.

On his way home, the tables are turned – Colin Cabbage, and his associates, including Simon the Spraycan and Wally Wall are on the warpath, as Bertie has been eating their friends for tea. You must do your best to save poor Bertie from the revengeful crowd – after all, a caterpillar cannot live by bread alone!

## Program Description

**1** POKE to force lower case letters.

**10-22** Ask if the player wants instructions and direct program flow accordingly.

**30** Initialize Bertie's position and score. Set the PAPER and BORDER colours.

**40** Print a cabbage and spray can on the bottom row of the screen at a random X co-ordinate.

**50** POKE to force automatic scrolling.

**60** Test to see if Bertie has hit anything and direct program flow accordingly.

**70-80** Enter a character from the keyboard and change Bertie's position if a one or zero is entered.

**90** Print Bertie.

**100** Print screen border.

**110** Increment score and test to see if Bertie is home.

**120** Repeat main program loop.

**150-180** Inform the player if Bertie has hit something.

**190-210** Inform the player that Bertie has got home..

**250-390** Set up user-defined-graphic characters.

**400-440** Print instructions.

**460-480** Play initial tune.

**501-505** Display the keys to use.

**510-530** Clear screen to black.

**540** Return to main program loop.

**550-680** End of game routine which prints the player's score and comments on it!



```

1 POKE 23658,0: GO TO 250
5 BORDER 0: PAPER 0: INK 7: B
RIGHT 1: CLS
10 PRINT AT 10,0;"Do you want
instructions ? (Y/N)": IF INKEY#
="y" THEN RUN 400
20 IF INKEY#="n" THEN GO TO 5
10
22 GO TO 10
30 LET f=0: LET a=12: PAPER 0:
BORDER 1: CLS
40 PRINT BRIGHT 1; INK 3;AT 2
1,INT (RND*31);"C": PRINT BRIGH
T 1; INK 4;AT 21,INT (RND*31);"B
": REM The C is a Graphic C & Th
e B is a Graphic B
50 POKE 23692,0: PRINT INK 0;
PEEK 23692
60 IF SCREEN# (8,a)<>" " THEN
GO TO 150
70 IF INKEY#="1" THEN LET a=a
-1
80 IF INKEY#="0" THEN LET a=a
+1
90 PRINT INK 7; BRIGHT 1;AT 8
,a;"A": REM This A is a Graphic
A
100 PRINT INK 2; PAPER 6;AT 21
,0;"D": PRINT INK 2; PAPER 6;AT
21,31;"D": REM These D's are Gr
aphic D's
110 LET f=f+1: IF f=700 THEN G
O TO 190
120 GO TO 40
150 PAPER 0: BORDER 4: CLS : FO
R t=0 TO 10
160 FOR n=1 TO 7: INK n: BRIGHT
1: PRINT "**** You hit an obst
acle ****": POKE 23692,255
165 IF t>=10 THEN GO TO 550
170 NEXT n: NEXT t
180 GO TO 150

```

```

190 PAPER 1: INK 6: PAPER 0: BR
IGHT 1: CLS : PRINT AT 10,3;"WEL
L DONE YOU HAVE GOT HOME"
210 FOR f=0 TO 700: BORDER 2: O
UT 34300,20: BORDER 3: OUT 34300
,20: BORDER 6: NEXT f: GO TO 550
250 FOR f=0 TO 7: READ x: POKE
USR "A"+f,x: REM This A is a gra
phic A
260 DATA BIN 00111100,BIN 01111
110,BIN 01000010,BIN 10000001,BI
N 10100101,BIN 01011010,BIN 0110
0110,BIN 00011000
270 NEXT f
280 FOR f=0 TO 7: READ x: POKE
USR "D"+f,x: REM This D is a Gra
phic D
290 DATA BIN 11111111,BIN 11000
011,BIN 10100101,BIN 10011001,BI
N 10011001,BIN 10100101,BIN 1100
0011,BIN 11111111
300 NEXT f
310 FOR f=0 TO 7: READ x: POKE
USR "C"+f,x: REM This C is a Gra
phic C
320 DATA BIN 00000011,BIN 00000
011,BIN 00011100,BIN 00111100,BI
N 01101100,BIN 11011000,BIN 0111
0000,BIN 00100000
330 NEXT f
340 FOR f=0 TO 7: READ x: POKE
USR "B"+f,x: REM This B is a Gra
phic B
350 DATA BIN 00111100,BIN 00101
010,BIN 01100110,BIN 10100101,BI
N 00011001,BIN 01010010,BIN 0111
1100,BIN 00111000
360 NEXT f
390 GO TO 5
400 BORDER 0: PAPER 0: CLS : PR
INT BRIGHT 1; INK 3;AT 0,9;"---
-----"

```



```

410 PRINT BRIGHT 1; INK 6; AT 1
,10; "BERTIE BUG"
420 PRINT BRIGHT 1; INK 3; AT 2
,9; "-----"
440 PRINT INK 5; BRIGHT 1; AT 6
,0; "You (Bertie the caterpillar)
have just made your daily ra
id on the local cabbage patch.
You are now on your way home, yo
u have just turned a corner an
d ...But wait, what is this, i
t's Colin cabbage and all his
friends including Simon the
spray can and wally wall, an
d BOY do they look angry. Soon
you find they are after you beca
use you keep eating all of their
friends for tea. You decide
you had better move fast....."
460 BEEP 0.1,5: BEEP 0.1,4: BEE
P 0.4,4: BEEP 0.1,5: BEEP 0.1,4:
BEEP 0.4,4: BEEP 0.1,5: BEEP 0.
1,4: BEEP 0.4,4: BEEP 0.8,12: BE
EP 0.1,12: BEEP 0.1,11: BEEP 0.4
,9: BEEP 0.1,9: BEEP 0.1,7: BEEP
0.4,5: BEEP 0.1,5: BEEP 0.1,4:
BEEP 0.4,2: BEEP 0.4,2
470 BEEP 0.1,4: BEEP 0.1,2: BEE
P 0.4,2: BEEP 0.1,4: BEEP 0.1,2:
BEEP 0.4,2: BEEP 0.1,4: BEEP 0.
1,2: BEEP 0.4,2: BEEP 0.8,11: BE
EP 0.1,11: BEEP 0.1,9: BEEP 0.4,
7: BEEP 0.1,7: BEEP 0.1,5: BEEP
0.4,4: BEEP 0.1,4: BEEP 0.1,2: B
EEP 0.4,0: BEEP 0.4,0
480 BEEP 0.1,12: BEEP 0.1,12: B
EEP 0.3,11: BEEP 0.3,14: BEEP 0.
3,8: BEEP 0.3,11: BEEP 0.3,12: B
EEP 0.6,4: BEEP 0.1,12: BEEP 0.1
,12: BEEP 0.3,11: BEEP 0.3,14: B
EEP 0.3,8: BEEP 0.3,11: BEEP 0.3
,12: BEEP 0.3,12: BEEP 0.1,11: B

```

```

EEP 0.1,9: BEEP 0.1,7: BEEP 0.1,
5: BEEP 1,4: BEEP 1,3: BEEP 0.5,
4: BEEP 0.5,5: BEEP 0.5,4: BEEP
0.5,5: BEEP 0.8,4
490 PRINT FLASH 1; INK 2; PAPE
R 6; AT 21,8; " PRESS ANY KEY "
500 PAUSE 0
501 CLS : PRINT : PRINT
502 PRINT " To move use the
keys "
503 PRINT AT 8,11; "0 Right"
504 PRINT AT 12,11; "1 Left"
505 PRINT FLASH 1; INK 2; PAP
ER 6; AT 21,8; " PRESS ANY KEY":
PAUSE 0
510 BORDER 0: INK 0: PAPER 5: C
LS
520 FOR n=0 TO 21: PRINT AT n,0
;"pppppppppppppppppppppppppppppp
pp"
530 PAUSE 5: NEXT n
540 GO TO 30
550 BORDER 1: PAPER 5: CLS
560 FOR x=0 TO 21: PRINT INK 1
; PAPER 5; AT x,0; "DD": PRINT IN
K 1; PAPER 5; AT x,30; "DD": NEXT
x: REM These D's are a Graphic D
's
570 FOR x=2 TO 29: PRINT INK 1
; PAPER 5; AT 0,x; "D": PRINT INK
1; PAPER 5; AT 1,x; "D": PRINT I
NK 1; PAPER 5; AT 21,x; "D": PRINT
INK 1; PAPER 5; AT 20,x; "D": NE
XT x: REM These D's are Graphic
D's
580 PRINT INK 0; AT 7,7; "You to
ok "; f; " steps": PRINT INK 0; AT
8,9; "towards home"
590 PRINT INK 0; AT 11,5; "The c
omputer's comments:"
600 IF f<=100 THEN PRINT INK
1; AT 12,7; "Absolutely Pathetic"

```



```

610 IF f<=200 AND f>=100 THEN
PRINT INK 1;AT 12,12;"Rubbish!"
620 IF f<=300 AND f>=200 THEN
PRINT INK 1;AT 12,10;"Feeble Ma
te!"
630 IF f<=400 AND f>=300 THEN
PRINT INK 1;AT 12,12;"Garbage"
635 IF f<=500 AND f>=400 THEN
PRINT INK 1;AT 12,5;"A bit bett
er I suppose"
640 IF f<=600 AND f>=500 THEN
PRINT INK 1;AT 12,3;"Well not t
oo bad I suppose"
650 IF f<=699 AND f>=600 THEN
PRINT INK 1;AT 12,4;"Not too ba
d for a beginner"
660 IF f>=700 THEN PRINT INK
1;AT 12,9;"Okay show off": PAUSE
0: GO TO 5
670 BEEP 1,-5: BEEP 1,-5: BEEP
0.4,-5: BEEP 1,-5: BEEP 1,-2 : B
EEP 0.4,-3: BEEP 1,-3: BEEP 0.4,
-5: BEEP 1,-5: BEEP 0.4,-6: BEEP
2,-5
680 PAUSE 0: GO TO 5

```

## LOADING PROGRAMS FROM TAPE

If you have the tape version of the programs in this book, here are the instructions you need to get the games loaded and running.

1. Connect the EAR socket in the back of your Spectrum to the EAR socket of your cassette player.
2. Place the cassette into your cassette player and rewind to the beginning if necessary.
3. Adjust the volume on your cassette player to around 7 or 8 on a scale of 1 to 10, or as advised in your Spectrum manual.
4. Type LOAD" " on your Spectrum. LOAD is obtained by pressing the J key and " by pressing SYMBOL SHIFT and P together.
5. Press ENTER on your Spectrum.
6. Press PLAY on your cassette player.

After a few seconds (certainly less than a minute) the name of the program should appear on the screen, accompanied by a fast-moving zig-zag of colours at the sides of the screen. If this is the name of the program you wish to load, then:

7. Wait until either the program begins (you will be given instructions) or the message:

0 OK, 0:1

appears, when you should type RUN (the R key) and press ENTER. The program will then begin.

However, if this was not the program you wished to load, then:

8. Disconnect (pull out) and then reconnect the power lead to your Spectrum and repeat stages 4 to 6, as above. After waiting for a short time, you will see another program name appear on the screen.

### NOTES

The programs on this tape have a few seconds pause between them. A good short cut when looking for a specific program is simply to unplug the recorder from the computer and listen to the



cassette playing. Search for the short breaks; the noise immediately after the break is the signal that makes the computer produce the program name.

Alternatively, type LOAD"XXX" in step 4, and the names of all the programs on the tape will come up order. If you have a counter on your tape recorder you can then note at what number each program starts, and catalogue your cassette.

# CENTURY SOFTWARE VOUCHER

All the programs in this book are available on cassette from the publishers.

Please cut out this voucher (do not copy the voucher) and send it together with a cheque/postal order for £4.95 made payable to Tiptree Book Services Ltd. to:

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