

30
PROGRAMS
FOR THE
SPECTRUM AND ZX-81

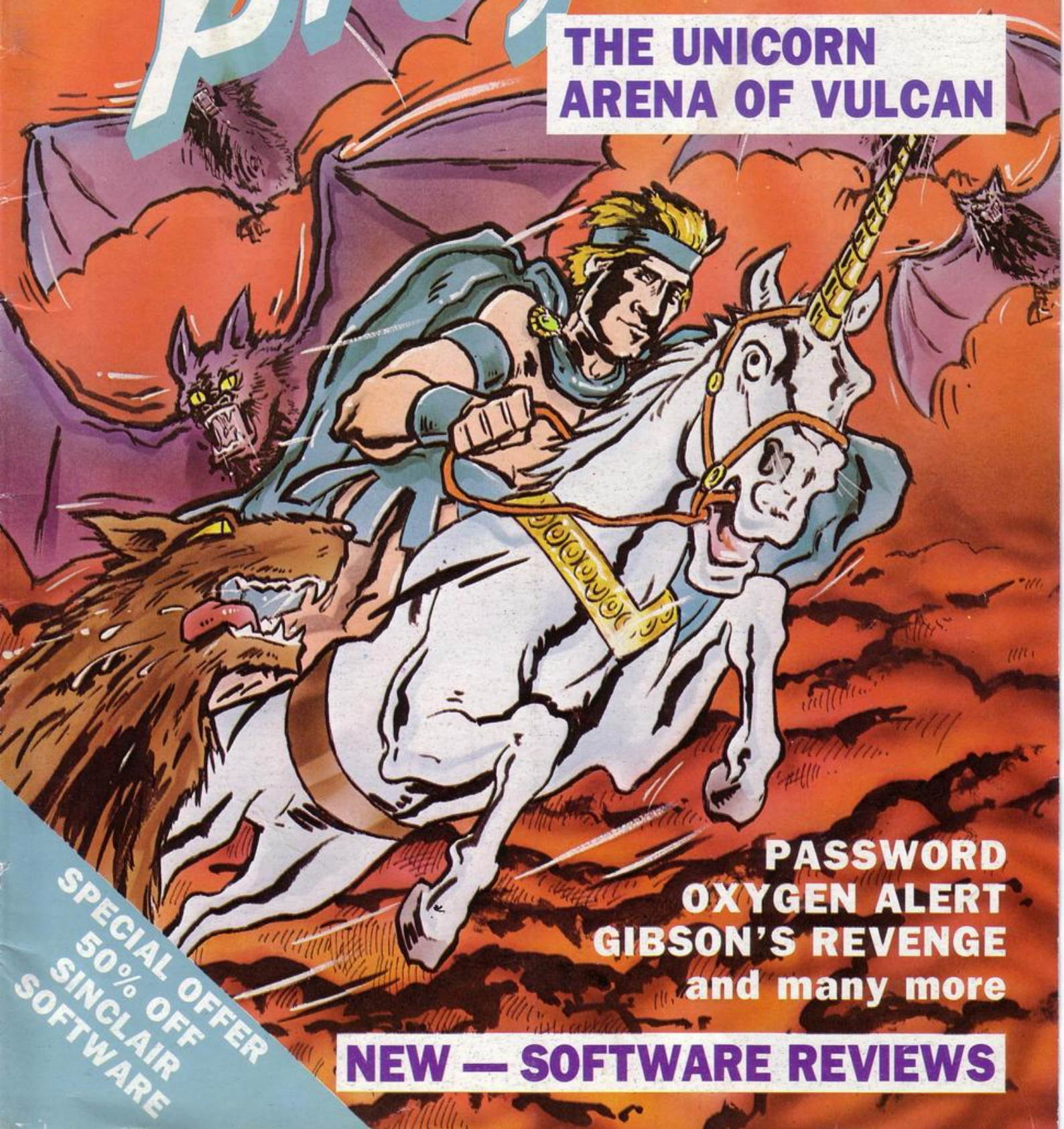
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March 1984

Sinclair programs

**THE UNICORN
ARENA OF VULCAN**



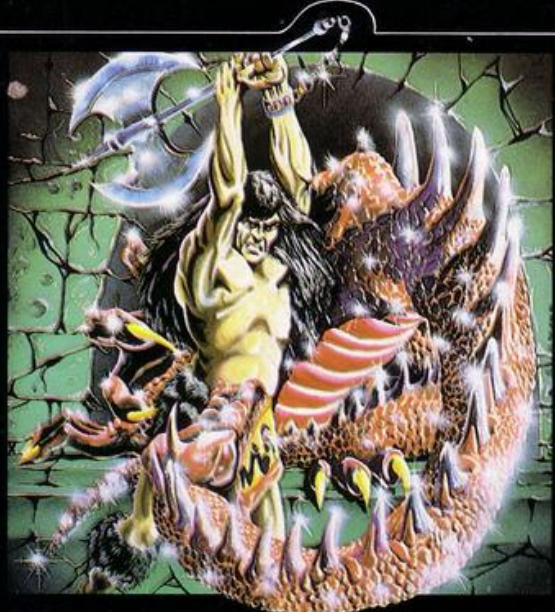
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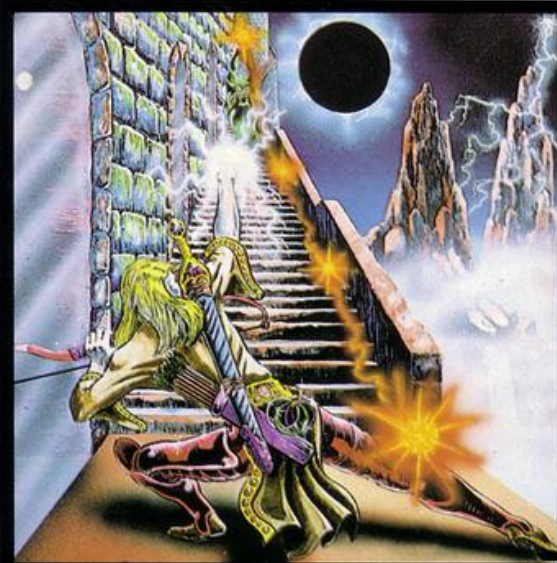
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Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by colons to distinguish them and the brackets and colons should not be entered.

Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gw", and an inverse graphics W by "igw".

Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6*isp" means six inverse spaces and "(g4:4*i4:g3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

Where whole words are to be written in inverse letters they appear in the listings as lower-case letters. Letters to be entered in graphics mode on the Spectrum are underlined.

Inverse characters may be entered on the ZX-81 by changing to graphics mode and then typing the appropriate characters and on the Spectrum by changing to inverse video and typing the appropriate letters. Graphics characters may be entered on the ZX-81 by changing to graphics mode and then pressing symbol shift while the appropriate characters are entered. On the Spectrum graphics characters may be obtained by changing to graphics mode and then pressing the appropriate character. User-defined graphics will appear as normal letters until the program has been RUN.



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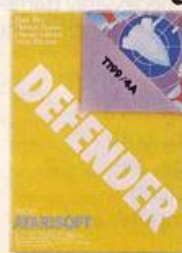
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LETTERS

Depth Charge

I AM WRITING in connection with the Depth Charge program listed in the October edition. I found that the number of depth charges remaining decreases only when the target is hit which, with respect to the authors, does not seem right. With the alteration and addition of two lines it can be remedied. Add: 421/LET/CH/= /CH-1/422/PRINT/AT/2,9;CH/Change/lines/425/and/5016/to/read:/425/IF/FEET/= /W/THEN/GOTO/5000/5016/PRINT/AT/3,9;H/

I might add that I found the game very entertaining and novel in its format. In the four weeks since I started computing I have not had much experience of the various magazines available but of those I have seen *Sinclair User* and *Sinclair Programs* are far and away the best. If that standard is normal I can look forward to a full and entertaining hobby.

**Keith Trim,
Bridlington,
E. Yorks.**

ZX-81 Pokes

I HAVE compiled a list of POKes and calls to the ROM which all ZX-81 users should find helpful when they are programming. They are:

RAND USR 963. Clears the program area.

RAND USR 3086. Scrolls the screen up one line.

RAND USR 681. In FAST mode, prevents the report code from being displayed at the end of a program.

RAND USR 0. Clears the program area and RAMTOP.

RAND USR 836. In FAST mode, loads a program and stops if it is self-starting.

RAND USR 3292. Equivalent to STOP.

Poke 16510,0. Makes the

first program line uneditable. Poke 16389,68. Sets up a minimal display file for 16K users.

RAND USR 3875. Equivalent to FAST.

RAND USR 1476. Equivalent to EDIT.

RAND USR 930. Equivalent to BREAK.

RAND USR 757. In FAST mode, saves a program without a name.

RAND USR 2955. Equivalent to the ',' in a PRINT statement.

I have also discovered that, by pressing the 'SHIFT', 'V', and 'B' keys together, you achieve a result equivalent to 'BREAK'. By POKEing 16509,99 you achieve an effect similar to the NEW command on the BBC microcomputer. Your program will cease to function but can be returned to normal by POKEing 16509,0.

For 16K users, you can speed the SLOW mode considerably by POKEing 16389,76. Be warned, however, that will result in you losing a great deal of your memory.

For almost all of the POKes and calls listed, the size of your ZX-81 memory does not matter; in the two calls where it does, I have stated that it is for 16K users.

**Gary Slinger, aged 13,
Lincoln.**

Better Slalom

I AM WRITING to say, first, about Richard Denton's program Scrambler, that I beat his score by 2,570. I scored 4,248 and would like to know if anyone can beat that. Second, about Steve Richards' program Slalom, I achieved a score of 6,231 but anyone can improve that by going to the far right-hand side in which no markers travel. The way to solve this is to change line 20 from:

```
20 PRINT AT 10, RND*30;'T' to
20 PRINT AT 10, RND*31;'T'
```

That would then prevent anyone cheating. Another point is that, if you go too far left, the cursor keys will operate backwards while, if you go too far right, report error 'B' will appear. To solve this the following may be typed-in:

```
81 IF A>31 THEN LET A=A-1
```

```
91 IF A<0 THEN LET A=A+1
```

Another point is if reactions are not very fast, you can change line 20 from:

```
20 PRINT AT 10, RND*31;'T' to
```

```
20 PRINT AT your number between 10 and 20, RND*31;'T'
```

That will give you an advance warning. I would also like to suggest how to make your soundless ZX-81 bleep. All you do is type 'FAST' new line 'RAND USR 823' new line.

**Gerald Shield,
Chester-le-Street.**

Inverse Spaces

I HAVE *Sinclair Programs* delivered monthly and have tried a number of the simpler programs and they have all worked well. In the last few months I have tried the bigger programs such as Quasimodo, Slalom and Chopper Squad and I have discovered a problem concerning inverse spaces.

Although you mention those at the front of the magazine you do not mention how to get an inverse space. Your magazine is brilliant at the moment but I can program only about half of the Spectrum programs correctly because the rest contain inverse spaces.

Could you enlighten me on this point, so that your maga-

zine would become the highlight of the month in our household?

**Michael Heaton,
Egerton,
Bolton.**

● As explained in the graphics instructions at the front of the magazine each month, inverse characters are produced on the Spectrum by pressing CAPS SHIFT and INVERSE VIDEO, followed by the required character; and on the ZX-81 by going into graphics mode and pressing the required character. On both machines, when printing is black on a white background, an inverse space (isp) is a black square.

Werewolf's Lair

IN THE OCTOBER edition in the game Werewolf Lair a few mistakes were made. The peeks which make sure that you or the monster do not go through the walls of the maze are set up for the wrong graphics. To solve this you can either change all the graphic Hs in the maze plot to graphic As or change the 8 in lines 370, 570 and 630 to 136. With the second method you must also change the graphic As in lines 90 and 290 to graphics Hs.

I managed a high score of 753.

**Tom Liptrot,
Burscough,
Lancashire.**

Worm Record

IN *Sinclair Programs*, October, 1983, Stephen Harris said he had scored a new record 151,105 on the Worm game. Recently I scored 176,400, which is a new record. I completed stage seven successfully and reached it a second time.

**Peter Clarke,
Solihull,
W. Midlands.**

LIGHTS OUT



IT IS YOUR job as night porter of a block of flats to switch off any lights still on. Moving too near to the edge when the flats are in darkness will result in your falling out of the flats. Your wage is based on the time it takes you to put out the lights.

Lights Out, an original game for the 16K Spectrum, was written by B M Ware of Southwick, Sussex.

```

5 BORDER 5: PAPER 5: CLS
10 GO SUB 500
15 RESTORE
20 FOR n=0 TO 7: READ r: POKE
USR "A"+n,r: NEXT n
30 DATA BIN 10011001: DATA BIN
01011010: DATA BIN 00111100: DA
TA BIN 00011000: DATA BIN 100110
01: DATA BIN 11111111: DATA BIN
00000000: DATA BIN 00000000
40 FOR n=0 TO 7: READ r: POKE
USR "B"+n,r: NEXT n
50 DATA BIN 00000000: DATA BIN
00010000: DATA BIN 00111000: DA
TA BIN 01111100: DATA BIN 111111
11: DATA BIN 11111111: DATA BIN
11111111: DATA BIN 11111111
60 LET t=0: LET l=0: LET ti=0
70 LET z=19: LET y=15
75 PRINT AT 20,0: INK 4: "<32*
b:32*98>"
80 FOR n=20 TO 5 STEP -1: PRIN
T AT n,9: INK 1: "<24*1>": NEXT
n: PRINT AT 4,10: INK 1: "<10*193
>"
90 IF SCREEN# (z,y)=" " THEN
LET t=t+1: LET l=l+1: BEEP .007

```

```

,20
95 IF l=192 THEN GO TO 300
100 PRINT AT z,y: INK 1: "<98>":
LET z=z+(INKEY#="6" AND z<20)-(
INKEY#="7" AND z>5): LET y=y+(IN
KEY#="8")-(INKEY#="5")
110 PRINT AT 0,0: INK 1: "WAGE:"
,t: AT 0,10: INK 1: "TIME:": INT t1
, AT 0,21: INK 1: "LIGHTS:": l: LET
ti=ti+.2
115 IF y=8 OR y=21 THEN GO TO
200
120 BEEP 0.007,30
130 GO TO 90
200 FOR n=z TO 20: PRINT AT n,y
: INK 1: "1": AT n-1,y: " ": BEEP 0
.01,10: NEXT n
205 LET t=t-ti
210 PRINT AT 0,0: "TOTAL
L WAGE: " , AT 0,20: INT
t
220 PRINT AT 4,0: "ANOTHER GO (<y
/n>?"
230 IF INKEY#="y" THEN CLS: G
O TO 15
240 IF INKEY#="n" THEN CLS: S
TOP

```

```

250 GO TO 230
300 FOR m=1 TO 2: FOR n=-10 TO
10: BEEP .01,n: NEXT n: FOR n=10
TO -10 STEP -1: BEEP .01,n: NEX
T n: NEXT m
310 LET t=t+50: LET l=0: CLS:
GO TO 70
500 PRINT AT 0,9: "LIGHTS OUT !"
, AT 0,9: OVER 1: "-----"
510 PRINT "Your Job as a nigh
t Porter is to run around the b
lock of flats switching any light
s out that are still on. Move
around the flats with keys 5,6
,7 and 8.
But watch out you m
ay fall out of the flats if you
move too far to the edge. Your w
age is deducted by the tim
e you take putting all lights
out.

```

```

PRESS ANY KEY."
520 IF INKEY#="" THEN GO TO 52
0
530 CLS: RETURN
540 SAVE "lights out" LINE 5

```

SOFTFOCUS

New this month. Softfocus will be a regular feature, providing short reviews of the newest software for the Sinclair computers. This month the focus is on the way ahead for software.

LATE last year, programs produced for the Spectrum Christmas market pointed the way for software in 1984. **Ant Attack** by Quicksilver and **Android 2** by Vortex both included stunning animated graphics routines, setting a new standard for other programmers.

Artic Computing has now produced **Bear Bovver** for the 48K Spectrum, a shining example of animated graphics, which are used in an arcade-style game. **Satan's Pendulum** by Minatron Com-



puting (48K) also includes animated sequences and, for keen programmers, gives a guide to how they were produced in the accompanying booklet.

While such excellent original software is being produced, software houses which cling to versions of **Space Invaders** and **Pac-man** are looking more and more outdated. The Romik **Galactic Trooper** and **3D Monster Chase** are competent and bug-free games but do not have sufficient new ideas to make them attractive in 1984.

Realistic screen displays are becoming more and more common. **Wheelie**, from Microsphere for the 48K Spectrum, sends the player hurtling past obstacles and through caverns in search of the ghost rider. In the program, crash sequences are very graphic and tend towards the tasteless, while in **Death-chase** from Micromega—16K Spec-

trum—the view from a motorcycle is shown in realistic detail but the death of another rider is not depicted at all.

Problems as to how players should be made to suffer for the misdeeds of their on-screen persona, whether they should watch deaths in graphic detail or miss them completely, are resolved in the new Automata game for the 48K Spectrum, **Pi-Eyed**. The hero, the Pi-man, wanders from pub to pub, drinking beer and avoiding obstacles. Wandering into other buildings for safety results in the telling of very bad jokes, a fate far worse for the player than any graphics representation could be.

With programs such as the Legend **Valhalla** (48K) and Melbourne House **Hobbit** (48K) on sale, other adventures fade into insignificance. **The Island**, produced by Virgin Games for the 48K Spectrum, is an enjoyable adventure, with added sound effects and short games contained in it. **Demon Lord** by Javlin Software is an enormous adventure, made up of four 48K adventures on two separate cassettes. Pictures are given, in painstaking detail, of each location, but the vocabulary is small, making it extremely difficult and very frustrating to play.

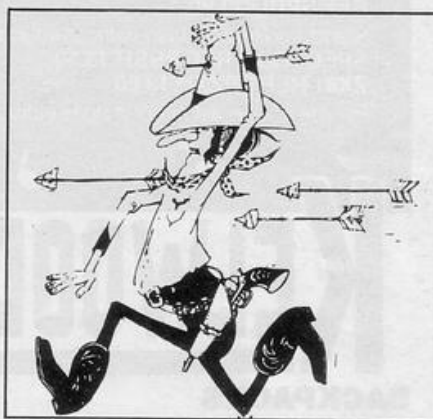
Computer magazines receive a constant stream of letters enquiring about software other than games for computers. **Mansfield Park** and **Nineteenth Century England**, both by Sussex



Software for the 48K Spectrum, act as secondary-school-level revision aids. Their subjects are those suggested by the titles and each subject is divided into different areas, for which questions and detailed answers are given on which the user can be tested.

New ZX-81 games, so plentiful a year ago, are becoming rarer and rarer. Contrast Software has produced **Fort Apache**, a 16K strategy game, in which the player takes the part of a general with 300 men to command, laying siege to an Apache fort. It is a game involving thought and forward planning rather than fast reactions.

Cyborg Wars, by Stratagem Cybernetics, is a more complex 16K strategy game involving up to four players in an imaginary galactic conflict between four nations of androids. The game relies



Fort Apache

more strongly on the instruction booklet than could be expected from a computer program but it is a carefully-thought-out and exciting game.

Three games for the ZX-81 are included on the cassette accompanying the book **ZX-81/TS-1000 Programming for Young Programmers**, published by McGraw Hill. **Bomb Run**, written in machine code for the 1K ZX-81, is a version of the popular **City Lander** type of program in which the player must bomb buildings from an aircraft to avoid running into them.

Mazer, also for the 1K ZX-81, is a simple maze game in which the aim is to avoid the ghost for as long as possible. More complicated is **Golems**, on the same cassette, for the 16K ZX-81, a strategy and fantasy adventure in which the aim is to outwit the Lord of the Black Tower.

More detailed reviews of all these games, together with their respective Gilbert Factors, can be found in *Sinclair User*.

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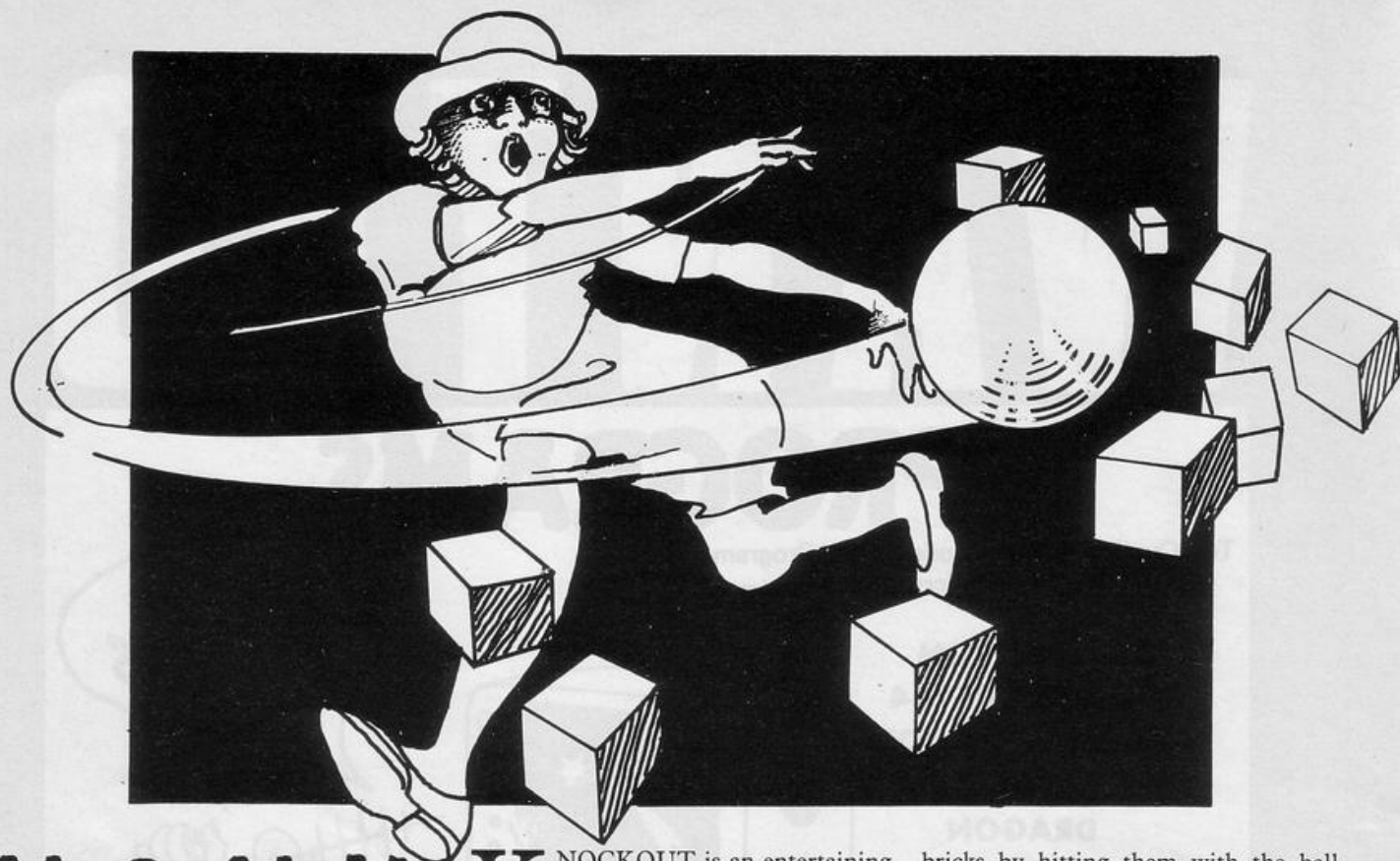
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HUGE



REWARD



KNOCKOUT

KNOCKOUT is an entertaining game for the 16K Spectrum by Mark Birch, aged 14, of Kidderminster, Worcestershire. Using your six lives you have to clear the screen of

bricks by hitting them with the ball. Knock the ball to the top of the screen when you have cleared a sheet of bricks and you will receive a bonus before advancing to another sheet.

```

1 LET h1=0: LET l=5: LET sh=1
2 DATA "a",255,129,129,129,12
9,129,129,255,"b",0,24,36,66,66,
36,24,0
3 DATA "c",3,6,12,25,51,102,2
04,248,"d",255,0,0,255,0,0,0,0,"
e",192,96,48,152,204,102,51,21
4 DATA "f",123,142,156,105,24
3,102,204,248,"g",222,113,57,157
,207,102,51,31,"h",24,36,66,195,
231,126,60,0
6 RESTORE 2
8 FOR f=1 TO 8: READ a$: FOR
g=0 TO 7: READ a: POKE USR a#+9,
a: NEXT g: NEXT f
9 GO SUB 9000
10 LET s=0
20 LET b=INT ((RND*10)*2)+1: L
ET x=20: LET y=b: LET ud=-1: LET
lr=1
21 LET x1=x: LET y1=y
30 LET a$="cde"
40 LET b$="a33333333333333333333
333333333333"
50 PLOT 2,2: DRAW 0,171: DRAW
251,0: DRAW 0,-171: DRAW -251,0:
PLOT 4,4: DRAW 0,167: DRAW 247,
0: DRAW 0,-167: DRAW -247,0
60 FOR f=2 TO 3: PRINT AT f,1:
INK 2:b$: NEXT f: FOR f=6 TO 8:
PRINT AT f,1: INK 1:b$: NEXT f:
FOR f=10 TO 12: PRINT AT f,1: I
NK INT (RND*2)+1:b$: NEXT f
68 PRINT AT 0,25:"lives":l

```

```

69 PRINT AT 0,10:"SCORE"
70 PRINT AT x1,y1:" "AT x,y:
INK 3:"b":AT 20,b: INK 0:a$
72 PRINT AT 20,b:" "
74 LET b=b+(INKEY$="0")-(INKEY
$="5")
75 LET b=b+(INKEY$="9")*2-(INKE
Y$="4")*2
76 IF b>29 THEN LET b=29
77 IF b<=0 THEN LET b=1
80 LET x1=x: LET y1=y: PRINT A
T 20,b: INK 0:a$
90 LET x=x+ud: LET y=y+lr
91 IF s=(sh*2400) AND x<=1 THE
N GO TO 7000
95 IF y<=0 THEN LET lr=1: LET
y=2
96 IF y>=31 THEN LET lr=-1: L
ET y=29
97 IF x<=0 THEN LET ud=1: LET
x=2
98 IF x=21 THEN GO TO 5000
100 IF ATTR (x,y)=59 THEN GO T
O 110
102 IF ATTR (x,y)<>56 THEN LET
s=s+10: PRINT AT 0,16:s:AT x1,y
1:" "AT x,y: INK 3:"b": BEEP .1
,20: LET ud=ud*-1
103 IF x=20 AND y=b THEN LET u
d=-1: LET lr=-1: PRINT AT x1,y1:
" "AT x,y:"f": BEEP .1,10: IF R
ND>.85 THEN LET x=x-1
104 IF x=20 AND y=b+1 THEN LET
ud=-1: PRINT AT x1,y1:" "AT x,

```

```

9;"h": BEEP .1,10: IF RND>.85 TH
EN LET x=x-1
105 IF x=20 AND y=b+2 THEN LET
ud=-1: LET lr=1: PRINT AT x1,y1
;" "AT x,y;"a": BEEP .1,10: IF
RND>.85 THEN LET x=x-1
1000 GO TO 70
5000 REM DROP !!!
5010 PRINT AT 17,7: FLASH 1;"dro
pped one !!!"
5020 FOR f=1 TO 5: BEEP .5,10: B
EEP .2,0: NEXT f
5030 LET l=l-1: PRINT AT 0,30: F
LASH 1;l+1: PAUSE 100: PRINT AT
0,30: FLASH 1;l: PAUSE 100: IF l
>=0 THEN PRINT AT 0,30;l
5040 IF l<0 THEN GO TO 6000
5050 PRINT AT 17,7;"
"
5051 LET x=19: LET y=b: LET ud=-
1
5052 GO TO 5060
5055 GO TO 9000
5060 GO TO 68
6000 REM end
6010 PRINT AT 10,1: FLASH 1: BRI
GHT 1: INK 1: PAPER 7;" t
h e e n d "
6020 IF s<=h1 THEN GO TO 6100
6030 INPUT "what is your name ?"
:n$
6040 LET h1=s
6100 CLS
6110 PRINT AT 10,0:"atoday's hig
hest score is "h1"" INK 2:"ait
was scored by "n$"" INK 1:"Pres
s any key to restart game"
6120 IF INKEY$<>"" THEN GO TO 6
120
6130 IF INKEY$="" THEN GO TO 61
30
6140 IF INKEY$<>"" THEN GO TO 6
140
6150 CLS : LET l=5: LET s=0: GO
TO 10
7000 DATA 0,12,10,7,7,7,5,3,0,0
7001 LET sh=sh+1
7010 DATA .4,.4,.65,.4,.4,.2,.1,
.1,.2,.4
7020 DIM a(10): DIM b(10)
7021 PRINT AT 6,10: FLASH 1;"You
did it !":AT 9,12: INK 1: FLASH
1;"W O W":AT 15,8: INK 2: FLA
SH 1;"G A S P ! !!"
7030 RESTORE 7000: FOR f=1 TO 10
: READ a: LET a(f)=a: NEXT f
7040 RESTORE 7010: FOR f=1 TO 10
: READ a: LET b(f)=a: NEXT f
7050 FOR f=1 TO 3: FOR g=1 TO 10
: BEEP b(g),a(g): NEXT g: NEXT f
7060 BEEP 1,0
7070 FOR f=1 TO 2: FOR g=1 TO 10
: BEEP b(g),(a(g))+3: NEXT g: NE
XT f
7075 FOR g=1 TO 10: BEEP b(g),a(
g): NEXT g
7076 BEEP 2,0
7077 CLS : PRINT AT 10,10: FLASH
1;"GET READY ..."
7080 FOR f=1 TO 250: NEXT f
7090 CLS
7091 GO TO 20
8888 STOP
9000 CLS : REM instructions
9002 BEEP .1,10
9010 PRINT AT 2,0;" 4 5 8 9
"" << < > >>"
9011 BEEP .1,10
9020 INK 2: PRINT AT 5,0;"4 = fa
st left""5 = slow left":AT 5,15
;"8 = slow right":AT 6,15;"9 = f
ast right"
9021 BEEP .1,10
9023 PRINT: INK 1;"cde": INK 0:
" = your base"" INK 3:" b": INK
0:" = the ball"" INK 2:"aaa": I
NK 0:" = the walls"
9024 BEEP .1,10
9025 PRINT: INK 0;"Each a = 10
Points."
9026 BEEP .1,10
9030 INK 0: PRINT AT 14,0:" The
object of the game is to hit a
ll of the bricks out of the walls
when all out,knock the ball
to the top of the screen."
9031 BEEP .1,10
9040 PRINT AT 20,0:"Press enter
to start": INPUT i$
9041 BEEP .1,10
9050 DATA 10,22,10,0,6,3,6,8,10
9060 DATA .1,.1,.3,.3,.3,.3,.3,
.3,.3
9061 DIM a(100): DIM b(100)
9062 RESTORE 9050: FOR f=1 TO 9:
READ a: LET a(f)=a: NEXT f
9063 RESTORE 9060: FOR f=1 TO 9:
READ a: LET b(f)=a: NEXT f
9070 DATA 11,11,11,11,11,11,13,1
1
9071 RESTORE 9070: FOR f=10 TO 1
7: READ a: LET a(f)=a: NEXT f: F
OR f=10 TO 17: LET b(f)=.3: NEXT
f
9090 FOR g=1 TO 2: FOR f=1 TO 9:
BEEP b(f),a(f): NEXT f: NEXT g
9091 FOR f=10 TO 18: BEEP b(f),a
(f): NEXT f
9092 FOR f=1 TO 9: BEEP b(f),a(f
): NEXT f
9093 FOR f=1 TO 4: BEEP .3,0: NE
XT f: FOR f=1 TO 2: BEEP .3,10:
NEXT f: BEEP .1,0: BEEP .1,10: B
EEP .1,0: BEEP .1,6: BEEP .1,3:
BEEP .1,1: BEEP 1,0
9098 FOR f=1 TO 200: NEXT f
9099 CLS
9100 RETURN

```

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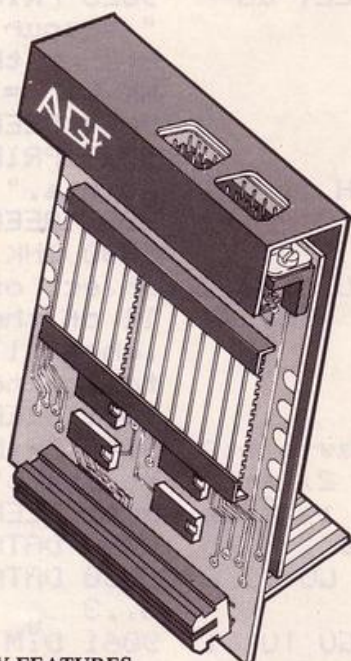
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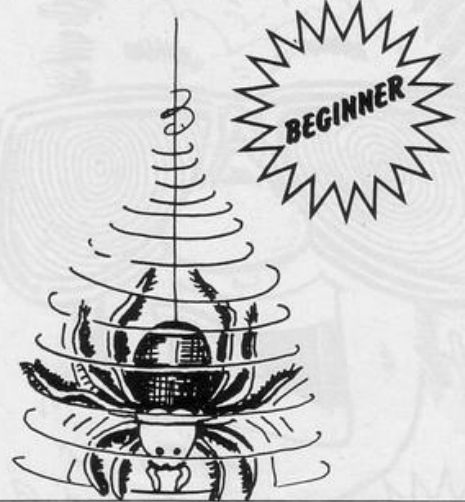
```

1 CLS
5 LET Pos=INT (RND*5): LET x=
0: LET score=0: LET shots=20: LE
T h=0: FOR n=USR "a" TO USR "c"+
7: POKE n,RND*255: NEXT n
10 FOR a=0 TO 31-4
20 PRINT AT Pos,a;" (194:193:9
7)"
30 PRINT AT 21,x;" (193:198:19
3)"
40 LET x=x+(INKEY$="0" AND x<2
5)-(INKEY$="5" AND x>0)
50 IF INKEY$="0" THEN GO SUB
100
55 PRINT AT 14,27;"score";AT 1
5,29;score;AT 17,27;"shots";AT 1
8,30;shots;" "
60 NEXT a
70 PRINT AT Pos,31-4;" "
LET Pos=INT (RND*5): GO TO 10:
100 FOR z=20 TO Pos+1 STEP -1:
PRINT AT z,x+2;"!";AT z+1,x+2;"
": LET a=a+.5: IF a>=20 THEN LE
T a=0: PRINT AT Pos,20;" "
105 PRINT AT Pos,a;" (194:193:9
7)": NEXT z
110 IF SCREEN# (Pos,x+2)<>" " T
HEN PRINT AT Pos,x-1;"33333"
LET score=score+(5-Pos)*10: FOR
v=0 TO 10: BEEP .001,30: NEXT v:
LET h=h+1
120 LET shots=shots-1: IF shots
=0 THEN GO TO 150
130 IF h=1 THEN LET h=0: PRINT
AT Pos,0;"
": LET a=RND*20: GO T
O 20
135 PRINT AT Pos+1,0;" "
140 RETURN
150 PRINT AT 10,12;"GAME OVER"
160 PRINT AT 15,29;score;AT 18,
30;"00": BEEP 1,10: RUN

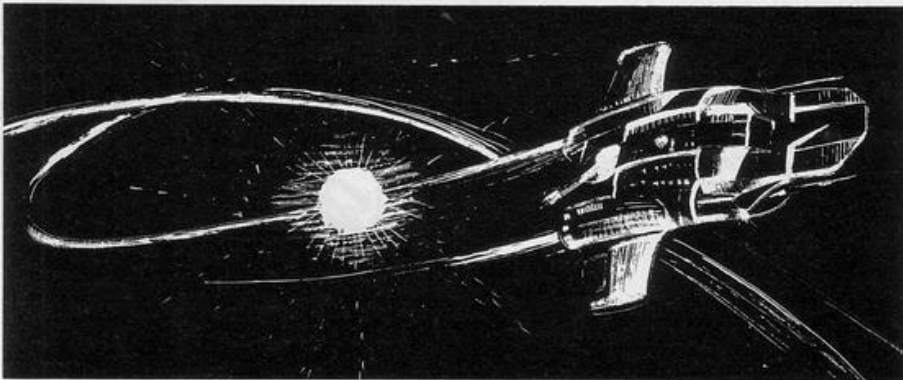
```

SPIDER SHOOT is a simple but fast beginners' program for the 16K Spectrum. Shoot at the spiders as they scurry across the screen. You have 20 shots to eliminate as many spiders as possible. Use keys 5 and 8 to move left and right and 0 to shoot. Submitted by Darren McSweeney of Barrow-in-Furness, Cumbria.

SPIDER



SHOOT



STAR BLAST, submitted by Neil Smith of Bromley, Kent, is a beginners' program for the 16K Spectrum. Guide your spaceship round the screen, avoiding your trail and the exploding stars. Use key Z to move left, X to move right, J to move down and I to move up.

STAR BLAST

```

10 POKE 23658,8: LET H=0
20 LET S=0
30 BORDER 0: PAPER 0: INK 7: C
LS
40 PLOT 0,0: DRAW 255,0: DRAW
0,175: DRAW -255,0: DRAW 0,-175
50 LET X=128: LET Y=86
60 PLOT X,Y
70 LET A=INT (RND*253)+2
80 LET B=INT (RND*173)+2
90 PLOT A,B
100 LET A$=INKEY$
110 IF A$<>"Z" AND A$<>"X" AND
A$<>"J" AND A$<>"I" THEN GO TO
170

```

```

120 IF A$="Z" THEN LET X=X-1:
IF POINT (X-1,Y)=1 THEN GO TO 1
90
130 IF A$="X" THEN LET X=X+1:
IF POINT (X+1,Y)=1 THEN GO TO 1
90
140 IF A$="J" THEN LET Y=Y-1:
IF POINT (X,Y-1)=1 THEN GO TO 1
90
150 IF A$="I" THEN LET Y=Y+1:
IF POINT (X,Y+1)=1 THEN GO TO 1
90
160 LET S=S+1
170 IF S>H THEN LET H=S: BEEP
.005,10

```

```

175 BEEP .005,45
180 GO TO 60
190 CLS: PRINT "Bad luck you h
it one of the","exploding stars.
"
200 PRINT AT 4,4;"But you did s
core ";s
210 PRINT AT 10,4;"The high sco
re is ";h
220 PRINT AT 21,0;"Press any ke
y to play again."
230 PAUSE 0: PAUSE 0
240 CLS: GO TO 20

```



PATTERN DRAWER

JOHN LITTLE of Dumfriesshire, Scotland submitted **Pattern Drawer** for the 16K Spectrum. The program demonstrates the power of the Spectrum graphics commands in three colourful routines, including one which draws a moire pattern.

```

1 INK 0: BORDER 7: PAPER 7: C
LS
10 PRINT AT 0,0:"Press the app
ropriate letter. After any rou
tine, pressing r will return y
ou to this menu."
30 PRINT AT 5,0: "(a) receding
rectangle      ", "(b) moire
patterns      ", "(c) tw
ist"
40 IF INKEY#="" THEN GO TO 40
50 IF INKEY#="a" THEN GO SUB
300
51 IF INKEY#="b" THEN GO SUB
200
52 IF INKEY#="c" THEN GO SUB
100
60 GO TO 1
100 CLS
101 LET i=1
120 LET x=0: LET x1=255: LET y=
0
130 PLOT OVER 1,x,y: DRAW OVE
R 1: INK 1,x1,y: LET y=y+1: LET
x1=x1-6: LET x=x+3: IF y<=175 AN
D x1>-255 THEN GO TO 130
140 LET i=i+1: IF i<7 THEN GO
TO 120
150 CLS
160 PRINT FLASH 1,AT 11,2:" PR
ESS R TO RETURN"
190 IF INKEY#(">"r" THEN GO TO
190
199 RETURN
200 CLS
201 LET i=1
205 LET x=0: LET x1=175

```

```

210 PLOT x,0: DRAW INK 1,x1,17
5: PLOT 0,x: DRAW INK 1,175,x1
220 LET x1=x1-8: LET x=x+4: IF
x<=175 THEN GO TO 210
225 FOR r=0 TO 87 STEP 8: INK 7
-i: CIRCLE OVER 1,87,87,r: NEXT
r
230 IF i<=6 THEN LET i=i+1: GO
TO 205
260 PRINT FLASH 1,AT 11,0:"
PRESS R TO RETURN"
290 IF INKEY#(">"r" THEN GO TO
290
299 RETURN
300 LET i=1: PAPER 7-1: CLS
310 LET x=0: LET y=0: LET x1=25
5: LET x2=0: LET x3=-255: LET x4
=0: LET y1=0: LET y2=175: LET y3
=0: LET y4=-175
320 PLOT x,y: INK 1: DRAW OVER
1,x1,y1: DRAW OVER 1,x2,y2: DR
AW OVER 1,x3,y3: DRAW OVER 1,x
4,y4
330 LET x=x+2: LET y=y+2: LET x
1=x1-4: LET x3=x3+4: LET y2=y2-4
: LET y4=y4+4: IF y<=175 THEN G
O TO 320
335 LET i=i+1: IF i=6 THEN GO
TO 340
336 GO TO 310
340 CLS
345 INK 0
360 PRINT FLASH 1,AT 11,0:"
PRESS R TO RETURN"
390 IF INKEY#(">"r" THEN GO TO
390
399 RETURN

```

1 REM Programme: FRE-BYTE
For: 48K Spectrum

3 REM This Programme Provides
an estimate of the
amount of spare RAM
available for
programming.

4 REM The 'REM' statements
should be omitted, and
the data statements
may be combined on one
line.

5 REM The data elements are

set out as machine code
instructions.

6 REM To use it enter:
"PRINT USR 65356"

```

10 CLEAR 65355
20 FOR n=65356 TO 65366
30 READ a: POKE n,a
40 NEXT n
50 DATA 205,26,31
60 DATA 42,178,92
70 DATA 237,66
80 DATA 68
90 DATA 77
100 DATA 201

```

FREE BYTE

FREE BYTE, written by Mrs F J Tew of Ipswich, Suffolk, provides an estimate of the amount of spare RAM available for programming. Load the program and then RUN and ENTER. Type NEW to remove the Basic program and then put in your own

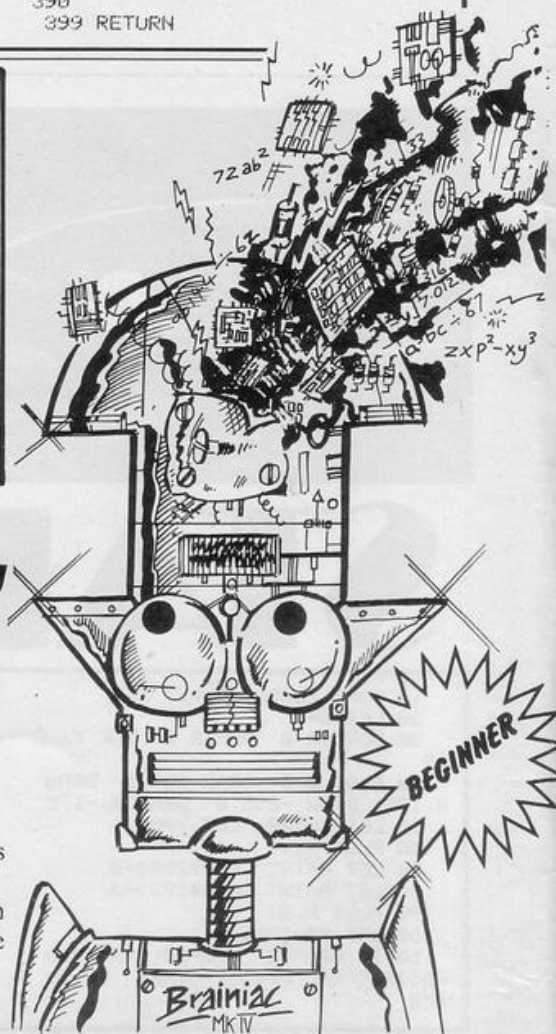
program. To find how much memory is left, type PRINT USR 65356.

The program may be altered to run on the 16K machine by replacing the first two lines with:

```

10 CLEAR 32568
20 FOR n = 32569 TO 32579

```



THE UNICORN

BEGINNER

COLIN LINK of Rickmansworth, Herts wrote a simple program for the 1K ZX-81. You, the hunter, have to shoot **The Unicorn** as it rides past using "F" to fire.

When typing-in line 1, type THEN before typing CLS and then go back and delete it. The line should then enter without any difficulty.

```

1 REM Y.NOT / CLS
2 POKE 16416,0
10 LET A=INT (RND*15)
20 LET M=20
30 LET H=M
40 LET B=M-H
50 PRINT AT 22,15;"■";TAB 14;"
"
60 PRINT AT A,B;"(i<:i>)"
70 PRINT AT M,15;"A";TAB 15;"*"
90 IF INKEY$="F" THEN LET H=0
90 IF A=M THEN GOTO 150
100 IF H=0 THEN LET M=M-1
110 LET B=B+1
120 IF B=30 THEN LET B=0
130 GOTO 60
150 IF B=13 OR B=14 THEN RAND U
5K 16514
160 PAUSE 4E4
170 CLS
180 RUN
    
```



```

1 CLS
2 LET C=CODE "■"
3 LET A=CODE "■"
4 LET S=PI-PI
5 LET C$="PEEK (PEEK 16398+PE
EK 16399+256)"
6 PRINT "
7 FOR I=PI-PI TO CODE "■"
8 PRINT "
9 NEXT I
10 PRINT "
11 LET B=A
12 PRINT AT A,B;"■"
13 LET S=S+PI/PI
14 IF INKEY$="S" THEN LET C=PI
-PI
15 IF INKEY$="B" THEN LET C=PI
/PI
16 IF INKEY$="6" THEN LET C=CO
DE "■"
17 IF INKEY$="7" THEN LET C=CO
DE "■"
18 IF C=PI-PI THEN LET B=B-PI/
PI
19 IF C=PI/PI THEN LET B=B+PI/
PI
20 IF C=CODE "■" THEN LET A=A+
PI/PI
21 IF C=CODE "■" THEN LET A=A-
PI/PI
22 PRINT AT A,B;
23 IF NOT VAL C$ THEN GOTO COD
E "E"
24 PRINT AT PI-PI,PI;"CRASHED
";S
25 PAUSE 4E4
26 RUN
    
```

MINI ADVENTURE



BEGINNER

DRIFTING through space, you see an apparently deserted space station and decide to investigate. Once aboard, your only escape is to find your ship in the shuttle bay. You will have opportunities to fight monsters, jump gaps and find money en route. Make decisions by pressing 1 for first choice, or yes, and by pressing 2 for second choice, or no.

After entering the program listing, enter the following as direct commands: DIM A\$ (3,6)

```

LET A$ (1)="ROBOT"
LET A$ (2)="ALIEN"
LET A$ (3)="DALEK"
LET J=20
LET S=20
LET T=0
    
```

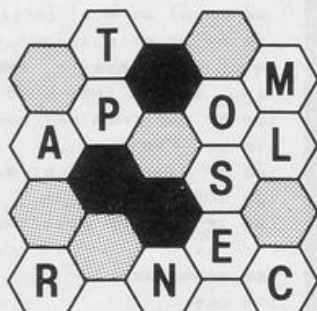
The game must then be started by entering GOTO 1. To re-start the game enter the last three commands again and start with GOTO 1.

Mini Adventure was written for the 1K ZX-81 by Russell Wooberry of Farnham, Surrey.

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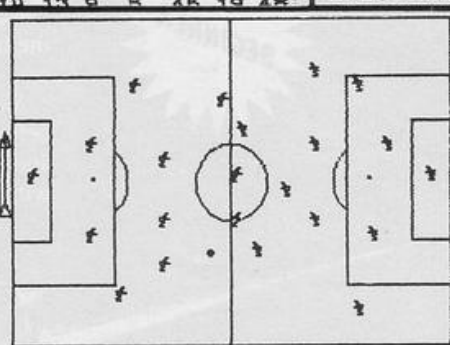
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YOU HAVE five guesses to find the elephant roaming the streets of New York — represented by a grid. You can choose either easy or difficult clues. The easy clues tell you the direction to move, whereas the difficult ones tell you the number of spaces but not the direction.

Find the Elephant was written for the 16K ZX-81 by Piers Pettman, aged 12, of Amersham, Bucks.

```

1 LET GUESS=1
2 GOSUB 2000
3 PRINT AT 0,0:
6 LET A=INT (RND*10)+1
7 LET B=INT (RND*10)
8 CLS
10 PRINT "FIND THE ELE
PHANT"
30 PRINT
40 PRINT "DO YOU WANT:"
50 FOR F=1 TO 10
60 PRINT CHR$ (F+155); "++++++
+++
70 NEXT F
80 PRINT "
91 PRINT AT 15,15; "

```



FIND THE ELEPHANT

```

92 PRINT AT 17,15; "
93 PRINT AT 18,15; "
94 PRINT AT 19,15; "
95 FOR G=1 TO 5
96 PRINT AT 17,0; "GUESS :"; G
99 PRINT AT 6,15; "ENTER THE"
100 PRINT AT 8,15; "LETTER OF"
110 PRINT AT 10,15; "YOUR GUESS"
120 INPUT L$
130 IF LEN L$<>1 THEN GOTO 120
140 IF CODE L$>47 OR CODE L$<32
THEN GOTO 120
144 PRINT AT 19,0; "LETTER:"; L$
150 PRINT AT 8,15; "NUMBER OF"
160 INPUT N$
170 IF LEN N$<>1 THEN GOTO 160
180 IF CODE N$>37 OR CODE N$<28
THEN GOTO 160
190 LET N=VAL N$
191 PRINT AT 21,0; "NUMBER:"; N$
194 PRINT AT 6,15; "
"
195 PRINT AT 8,15; "
"
196 PRINT AT 10,15; "
"
197 PRINT AT 17,15; "
"
198 PRINT AT 18,15; "
"
200 LET N1=CODE L$-37
202 PRINT AT N1+4,N+1; "
210 IF N1=A AND N=B THEN GOTO 1
211 PRINT AT 17,15;

```

```

212 IF C=2 THEN GOTO 3000
220 IF N1>A THEN PRINT "UP"
230 IF N1<A THEN PRINT TAB 15; "
DOWN"
240 IF N>B THEN PRINT TAB 15; "L
FT"
250 IF N<B THEN PRINT TAB 15; "R
IGHT"
260 NEXT G
300 PRINT AT 6,15; "YOU DIDNT FI
ND"; AT 8,15; "THE ELEPHANT"; AT 10
,15; "IN 5 GOES"
301 LET N1=A
302 LET N=B
309 PRINT AT 12,15; "IT WAS AT "
; CHR$ (A+37); " "; N
340 GOTO 1003
400 STOP
1000 PRINT AT 6,15; "CORRECT, IT";
AT 8,15; "WAS "; CHR$ (N1+37); " ";
N
1001 PRINT AT 10,15; "YOU FOUND T
HE"
1002 PRINT AT 12,15; "ELEPHANT IN
"; AT 14,15; G; " GOES"
1003 PRINT AT 17,15; "PRESS"; AT 1
8,15; " A/K "
1010 PRINT AT N1+4,N+1; "+"
1015 IF INKEY$<>"" THEN GOTO 103
0
1020 PRINT AT N1+4,N+1; "0"
1021 GOTO 1010
1030 CLS

```

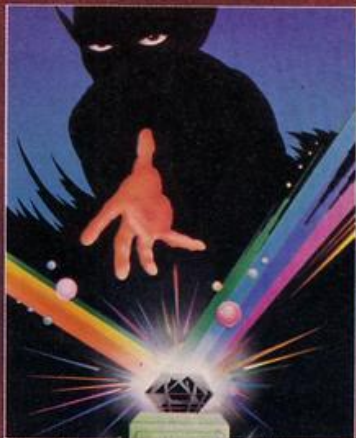
```

1040 RUN
2000 PRINT "FIND THE ELE
PHANT"
2010 PRINT
2030 PRINT
2040 PRINT "DO YOU WANT:"
2050 PRINT
2070 PRINT TAB 5; "1-EASY CLUES"
2080 PRINT
2090 PRINT TAB 5; "2-DIFFICULT CL
UES"
2100 PRINT
2110 PRINT "PRESS THE APPROPRIATE
KEY"
2111 PRINT
2130 IF INKEY$="1" THEN GOTO 217
0
2140 IF INKEY$="2" THEN GOTO 215
0
2145 GOTO 2120
2150 PRINT "DIFFICULT CLUES"
2160 LET C=2
2161 FOR F=1 TO 5
2162 NEXT F
2165 RETURN
2170 PRINT "EASY CLUES"
2180 LET C=1
2190 RETURN
3000 PRINT ABS (N1-A); " "; ABS (N
-B)
3010 GOTO 251
4000 SAVE "ELEPHANT"
4010 RUN

```

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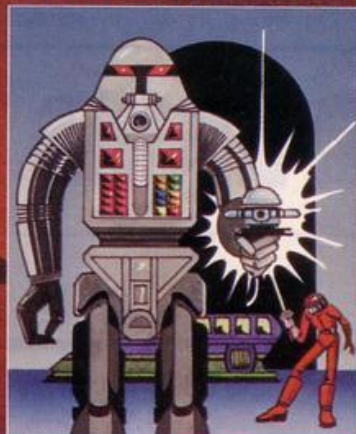
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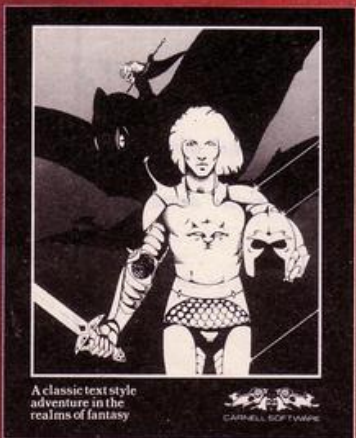
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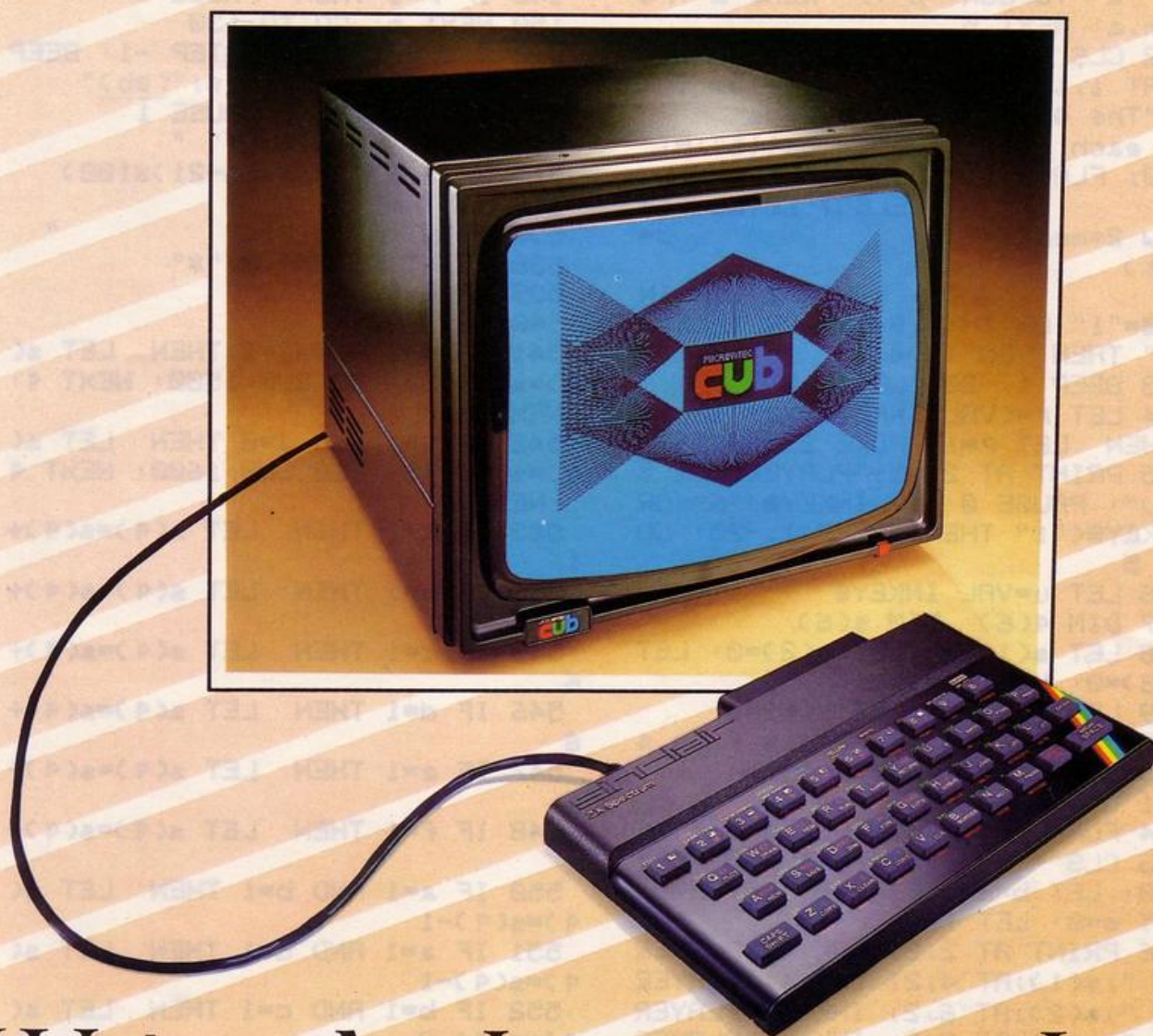
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BOWLING ALLEY

```
1 LET n$="": LET h$=0: PAPER
0: BORDER 0: INK 6: CLS: FOR n=
USR "a" TO USR "b"+7: READ a: PO
KE n,a: NEXT n
```

```
2 CLS: PRINT AT 0,10;"BOWLIN
G":AT 1,10;"(7*193)":AT 2,5: INK
4:"The game has 10 rounds
each containing 2 balls":AT
10,0: FLASH 1:"
```

```
SELECT LEVEL (1=
slow 2=medium 3=
fast)
```

```
" : PAUSE 0: IF IN
KEY$="1" OR INKEY$="2" OR INKEY$
="3" THEN GO TO 4
```

```
3 BEEP 1,-20: GO TO 2
```

```
4 LET p=(VAL INKEY$)*2: IF p=
2 THEN LET p=1: POKE 23560,13
```

```
5 PRINT AT 20,5:"PLAYERS (1 t
o 6)": PAUSE 0: IF INKEY$="6" OR
INKEY$="1" THEN BEEP 1,-20: GO
TO 5
```

```
6 LET u=VAL INKEY$
```

```
7 DIM a(6): DIM s(6)
```

```
8 LET s(1)=0: LET s(2)=0: LET
s(3)=0: LET s(4)=0
```

```
9 LET s(5)=0: LET s(6)=0
```

```
10 PRINT AT 15,3:"Press f to s
hoot the ball": PAUSE 50
```

```
11 GO SUB 2000
```

```
94 FOR r=1 TO 10: FOR q=1 TO u
```

```
95 CLS: LET j=0: LET g=0: LET
a=0: LET b=0: LET c=0: LET d=0:
LET e=0: LET f=0
```

```
96 PRINT AT 2,2: INK 2:"PLAYER
1: ";s(1):AT 4,2: INK 4:"PLAYER
2: ";s(2):AT 6,2: INK 6:"PLAYER
3: ";s(3):AT 8,2: INK 5:"PLAYER
4: ";s(4):AT 10,2: INK 7:"PLAYE
R 5: ";s(5):AT 12,2: INK 3:"PLAY
ER 6: ";s(6)
```

```
97 PRINT AT 17,2: INK 2: BRIGH
T 1:"ROUND: ";r
```

```
99 PRINT AT 0,0:"BOWLING":AT 1
,0;"(7*193)"
```

```
100 PLOT 159,0: DRAW 0,175
```

```
110 PLOT 248,0: DRAW 0,175
```

```
111 PRINT AT 15,0:"HIGH: ";h$:"
by: ";AT 16,0:n$
```

```
112 PRINT AT 2*a,1:"*
```

```
115 INK 6: LET g=0: LET x=0
```

```
120 PRINT AT 1,22;"(9a:sp:9a:sp
:9a:sp:9a:sp)":AT 3,23;"(9a:sp:9a:sp
```

```
p:9a:sp:9a:sp)":AT 5,24;"(9a:sp:9a:sp)":AT 7
,25;"(9a:sp:9a:sp)"
```

```
125 FOR w=1 TO 2: PAUSE 25
```

```
130 FOR n=21 TO 29: PRINT AT 21
,n;"(9b)": PRINT AT 21,n-1:" ":
IF PEEK 23560=102 THEN GO TO 50
0
```

```
135 IF p=1 THEN PAUSE 1
```

```
140 NEXT n: FOR n=20 TO 21 STEP
-1: PRINT AT 21,n;"(9b)": PRINT
AT 21,n+1:" ": IF PEEK 23560=10
2 THEN GO TO 500
```

```
145 IF p=1 THEN PAUSE 1
```

```
150 NEXT n: GO TO 130
```

```
500 FOR m=20 TO 0 STEP -1: BEEP
.01,20: PRINT AT m,n;"(9b)"
```

```
505 IF p=1 THEN PAUSE 1
```

```
510 PRINT AT m+1,n:" "
```

```
515 GO SUB (3000+(n-21)*100)
```

```
520 NEXT m
```

```
530 PRINT AT 0,21:" "
```

```
538 PRINT AT 2*a,0:"*
```

```
539 POKE 23560,13
```

```
540 NEXT w
```

```
541 IF g=1 AND j=1 THEN LET s(
q)=s(q)+30: GO SUB 1500: NEXT q:
NEXT r
```

```
542 IF g=1 AND j=0 THEN LET s(
q)=s(q)+15: GO SUB 1600: NEXT q
NEXT r
```

```
543 IF a=1 THEN LET s(q)=s(q)+
1
```

```
544 IF b=1 THEN LET s(q)=s(q)+
3
```

```
545 IF c=1 THEN LET s(q)=s(q)+
6
```

```
546 IF d=1 THEN LET s(q)=s(q)+
6
```

```
547 IF e=1 THEN LET s(q)=s(q)+
3
```

```
548 IF f=1 THEN LET s(q)=s(q)+
1
```

```
550 IF a=1 AND b=1 THEN LET s(
q)=s(q)-1
```

```
551 IF a=1 AND c=1 THEN LET s(
q)=s(q)-1
```

```
552 IF b=1 AND c=1 THEN LET s(
q)=s(q)-3
```

```
553 IF b=1 AND d=1 THEN LET s(
q)=s(q)-1
```

```
554 IF c=1 AND e=1 THEN LET s(
q)=s(q)-1
```

```
555 IF c=1 AND d=1 THEN LET s(
q)=s(q)-3
```

```
556 IF d=1 AND e=1 THEN LET s(
q)=s(q)-3
```

```
557 IF d=1 AND f=1 THEN LET s(
q)=s(q)-1
```

```
558 IF e=1 AND f=1 THEN LET s(
q)=s(q)-1
```

```
659 LET j=0
```

```
660 BEEP .25,0: BEEP .25,1: BEE
P .5,2: NEXT q
```

```

670 NEXT r
680 GO TO 9000
1500 BEEP .25,-9: BEEP .25,-2: B
EEP .25,2: BEEP .25,5: BEEP .25,
9: BEEP .25,-2: BEEP .25,7: BEEP
.25,5: BEEP .25,9: BEEP .25,-2:
BEEP .25,1: BEEP .25,7: BEEP .2
5,7: BEEP .25,1: BEEP .25,7: BEE
P .25,4: BEEP .25,7: BEEP .25,-2
: BEEP .25,4: BEEP .25,5: BEEP .
25,7: BEEP .25,-2: BEEP .25,4: B
EEP .25,5: BEEP .25,2
1501 RETURN
1600 GO SUB 1500: RETURN
2000 GO SUB 2300: BEEP .375,2: P
AUSE 6.25: GO SUB 2300: BEEP .25
,2: PAUSE 6.25:
2099 RETURN
2100 BEEP .125,9: BEEP .125,8: B
EEP .125,9: BEEP .125,8: BEEP .1
25,9: BEEP .125,4: BEEP .125,7:
BEEP .125,5: BEEP .25,2: PAUSE 6
.25: BEEP .125,-6: BEEP .125,-2:
BEEP .125,2: BEEP .25,4: PAUSE
6.25
2101 RETURN
2300 GO SUB 2100: BEEP .125,-2:
BEEP .125,1: BEEP .125,4: BEEP .
25,5: PAUSE 6.25: BEEP .125,-2:
GO SUB 2100: BEEP .125,-4: BEEP
.125,5: BEEP .125,4: RETURN
3000 RETURN
3100 IF a=1 THEN RETURN
3110 LET a=1
3120 RETURN
3200 IF b=1 THEN RETURN
3210 IF m=1 THEN PRINT AT m,22;
" ": LET b=1
3220 RETURN
3300 IF c=1 THEN RETURN
3310 IF m=3 THEN PRINT AT m,23;
" "
3320 IF m=1 THEN PRINT AT m,22;
" ": LET c=1
3330 RETURN
3400 PRINT AT m,22;" "
3401 IF m=1 AND w=1 THEN LET j=
1
3405 IF m=1 THEN LET w=2: LET a
=1
3410 RETURN
3500 IF d=1 THEN RETURN
3510 IF m=3 THEN PRINT AT m,24;
" "
3520 IF m=1 THEN PRINT AT m,24;
" ": LET d=1
3530 RETURN
3600 IF e=1 THEN RETURN
3610 IF m=1 THEN PRINT AT m,26;
" ": LET e=1
3620 RETURN
3700 IF f=1 THEN RETURN
3710 LET f=1

```



UP TO SIX players can take part in **Bowling Alley**, written for the 16K Spectrum by Erik Van Gorp of Belgium. Each game consists of 10 rounds, with each player having two shots per round. There are three skill levels, 1 to 3, level 1 being the slowest. Use key "F" to roll each bowl.

```

3800 RETURN
9000 PAUSE 100: CLS: PRINT AT 1
0,10;"Game over"
9005 PAUSE 100
9010 FOR n=1 TO 6: IF s(n)>hs TH
EN LET hs=s(n): GO SUB 9500
9011 NEXT n
9100 GO TO 2
9500 IF s(n)>=s(1) AND s(n)>=s(2
) AND s(n)>=s(3) AND s(n)>=s(4)
AND s(n)>=s(5) AND s(n)>=s(6) TH
EN LET n$="": PRINT AT 20,0;"Yo
ur name(max.12 tokens)Player ";n
: INPUT n$: IF LEN n$>12 THEN G
O TO 9500
9501 RETURN
9990 DATA 24,24,24,60,126,126,12
6,126,60,126,255,255,255,255,126
,60
9999 SAVE "bowling" LINE 1: GO T
O 9999

```

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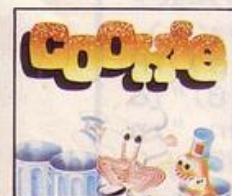
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Pssst 16/48K ZX Spectrum

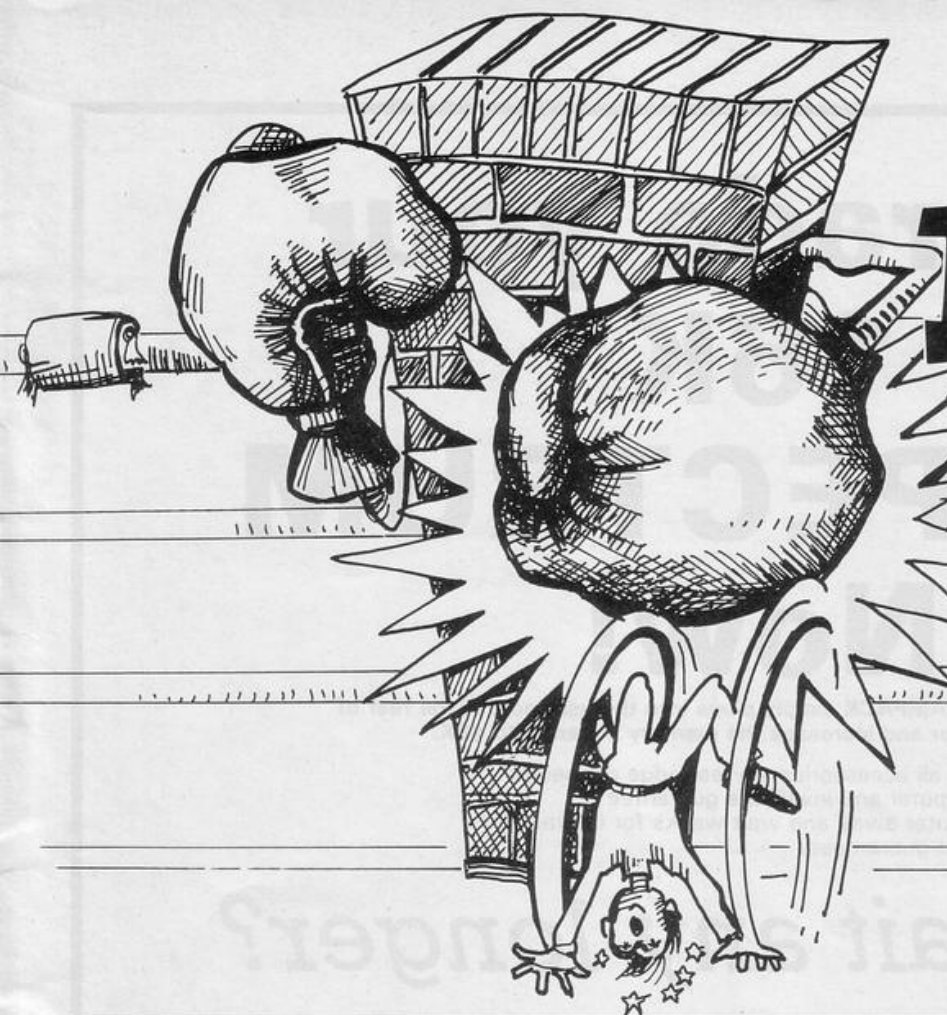


Lunar Jetman 48K ZX Spectrum



Jet Pac 16/48K ZX Spectrum or 8K Expanded VIC 20

Ultimate Play The Game is a trade name of Ashby Computers and Graphics Ltd., The Green, Ashby de la Zouch, Leicestershire, Tel (0530) 411485. Dealer enquiries welcome.



Break The Wall

USING keys 5 and 8 you have to hit the ball at the wall to get rid of the bricks. You lose one of your three lives each time you let the ball hit the floor.

Break the Wall was written for the 16K ZX-81 by Mark Cumberlidge of Longport, Stoke-on-Trent.

```

4 FOR A=1 TO 100
5 NEXT A
6 CLS
7 FAST
8 LET M=3
9 LET S=0
10 FOR A=0 TO 20
20 PRINT AT A,0;"■";AT A,31;"■"
30 NEXT A
31 FOR J=0 TO 6 STEP 2
32 FOR K=0 TO 31
33 PRINT AT J,K;"■"
34 NEXT K
35 NEXT J
36 FOR G=1 TO 5 STEP 2
37 FOR H=1 TO 30
38 PRINT AT G,H;"■"
39 NEXT H
40 NEXT G
50 SLOW
55 LET A=INT (RND*30)+2
56 LET B=1
57 LET C=1
58 LET D=-1
59 LET E=20
60 LET F=15
70 PRINT AT B,A;"0";AT B,A;" "
80 PRINT AT E,F;" — "
85 LET F=F+(INKEY$="8" AND F<2
9)-(INKEY$="5" AND F>1)
90 LET A=A+D
100 LET B=B+C
110 IF B=20 AND F+1=A THEN LET
C=-1
115 IF B=20 AND F+2=A THEN LET
C=-1
116 IF B=1 THEN LET C=1
117 IF A=30 THEN LET D=-1
118 IF A=1 THEN LET D=1
119 IF B=21 THEN LET M=M-1
120 IF B=21 THEN PRINT AT E,F;"
"
121 IF B=21 THEN GOTO 55
130 IF B=20 AND F+1<>A THEN GOTO
70
131 IF B=20 AND F+2<>A THE
N GOTO 70
175 IF B=6 THEN LET S=S+1
178 IF M=0 THEN GOTO 200
180 GOTO 70
200 PRINT "SCORE=";S
210 PRINT AT 11,1;"DO YOU WANT
ANOTHER GO (Y/N) ?"
220 INPUT A$
225 CLS
230 IF A$="Y" THEN GOTO 1
240 IF A$="N" THEN LIST

```

Upgrade your 16K ZX SPECTRUM Now!

The CHEETAH 32K RAMPACK simply plugs into the user port at the rear of your computer and increases the memory instantly to 48K.

- ★ Fully compatible with all accessories via rear edge connector
- ★ No need to open computer and invalidate guarantee
- ★ Why send your computer away and wait weeks for upgrade
- ★ Fully cased tested and guaranteed.

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64K RAM Pack for ZX-81

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£44.75

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London EC1 R3 DJ
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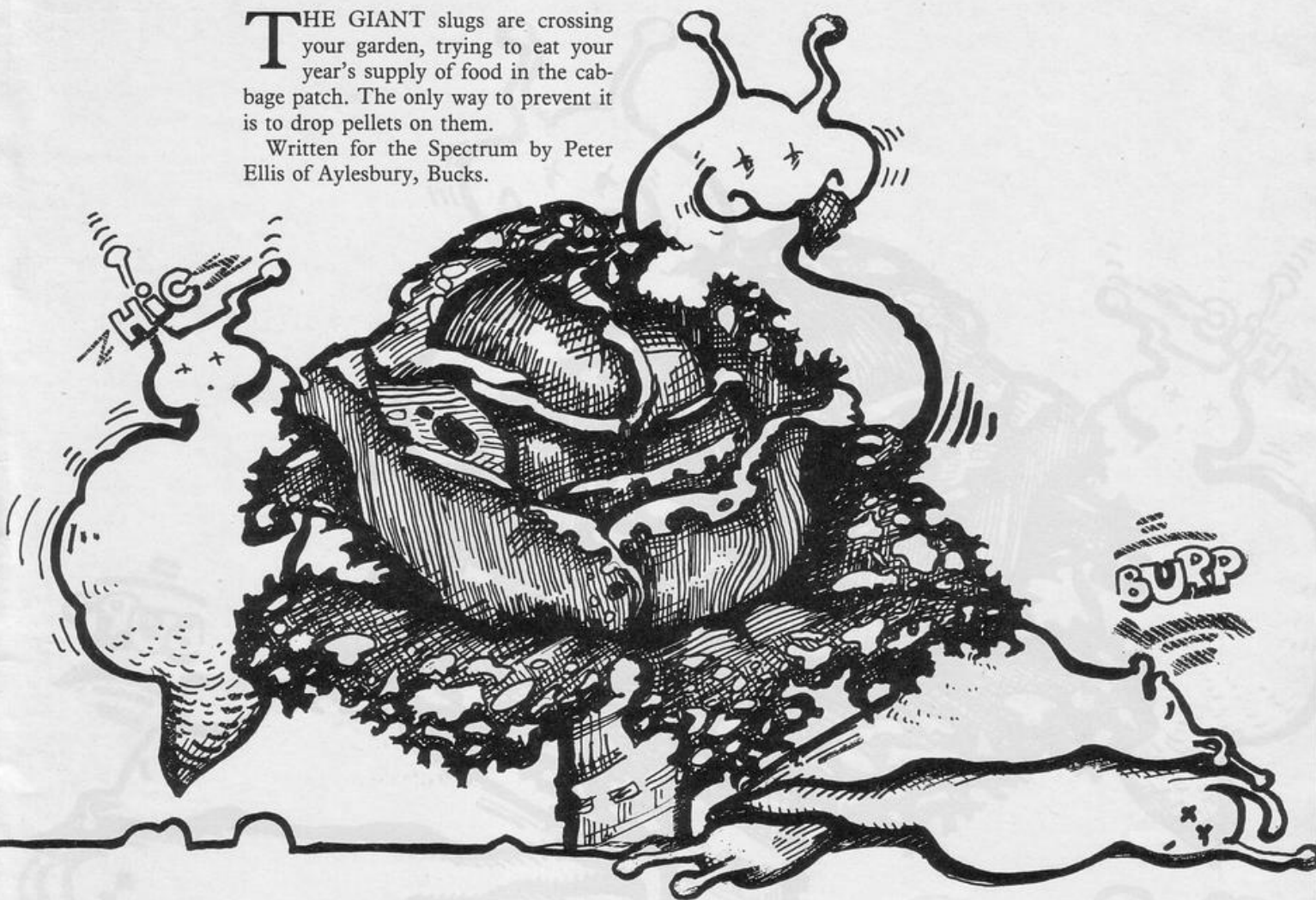
John Menzies



WH SMITH

THE GIANT slugs are crossing your garden, trying to eat your year's supply of food in the cabbage patch. The only way to prevent it is to drop pellets on them.

Written for the Spectrum by Peter Ellis of Aylesbury, Bucks.



SLUG ATTACK

```

5 LET P$="SPECTRUM": INK 7: P
APER 0: BRIGHT 1: BORDER 1: CLS
10 GO SUB 5000
20 CLS: GO SUB 7000
30 GO TO 9000
40 PRINT #1:"Press any key to
continue"
50 PAUSE 0
60 LET hs=0
70 INK 2: PAPER 6: BORDER 4: C
LS: BORDER 6: REM set up
80 PRINT AT 0,0: INK 3:"(9k)9l
'm:9n)"
90 PRINT AT 1,0: INK 3:"SHED"
100 PRINT AT 2,0: INK 3:"(4k98)"
110 FOR n=0 TO 31
120 PRINT AT 3,n: INK 1: PAPER
5:"(9f)"
130 NEXT n
131 PRINT AT 0,18:"Slugs alive="
132 PRINT AT 0,7:"Score="
140 FOR n=0 TO 31
150 PRINT AT 21,n: INK 4:"(9j)"
160 NEXT n
170 LET v=0: LET lp=0: LET z=1:
LET p=1: LET m=16
180 FOR s=26 TO 0 STEP -1
190 LET a$=INKEY$
200 IF a$="m" AND p=1 THEN LET
a=s+1: GO SUB 9500
210 IF a$="p" THEN LET z=1
220 IF a$="q" THEN LET z=-1

```

```

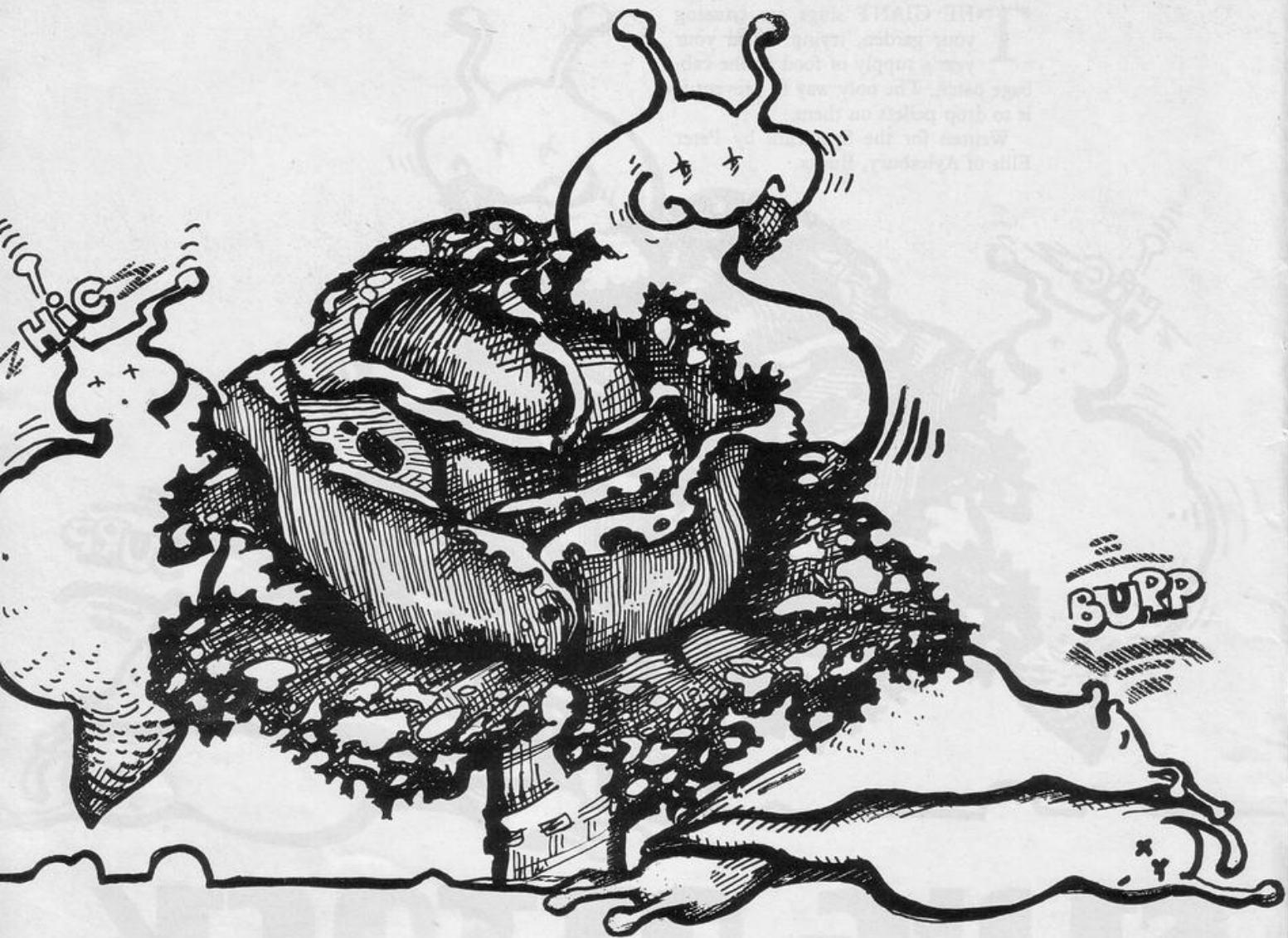
230 IF p=1 AND z=1 THEN LET m$
="(9d)"
240 IF p=1 AND z=-1 THEN LET m
$="(9c)"
250 IF p=0 AND z=1 THEN LET m$
="(9b)"
260 IF p=0 AND z=-1 THEN LET m
$="(9a)"
270 LET m=m+z+(m=4)-(m=29)
280 IF m=4 THEN LET p=1
285 PRINT AT 2,5:"":AT 2,30:"
290 PRINT AT 2,m: INK 1:m$
300 PRINT AT 20,s: INK 2:"(9f)9
g:9h:9j)"
310 LET a$=INKEY$
320 IF a$="m" AND p=1 THEN GO
SUB 9500
330 IF a$="p" THEN LET z=1
340 IF a$="q" THEN LET z=-1
350 IF p=1 AND z=1 THEN LET m$
="(9d)"
360 IF p=1 AND z=-1 THEN LET m
$="(9c)"
370 IF p=0 AND z=1 THEN LET m$
="(9b)"
380 IF p=0 AND z=-1 THEN LET m
$="(9a)"
390 LET m=m+z+(m=4)-(m=29)
400 IF m=5 THEN LET p=1
410 PRINT AT 2,m: INK 1:m$
420 NEXT s
430 LET lp=lp+1: PRINT AT 0,31:
lp

```

```

440 IF lp=3 THEN GO TO 8500
450 GO TO 180
6990 PAUSE 0
6999 STOP
7000 PRINT TAB 5: INK 4: PAPER 2
:" SLUG ATTACK "
7010 PRINT
7020 PRINT " You must kill the s
lugs before""they cross the cab
bage patch"
7030 PRINT "" use: "" "" "" <9
>=left"" "" <p>=right"" ""
<m>=drop pellets"
7040 PRINT "" Once you have drop
ed a pellet""you must run back
to the SHED "" ""to get another
slug pellet"
7050 PRINT "" But you are very e
nergetic and""keep running at
twice the slugs""speed "
7060 RETURN
8000 REM title
8010 FOR n=1 TO 5
8020 PLOT 37,160+n: DRAW -5,-(20
+(2*n)),PI
8030 PLOT 32,135+n: DRAW -5,-(20
+(2*n)),-PI
8040 NEXT n
8050 FOR n=1 TO 5
8060 PLOT 50+n,160: DRAW 0,-65
8070 PLOT 50,95+n: DRAW 20,0
8080 NEXT n
8090 FOR n=1 TO 5
8100 PLOT 80+n,150: DRAW 0,-55:

```



```

DRAW 30-(2*n),-2,PI: DRAW 0,50
8110 NEXT n
8120 FOR n=1 TO 5
8130 CIRCLE 142,120,11+n
8150 PLOT 153+n,120: DRAW 0,-25:
      DRAW -22-(2*n),0,-PI
8160 NEXT n
8170 PRINT AT 16,16;"ATTACK"
8200 FOR n=1 TO 5
8210 CIRCLE 230,10,n
8220 PLOT 230,20: DRAW -n,50: DR
      AW 2*n,0,-PI
8230 PLOT 230,20: DRAW n,50
8240 NEXT n
8280 PRINT #1;"Press any key to
      continue"
8290 PAUSE 0
8300 FOR n=0 TO 23
8310 RANDOMIZE USR 3280
8320 PRINT AT 21,n;"* SLUGS *"
8325 PAUSE 10
8330 NEXT n
8335 PAUSE 50
8340 RETURN
8500 CLS
8510 IF v>hs THEN LET hs=v: INP
      UT "Your name";P#
8520 PRINT "" You starved becaus
      e the slugs ""have eaten all y
      our food""But you did score ";
      v;" Points"" The highest
      score is"" ";hs;" by ";P#
8530 PRINT #1;"Press any key to
      play again"
8535 FOR n=0 TO 50: NEXT n
8540 PAUSE 0
8542 INK 7: PAPER 0: BRIGHT 1: B
      ORDER 1: CLS
8545 CLS
8550 GO SUB 8000
8555 CLS
8560 GO SUB 7000
8570 PRINT #1;"Press any key to
      continue"
8580 PAUSE 0
8590 GO TO 70
9000 RESTORE 9070: FOR n=1 TO 15
9010 READ a#
9020 FOR f=0 TO 7
9030 READ a
9040 POKE USR a#+f,a
9050 NEXT f
9060 NEXT n
9062 GO TO 40
9065 REM man <
9070 DATA "a",14,14,6,62,14,14,1
      8,54
9075 REM man >
9080 DATA "b",112,112,96,124,112
      ,112,72,108
9085 REM man carry <
9090 DATA "c",14,14,6,126,110,14
      ,18,54
9095 REM man carry >
9100 DATA "d",112,112,96,126,118
      ,112,72,108
9105 REM floor
9110 DATA "e",239,239,239,15,240
      ,247,247,247
9115 REM slug
9120 DATA "f",0,64,32,31,31,55,6
      3,127
9130 DATA "g",0,0,0,255,255,255,
      255,255
9140 DATA "h",0,0,0,240,240,255,
      255,255
9150 DATA "i",0,0,0,0,0,0,224,25
      4
9155 REM cabbage
9160 DATA "j",0,16,56,124,254,25
      5,126,60
9165 REM shed
9170 DATA "k",0,0,0,0,3,15,63,25
      5
9180 DATA "l",3,15,63,255,255,25
      5,255,255
9190 DATA "m",192,240,252,255,25
      5,255,255,255
9200 DATA "n",0,0,0,0,192,240,25
      2,255
9205 REM Pellet
9210 DATA "o",0,0,0,24,24,0,0,0
9500 REM kill slug
9510 FOR w=4 TO 20
9520 PRINT AT w,m+1; INK 2;" "
9530 BEEP .005,w
9540 PRINT AT w,m+1;" "
9550 NEXT w
9560 IF m+1=s OR m+1=s+1 OR m+1=
      s+2 OR m+1=s+3 THEN PRINT AT 20
      ,s; FLASH 1; INK 2; PAPER 4;"(9f
      99:9h:9i)": BEEP 1.50: PRINT AT
      20,s;" " ": LET v=v+s: PRINT A
      T 0,13;v: LET P=0: GO TO 100
9570 LET P=0
9780 RETURN

```

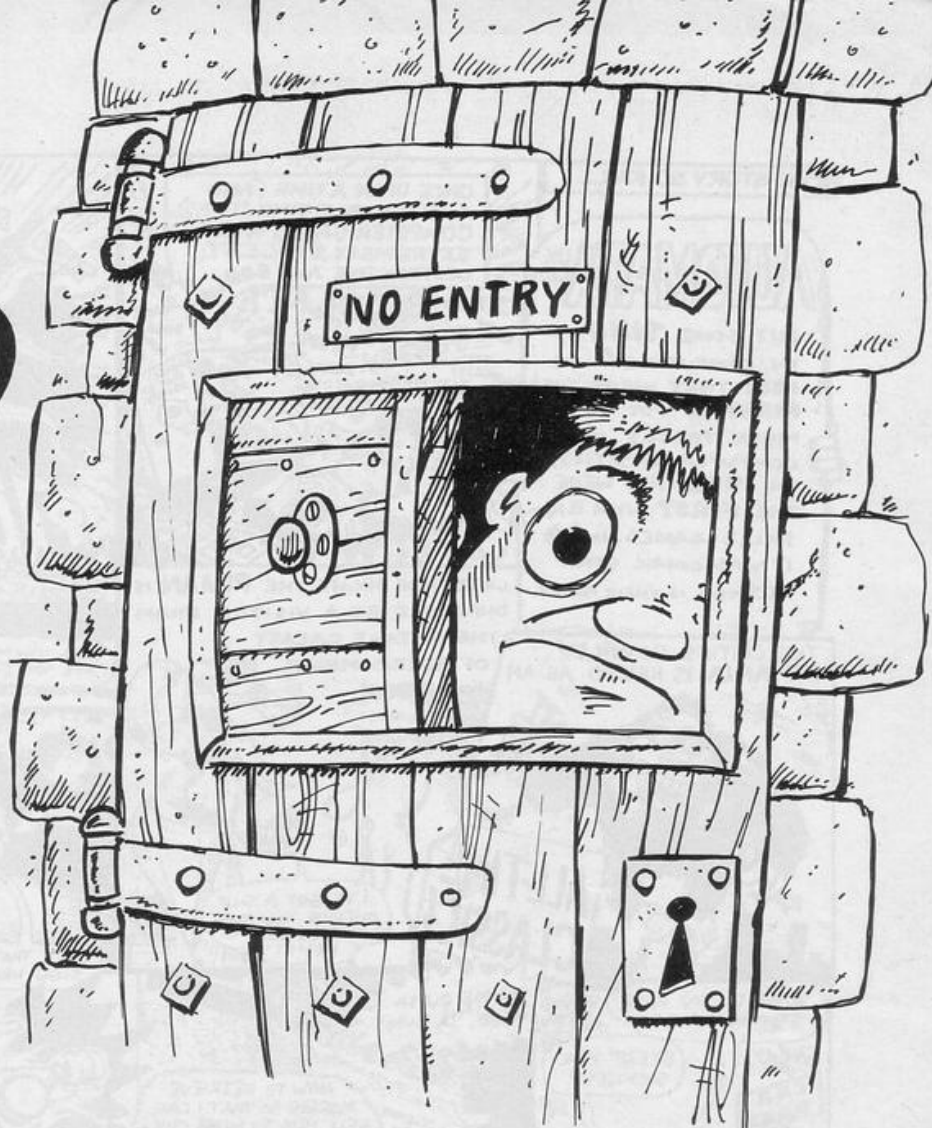
PASSWORD

```
10 CLS : PRINT "Password?"
20 INPUT LINE P#
30 IF P#<>"something" THEN RA
NDUMIZE USR 1000
40 BORDER 0: PAPER 0: INK 0: L
OAD ""
50 STOP
60 SAVE "Password?" LINE 10
```

WITH computer pirates being mentioned frequently, a growing number of simple program protection devices are being submitted to *Sinclair Programs*.

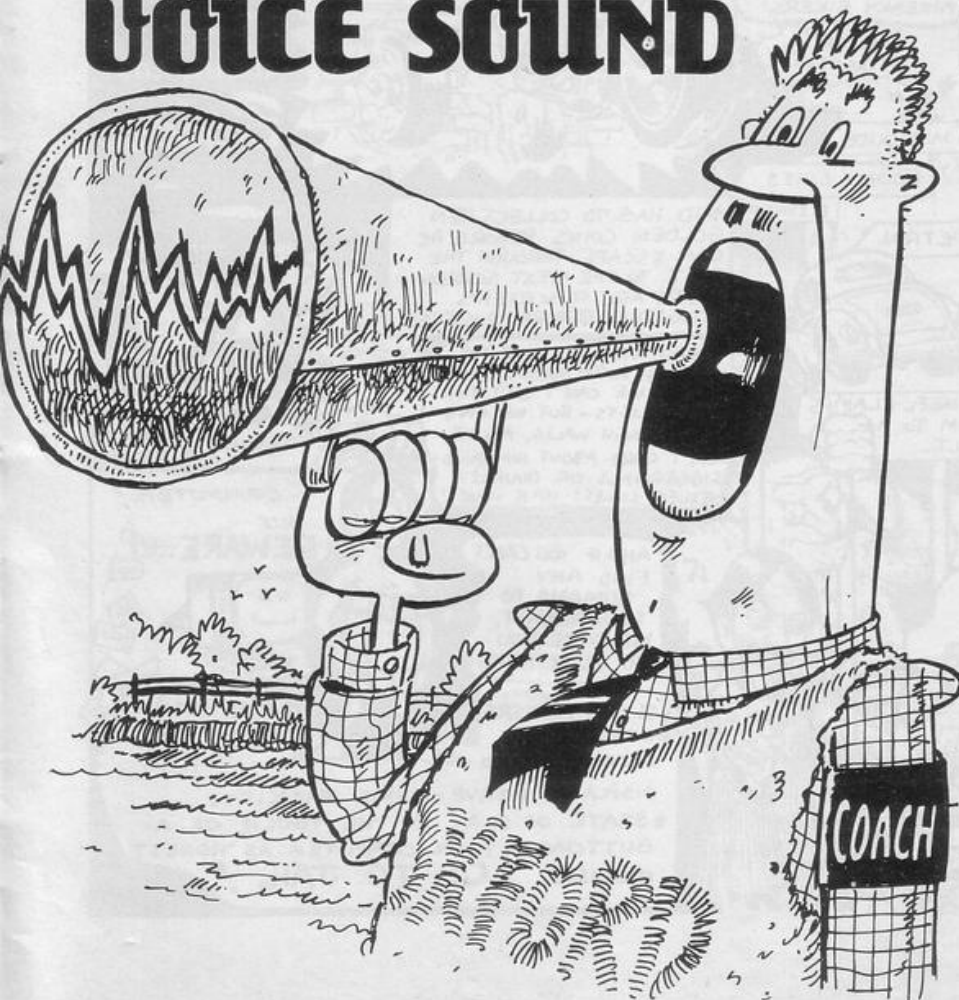
Password is a short routine to be entered at the beginning of a program. Those who enter CAPS SHIFT and 6 when the password is requested will be able to continue with the program. Other entries will mean that the program has to be re-loaded.

Written for the Spectrum by B Poulton of Stonehouse, Gloucestershire.



VOICE SOUND

ANALYSER



USE YOUR Spectrum and cassette recorder to produce patterns of your voice or any other sound on a television screen. Enter the program, connect your cassette recorder and Spectrum via the EAR sockets, and a visual representation of the sounds played on the cassette recorder will appear on the screen.

Voice Sound Analyser was written by Michael Fiernan of Loanhead, Midlothian.

```
1 REM xxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxx
2 IF PEEK 23760<>5 THEN GU S
UB 9000
9 CLS
10 FOR n=0 TO 255
20 LET l=USR 23760
21 LET a=PEEK 23608
23 IF a>175 THEN LET a=174
24 IF INKEY#="c" THEN GO TO 9
25 IF a=0 THEN GO TO 20
30 PLOT n,87
40 DRAW 0,a/2: DRAW 0,-a
50 NEXT n: GO TO 9
9000 FOR f=23760 TO 23784
9005 READ a: POKE f,a: NEXT f
9010 DATA 33,56,92,62,0,119,6,25
5,219,250,254,255,40,1,52,16,247
,201,0,0,0,0,0,0
9020 RETURN
```

AUTOMATA

ONCE UPON A TIME (AND
A MISERABLE TIME 'T WAS)
COMPUTER GAMES WERE
EXTREMELY VIOLENT,
DESTRUCTIVE AND BOG.

LATE ONE NIGHT THE PIMAN IS
DISTURBED BY A VISITOR FROM
THE DISTANT GALAXY
OF MORRIS MINOR.

AT THIS VERY
MOMENT,
THOUSANDS OF
PIMANIACS
ALL OVER THE
WORLD, ARE
SEEKING THE
REAL £6000
GOLDEN SUNDIAL
OF PI. THE
PIMAN HAS
BECOME A
CULT.

THE CRITICS GO WILD!
PIMANIA IS HAILED AS AN

**ALL-TIME
CLASSIC!**

I'VE GOT A SNIP
OUTSIDE YOU JUST
WON'T BE ABLE TO
RESIST!

WELL, 'OW MUCH
'AVE YOU GOT?

A POGO-STICK, A SAXOPHONE AND A CAN OF WORMS

WELL THAT'S OW MUCH IT IS:
SIGN HERE, HERE AN' HERE

TATTAN,
MUGGINS!

04: I THOUGHT
I'D JUST BOUGHT THAT!

LOOK AT THE LUG-BOOK
IT IS I YOU'VE PAID YOUR
HARD-EARNED WORMS

EH, WOT?

WHAT DO YOU KEEP STOPPING FOR?

BEERP! CAR
SICKNESS!

LEMMIE OUTTA
HERE, YA BUM!

TELEPHONE BEAM

NOW TO RETRIEVE MORRIS SO THAT I CAN SELL HIM TO SOME OTHER MUG! GO, MY PHANTOM PHREAKY BIKERS!

I'M FREE!

TOO LATE! THE
MAD BIKERS
BLAZE IN, LIKE
GHOSTS THROUGH
THE BRICK WALL

THIS IS A

MORRIS
meets the
Bikers

WATCH OUT FOR

CREEPY CARBON MONOXIDE

LOONY LIFTS

ELEVAT

PRECIOUS PETROL

AND CLINGING WHEEL CLAMPS
THAT BRING HIM TO A
GRINDING HALT...

AND HAS TO COLLECT TEN GOLDEN COINS BEFORE HE CAN ESCAPE THROUGH THE EXIT TO THE NEXT SCREEN. THERE ARE 9 SCREENS ALTOGETHER. BEFORE HE IS FRE

MAYBE WE DON'T LIKE THE NOISE HIS HORN MAKES, AN' MAYBE WE CAN'T GET HIM IN THE LIFTS - BUT WE CAN FLY THROUGH WALLS, AN WE DON'T CARE ABOUT NO HAND SIGNALS OR DOUBLE-YELLOW LINES! WAR WAR

SO WHAT'S **AUTOMATA** GOT IN THE WAY OF CLASSIC ENTERTAINMENT? HOW ABOUT THE DEFINITIVE VERSION OF THAT BOARD GAME!

HEH
HEH-

AND IF YOU CAN'T
FIND ANY
HUMANS TO
PLAY AGAINST,
WE DARE YOU
TO PLAY YOUR...

.. COMPUTER!
BUT
BEWARE...

IT MAY WELL
WIN!!

#2 TO 5 PLAYERS
#1 LARGE SIZE
MOVING BOARD

DISPLAY *SAVE-GAME FACILITY.
*STATE OF PLAY AT THE TOUCH OF A
BUTTON *YOUR COMPUTER AS 'HONEST
BANKER' GO TO JAIL!

THE STORY SO FURTHER



HAVING LOST AT 'GO TO JAIL' TO THEIR COMPUTER, THE PIMAN & A PAL GO TO THE

FLICKS... WHEREIN AUTOMATA SPRING A SURPRISE.

OUT NOW
MY NAME IS **UNCLE GROUCHO**
YOU WIN A PAT CIGAR!

FIND THE HOLLYWOOD PERSONALITY IN THIS GAME, AND WIN A TRIP TO MEET 'EM FLY OUT BY CONCORDE, STAY AT A REAL LUXURY HOTEL AND HAVE £500 TO SPEND...

WHAT IS THIS, THE STAMPEDE SEASON? WE'RE BEING TRAMPLED! ...THIS TRIP FOR 2 FINISHES WITH A LEISURELY CRUISE HOME ON THE G-F-2!



I THINK THAT MUST BE THE LAST OF THEM NOW...

THEY MUST BE OFF TO GET THEIR "UNCLE GROUCHO'S"

THE 'PIMANIA' FOLLOW-UP

HAVING HIDDEN A WORLD-FAMOUS HOLLYWOOD STAR IN "GROUCHO," AUTOMATA WILL SEND 2 LUCKY PLAYERS TO MEET THEM! TRACK GROUCHO AS HE TOURS THE U.S.A. - CARTOONS, MUSIC & LARFS.



HEY, POND-LIFE, CAN'T YOU MAKE THIS THING GO FASTER?

I'D LIKE TO SEE YOU DO BETTER, BIG EAD! JUST COS YOU'VE NOW GOT TOP BILLING IN THE INTRO PANEL...

THAT MULE WAS SLOW TO THE LAST! IT'S BEEN SITTING IN MY STOMACH FOR 2 DAYS NOW

WE SHOULD NEVER HAVE TRADED THE MAP AND COMPASS FOR FUR COATS! WE'RE LOST AGAIN

FOR HIRE
HOLLYWOOD 5,000 MILES AS THE CROW FLIES
RIO DE JANEIRO WELCOMES CAREFUL GAUCHOS

ARE YOU SURE THIS IS ARIZONA?



AFTER THE STATES THE BOYS LOOK EAST FOR ENTERTAINMENT

OOH, GROUCHO! I'M A SICK

ALREADY? WE HAVEN'T TAKEN OFF YET...



PRESENTING ORIENTAL GAME OF RUCK & SKIRK. PRAY IT GOOD!



YAK ZEE

ON THE OPPOSITE PAGE, THE PIMAN WAS SOLD A CANTANKEROUS MORRIS, WHICH HE PROMPTLY ABANDONED IN A MULTI-STORY EYESORE... BUT GROUCHO HAS OTHER IDEAS...



WHY DID YOU DUMP IT? A CAR'S A CAR, AND WE NEED TRANSPORT

I THOUGHT I WAS GOING TO GET THIS SPACE-CRUISER... ANYWAY, YOU HAVEN'T MET THIS CREEPY AUTO!



SO, YOU CAME BACK! WHO'S YER PAL WITH THE SHINY EYEBROWS?

LISTEN, BUSTER YOU'RE WORKING FOR US FROM NOW ON!



DID YOU KNOW THAT 'PIMANIA' AND 'GROUCHO' AND

'MORRIS MEETS THE BIKERS' ALL HAVE FREE ROCK RECORDS ON THEIR BACK SIDES!! WELL, THEY DO.



BRARRUM

LEADER OF THE PAC TAKE THREE!



I'M SORRY I HURT YEW, LEADER OF THE PAC...

WHAT A VOICE

WHAT A NOSE



NOW THE PIMAN & HIS PALS HAVE RECORDED AN L.P. "THE PIMAN'S GREATEST HITS" ON MIND-BLOWING STEREO CASSETTE.

WE'VE PUT 8 CRYPTIC CLUES TO 'PIMANIA' IN THE LYRICS FOLKS! KEEP SMILING...

ORDER FORM

TO AUTOMATA U.K. LTD: "PLEASE RUSH ME THE FOLLOWING CASSETTES"

"MY NAME IS UNCLE GROUCHO YOU WIN A PAT CIGAR" for 48K ZX SPECTRUM	£10
"MORRIS MEETS THE BIKERS" for any ZX SPECTRUM	£6
"GO TO JAIL" for 48K ZX SPECTRUM	£6
"YAKZEE" for 48K ZX SPECTRUM	£5
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"PIMANIA" for B.B.C. 32K	£10
"PIMANIA" for DRAGON 32	£10

"THE PIMAN'S CHRISTMAS STOCKING" (including Piman's 1984 Kartoon Kalendar, Piman's own C20 Blank Computer Cassette, plus the truly amazing "PIMAN'S GREATEST HITS" stereo L.P.) £5

I ENCLOSE THE RIGHT MONEY, TOTAL £ or please charge my ACCESS/EURO/MASTERCARD

CARD NUMBER

MY SIGNATURE

MY NAME

MY ADDRESS

POST CODE

send to AUTOMATA U.K. LTD., 27 HIGHLAND ROAD, PORTSMOUTH, PO49DA, HANTS., ENGLAND. Telephone (0705) 735242 Mail Order Service..... ALL PRICES INCLUSIVE! NO EXTRAS! Please leave space below blank..

SP

MAP OF GREAT BRITAIN

THE PROGRAM of the month is an educational program written for the 16K ZX-81 by William Turner, aged 12, of Staunton, Gloucester. He produced the maps with the aid of the Print 'n' Plotter film

which he has had for some months.

The program starts with a map of Great Britain and its surrounding countries.

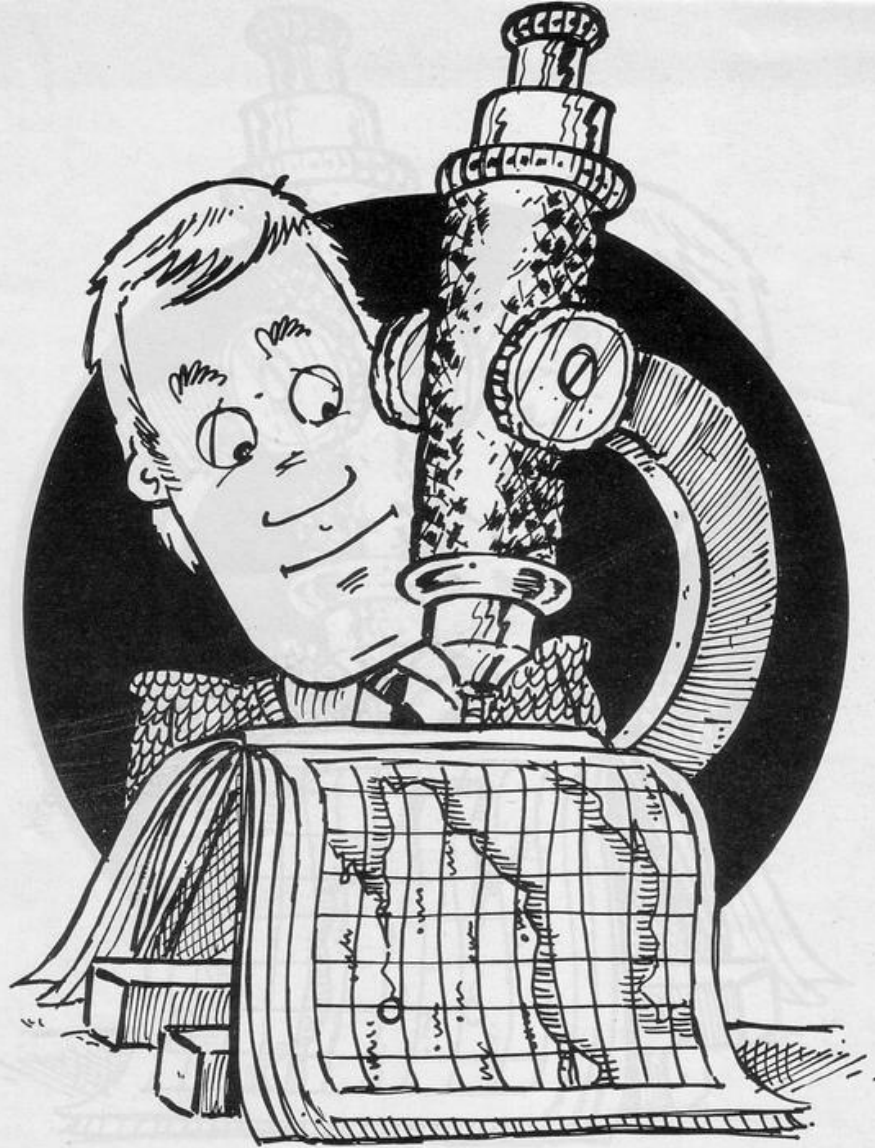
By pressing "L" a dot will flash to pinpoint London, "E" will show

Edinburgh, "B" Belfast and "C" Cardiff. "2" will give a map of London, "3" of Cardiff, "4" Belfast and "5" a map of Edinburgh. Press "1" to return to the original map and "0" to end the program.

```

2 PRINT AT 10,11;"G.B.MAP";AT 12,11;"
AT 11,12;"G.B.MAP";AT 12,11;"
3 PAUSE 4E4
4 CLS
5 GOTO 310
6 CLS
10 PRINT AT 0,20;" ";AT 0, 028
;" "
20 PRINT AT 1,20;" "
30 PRINT AT 2,20;" "
40 PRINT AT 3,20;" "
50 PRINT AT 4,14;" ";AT 4,
28;" "
60 PRINT AT 5,14;" ";AT 5,
28;" "
70 PRINT AT 6,13;" ";AT
6,26;" "
80 PRINT AT 7,15;" ";AT 7,
29;" "
90 PRINT AT 8,15;" "
100 PRINT AT 9,14;" ";AT 9,
31;" "
110 PRINT AT 10,11;" ";AT
10,30;" "
120 PRINT AT 11,9;" ";AT
11,30;" "
130 PRINT AT 12,9;" ";AT
12,30;" "
140 PRINT AT 13,8;" ";AT
13,31;" "
150 PRINT AT 14,9;" ";AT
14,31;" "
160 PRINT AT 15,8;" ";AT
15,31;" "
170 PRINT AT 15,7;" ";AT
15,29;" "
180 PRINT AT 17,8;" "
190 PRINT AT 18,14;" ";AT
18,26;" "
200 PRINT AT 19,14;" "
210 PRINT AT 20,13;" ";
220 PRINT AT 21,12;" ";AT 21,
22;" "
230 PRINT AT 0,0;"THIS IS A MAP
OF";AT 1,0;"ENGLAND,WALES,";AT
2,0;"SCOTLAND,IRELAND,";AT 4,0;"
FRANCE,SWEDEN,";AT 3,0;"BELGIUM,H
OLLAND,";AT 5,0;"DENMARK AND";AT
6,0;"GERMANY."
250 IF INKEY$="L" THEN PRINT AT
19,20;" ";AT 19,20;" ";AT 9,0;"
LONDON";AT 9,0;" "
260 IF INKEY$="E" THEN PRINT AT
11,18;" ";AT 11,18;" ";AT 9,0;"
EDINBURGH";AT 9,0;" "
270 IF INKEY$="B" THEN PRINT AT
11,13;" ";AT 11,13;" ";AT 9,0;"
BELFAST";AT 9,0;" "
280 IF INKEY$="C" THEN PRINT AT
15,16;" ";AT 15,16;" ";AT 9,0;"
CARDIFF";AT 9,0;" "
290 IF INKEY$="1" THEN GOTO 480
291 IF INKEY$="2" THEN GOTO 709
292 IF INKEY$="3" THEN GOTO 989
293 IF INKEY$="4" THEN GOTO 125
9
294 IF INKEY$="5" THEN GOTO 157
9
300 GOTO 250
310 PRINT AT 10,11;" "
320 PRINT AT 11,11;" HELLO "
330 PRINT AT 12,11;" "
340 PRINT AT 14,11;" I AM "
350 PRINT AT 15,11;" YOUR "
360 PRINT AT 15,11;" FRIENDLY"
370 PRINT AT 17,11;" "
380 PRINT AT 20,6;"WHAT IS YOUR
NAME ?"
390 INPUT A$
400 PRINT AT 20,6;" YOUR NAME
IS ";AT 21,11;A$
410 PAUSE 4E4
420 CLS
430 PRINT AT 0,5;"IN THE FOLLOW
ING MAP";AT 1,5;"YOU CAN PRESS L
,E,C AND B";AT 2,5;"TO MAKE SOME
THING HAPPEN"
435 PRINT AT 5,5;"YOU CAN ALSO
PRESS";AT 5,9;"2,3,4 AND 5."
436 PRINT AT 8,9;"0=THE G.B MAP
"
440 PRINT AT 11,5;"IF YOU GET B
ORED THEN";AT 12,10;"PRESS 1."
445 PRINT AT 21,4;"PRESS ANY KE
Y TO START"
450 PAUSE 4E4
460 CLS
470 GOTO 10

```



```

480 PRINT AT 9,0;"ARE YOU";AT 1
0,0;"BORED";AT 11,0;R$;"?"
490 PRINT AT 12,0;"Y OR N ?"
495 INPUT B$
500 IF B$="N" THEN GOTO 5
510 IF B$="Y" THEN GOTO 530
520 GOTO 495
530 CLS
540 PRINT AT 11,5;"HAVE YOU HAD
ENOUGH ";A$;" ?"
550 PRINT AT 12,15;"Y OR N ?"
560 IF INKEY$="N" THEN GOTO 561
570 IF INKEY$="Y" THEN GOTO 584
580 GOTO 580
581 PRINT AT 9,0;" ";AT 1
0,0;" ";AT 11,0;" "
582 CLS
583 GOTO 480
584 CLS
590 PRINT AT 11,12;"10-666-500"
600 PRINT AT 12,15;"OR 11"
610 IF INKEY$="N" THEN GOTO 540
620 IF INKEY$="Y" THEN GOTO 540
630 GOTO 510
640 CLS
650 PRINT AT 11,11;"*****";AT
12,11;R$
660 PAUSE 454
670 CLS
680 PRINT "PRESS ANY KEY TO STO
P"

```

```

690 PAUSE 454
700 CLS
710 STOP
720 CLS
730 PRINT AT 1,9;"LUTON AIRPO
RT";AT 1,29;" ";AT 3,25;"LAKE"
740 PRINT AT 2,20;" "
750 PRINT AT 3,20;" "
760 PRINT AT 4,25;" "
770 PRINT AT 5,9;" "
780 PRINT AT 5,30;" ";AT 5,9;"
L I F E";AT 5,23;" ";AT 5,27;"
 "
790 PRINT AT 7,9;" ";AT 7,1
0;" ";AT 7,25;" "
800 PRINT AT 8,9;" ";AT 8,21;" "
;AT 8,25;" "
810 PRINT AT 9,3;" ";AT 9
,14;"C";AT 9,20;" ";AT 9,24;"
 "
820 PRINT AT 10,3;" ";AT 1
0,9;" ";AT 10,14;" "
830 PRINT AT 11,0;" ";AT 11,10;" "
840 PRINT AT 12,5;" ";AT
12,10;" ";AT 12,25;" "
850 PRINT AT 13,0;" ";AT 13,30;" "
860 PRINT AT 14,9;" ";AT 14,10;" "
870 PRINT AT 15,13;" "
880 PRINT AT 19,1;"R=THAMES"
890 PRINT AT 20,1;"C=CENTRE OF
LONDON"

```

```

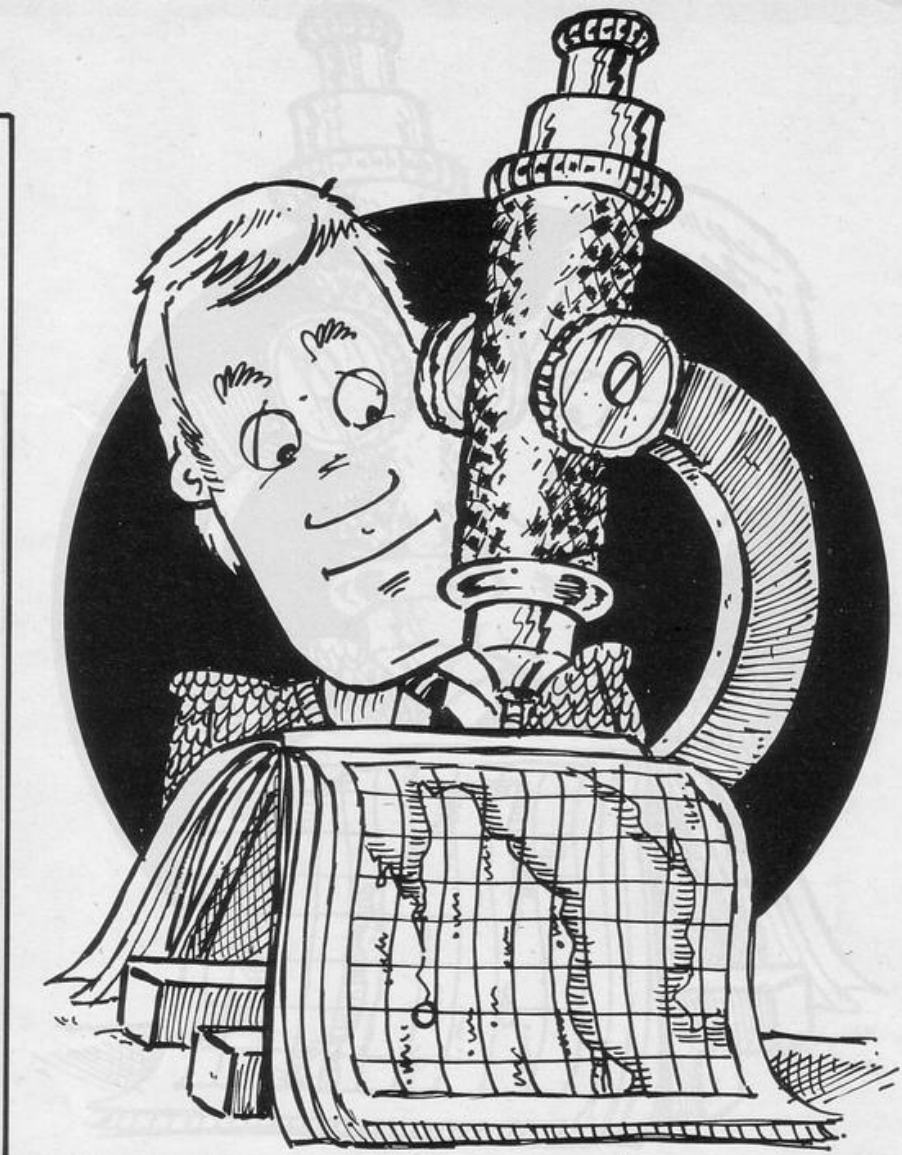
890 PRINT AT 18,1;"H=HEATHROW"
890 PRINT AT 17,1;"U=WINDSOR"
900 PRINT AT 0,0;"*****";AT 1,
0;"LONDON";AT 2,0;"*****"
910 IF INKEY$="1" THEN GOTO 920
915 GOTO 970
920 PRINT AT 15,25;"ARE YOU";AT
16,25;"BORED ?"
930 IF INKEY$="Y" THEN GOTO 540
940 IF INKEY$="N" THEN GOTO 950
945 GOTO 930
950 CLS
960 GOTO 710
970 IF INKEY$="0" THEN GOTO 5
971 IF INKEY$="3" THEN GOTO 950
972 IF INKEY$="4" THEN GOTO 125
9
973 IF INKEY$="5" THEN GOTO 155
9
980 GOTO 910
985 CLS
990 PRINT AT 0,14;"R=SEVERN";
AT 0,31;" "
1000 PRINT AT 1,30;" "
1010 PRINT AT 2,20;"GLOUCESTER"
"
1020 PRINT AT 3,11;"WALES";AT 3,
20;" "
1030 PRINT AT 4,20;" "
1040 PRINT AT 5,25;" "
1050 PRINT AT 6,20;" "
1060 PRINT AT 7,3;" ";AT 7,25;" "
1070 PRINT AT 8,0;" ";AT 8,25;" "
1080 PRINT AT 9,0;" ";AT 9
,15;"NEWPORT "
1090 PRINT AT 10,5;" ";AT 10,1
9;" ";AT 10,0;" "
1100 PRINT AT 11,0;" ";AT
11,15;" ";AT 11,25;"BRISTOL"
1110 PRINT AT 12,0;" ";AT 12,25;" "
CAR DIFF "
1120 PRINT AT 13,0;" ";AT 13,15;" "
1130 PRINT AT 14,0;" ";AT 14,17;" "
1140 PRINT AT 15,0;" ";AT 15,25;"BATH"
1150 PRINT AT 16,0;" ";AT 16,25;" "
BRISTOL"
1160 PRINT AT 17,0;" ";AT 17,25;" "
HANNEL"
1170 PRINT AT 18,0;" ";AT 18,25;" "
ENGLAND"
1180 PRINT AT 19,0;" ";AT 19
,10;" "
1190 PRINT AT 20,0;" "
1200 PRINT AT 21,0;" ";AT 21,19;"
BRIDGEWATER"

```

```

1210 PRINT AT 0,0;"*****";AT 1
,0;"CARDIFF";AT 2,0;"*****"
1220 IF INKEY$="1" THEN GOTO 123
0
1225 GOTO 1270
1230 PRINT AT 20,3;"ARE YOU";AT
21,3;"BORED ?"
1240 IF INKEY$="N" THEN GOTO 959
1250 IF INKEY$="Y" THEN GOTO 540
1255 GOTO 1240
1270 IF INKEY$="0" THEN GOTO 5
1271 IF INKEY$="2" THEN GOTO 709
1272 IF INKEY$="4" THEN GOTO 125
9
1273 IF INKEY$="5" THEN GOTO 155
9
1280 GOTO 1220
1289 CLS
1290 PRINT AT 0,2;" ";AT 0,10;
" "
1300 PRINT AT 1,19;" "
"
1310 PRINT AT 2,0;" LONDONDARY";
AT 2,19;" "
1320 PRINT AT 3,19;" ENGLAND"
"
1330 PRINT AT 4,7;" N. IRELAND";AT
4,20;" "
1340 PRINT AT 5,20;" "
"
1350 PRINT AT 6,21;" "
"
1360 PRINT AT 7,21;" "
"
1370 PRINT AT 8,11;" ";AT 8,22;"
"
1380 PRINT AT 9,11;" ";AT 9,
20;" "
1390 PRINT AT 10,11;" ";AT 10,
20;" "
1400 PRINT AT 11,11;" ";AT 11,
18;" ";AT 11,25;" "
1410 PRINT AT 12,10;" ";AT 1
2,18;" "
1420 PRINT AT 13,0;" ";AT 13,10
;" BELFAST";AT 13,22;" "
"
1430 PRINT AT 14,1;" ";AT 14,12
;" ";AT 14,23;" "
1440 PRINT AT 15,2;" ";AT 15,23
;" "
1450 PRINT AT 16,3;" ";AT 16,2
0;" "
1460 PRINT AT 17,8;" ";AT 17,22
;" "
1470 PRINT AT 18,6;" ";AT 18,22;
" "
1480 PRINT AT 19,6;" BOUNDARY";A
T 19,24;" "
1490 PRINT AT 20,6;" ";AT 20,20;
" "
1500 PRINT AT 21,1;" BIRE ";AT
21,19;" "
1501 PRINT AT 5,0;"*****";AT 5
,0;"BELFAST"
1502 PRINT AT 7,0;"*****"
1510 IF INKEY$="1" THEN GOTO 152
0
1515 GOTO 1560
1520 PRINT AT 8,0;"ARE YOU";AT 9
,0;"BORED ?"

```



```

1530 IF INKEY$="Y" THEN GOTO 540
1540 IF INKEY$="N" THEN GOTO 125
9
1550 GOTO 1530
1560 IF INKEY$="0" THEN GOTO 5
1561 IF INKEY$="2" THEN GOTO 709
1562 IF INKEY$="3" THEN GOTO 959
1563 IF INKEY$="5" THEN GOTO 155
9
1570 GOTO 1510
1589 CLS
1591 PRINT AT 1,12;" LOCH";AT 1
,23;" DUNDEE"
1592 PRINT AT 2,11;" TAY";AT 2
,27;" ";AT 2,31;" "
1600 PRINT AT 3,10;" ";AT 3,27;
" "
1610 PRINT AT 4,18;" PERTH "
"
1620 PRINT AT 5,0;" LOCH";AT 5,9
;" SCOTLAND";AT 5,21;" "
"
1630 PRINT AT 6,1;" AVE";AT 6,23;
" ";AT 6,30;" "
1640 PRINT AT 7,6;" LOCH"
1650 PRINT AT 8,1;" ";AT 8,6;" "
" ;AT 8,20;" LOCH"
1660 PRINT AT 9,0;" ";AT 9,6;" K
ARINE";AT 9,22;" BREN "
1670 PRINT AT 10,22;" "
1680 PRINT AT 11,3;" LOCH";A
T 11,16;" DUNFERMINE";AT 13
,16;" F"

```

```

1690 PRINT AT 12,3;" LOMOND
";AT 12,26;" N. SEA"
1700 PRINT AT 13,3;" ";AT 1
3,18;" "
1710 PRINT AT 14,3;" ";AT 14
,17;" "
1720 PRINT AT 15,3;" ";AT 15,1
8;" PATH "
1730 PRINT AT 16,23;" ";AT 17,
0;" ";AT 17,9;" ";AT 17,24;
" "
1740 PRINT AT 18,0;" ";AT 18,3
;" ";AT 18,23;" EDINBURGH"
1750 PRINT AT 0,0;"*****";AT
1,0;" EDINBURGH";AT 2,0;"*****
*"
1755 PRINT AT 19,1;" ";AT 19,9;
" WICKER-";AT 20,1;" ";AT
20,7;" GLASGOW WELL";AT 21,0;" "
1760 IF INKEY$="1" THEN GOTO 177
0
1765 GOTO 1810
1770 PRINT AT 20,25;"ARE YOU";AT
21,25;"BORED ?"
1780 IF INKEY$="Y" THEN GOTO 540
1790 IF INKEY$="N" THEN GOTO 155
9
1800 GOTO 1750
1810 IF INKEY$="0" THEN GOTO 5
1811 IF INKEY$="2" THEN GOTO 709
1812 IF INKEY$="3" THEN GOTO 959
1813 IF INKEY$="4" THEN GOTO 125
9
1820 GOTO 1750

```


Sinclair Programs
50% savings
special readers offer

FANTASTIC HALF-PRICE SPECTRUM SOFTWARE OFFER

Yes — we have negotiated an exclusive deal with Sinclair Research Limited for five of their most popular Spectrum software cassettes. Order any two or more and you can save over 50% on the usual selling price. But hurry, because stocks are limited and at such amazing prices, demand is sure to be heavy.

So choose your favourites from these best-sellers and send your order today.



Adventure A
— Planet of Death
Normal price £6.95
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— Inca Curse
Normal price £6.95
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Adventure C
— Ship of Doom
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Our price £3.45



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— Espionage Island
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Normal price £4.95
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Send to: Sinclair Research Ltd., Computer Division, Camberley, Surrey, GU15 3BR

Please supply the following Spectrum software cassettes:

Qty	Title	Unit Price	Total
	Adventure A	3.45	
	Adventure B	3.45	
	Adventure C	3.45	
	Adventure D	3.45	
	Embassy Assault	2.45	
	Post and packing		0.50
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I enclose a cheque/postal order made payable to Sinclair Research Ltd., for £ _____

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Address _____

Signature _____ Date _____

N.B. We regret this offer applies to U.K. readers only. Allow 28 days for delivery. Orders must be received by 31st March 1984. Offer applies while stocks last.

Remember. You must order at least two cassettes — any combination — to qualify for this special offer. Please add 50p post and packing (irrespective of size of order).

DESTROY VADER ships as you hurtle through space in pursuit of them. Move with the normal cursor keys and fire using 9. Written for the Spectrum by Lloyd Maddock of north London.

DESTROY VADER

```

10 LET x=10: LET y=10: LET i=0
LET j=0
15 LET t=0
20 LET g=25
25 LET a$="PHANTOM": LET p=10
26 BORDER 7: PAPER 0: INK 7
30 LET score=0
40 FOR c=0 TO 7: READ b: POKE
USR "b"+c,b: NEXT c: DATA 226,50
,250,254,30,26,242,226
41 FOR d=0 TO 7: READ c: POKE
USR "c"+d,c: NEXT d: DATA 32,23,
15,95,31,15,39,136
42 FOR e=0 TO 7: READ d: POKE
USR "d"+e,d: NEXT e: DATA 4,232,
240,250,240,240,228,17
43 FOR c=0 TO 7: READ a: POKE
USR "a"+c,a: NEXT c: DATA 71,76,
95,127,120,88,79,71
45 LET b=0
46 PRINT AT 0,1;"DESTROY VADER
.....use normal key
s for moving          and 9 to fire.
                      destroy vader
s ships as you        hurtle through
space in               pursuit.
                      you start with
255 laser shots.

```

level1=hardest

```

"
47 PRINT AT 20,0;"Press any ke
y to continue"
49 PAUSE 0: CLS
50 PRINT AT 10,10;"enter level
(1-3)": INPUT c: CLS
55 IF c<1 OR c>3 THEN GO TO 5
0

```

```

60 PLOT 0,175: DRAW 7,-7: DRAW
241,0: DRAW 7,7: DRAW -7,-7: DR
AW 0,-161: DRAW 7,-7: DRAW -7,7:
DRAW -241,0: DRAW -7,-7: DRAW 7
,7: DRAW 0,161

```

```

70 PLOT 0,175: DRAW 255,0: DRA
W 0,-175: DRAW -255,0: DRAW 0,17
5

```

```

80 INK 7
100 PRINT AT x,y;" "
103 IF t=10 THEN GO SUB 510
104 IF t=10 THEN GO TO 110
105 LET e=INT (RND*25)
106 IF e=19 THEN LET t=10: GO
SUB 500
110 IF INKEY$="5" THEN LET y=y
-1
120 IF INKEY$="8" THEN LET y=y
+1

```



```

130 IF INKEY$="6" THEN LET x=x
+1
140 IF INKEY$="7" THEN LET x=x
-1
142 IF x>19 OR x<2 THEN PRINT
AT x,y;" ": LET x=2: LET y=16+1
NT (RND*3)
143 IF y<2 OR y>28 THEN PRINT
AT x,y;" ": LET y=16+INT (RND*3
): LET x=2
144 IF INKEY$="" AND x<2 THEN
LET x=x+1
145 IF b<>c THEN LET b=b+1: GO
TO 205
150 LET a=INT (RND*4)
160 IF a=1 THEN LET y=y-1: GO
TO 200
170 IF a=2 THEN LET y=y+1: GO

```

```

TO 200
180 IF a=3 THEN LET x=x+1: GO
TO 200
190 IF a=4 THEN LET x=x-1: GO
TO 200
200 LET b=1
205 PRINT AT x,y;"ab"
210 OVER 1: PRINT AT 11,16;"+"
OVER 0
220 IF x<2 OR x>19 THEN PRINT
AT x,y;" ": LET x=2: LET y=16-I
NT (RND*3)
230 IF y<2 OR y>20 THEN PRINT
AT x,y;" ": LET y=16-INT (RND*3)
): LET x=2
235 PRINT AT 21,8;" "
240 IF INKEY$="9" THEN LET g=g
-1: PLOT 40,0: DRAW 84,84: DRAW
84,-84: BEEP .01,2: INVERSE 1: D
RAW -84,84: DRAW -84,-84: INVER'S
E 0: GO SUB 600: IF x=11 AND y=1
6 OR x=11 AND y=15 THEN PRINT A
T x,y;"cd": LET score=score+10:
LET g=g+2: BEEP .05,1: BEEEP .05,
2: BEEP .05,3: PRINT AT x,y;" "
: LET x=2: LET y=INT (RND*19)+1
245 PRINT AT 21,1;"lasers=";g
246 PRINT AT 21,11;"score=";sco
re
247 IF g<=0 THEN GO TO 1000
250 GO TO 100

```

```

500 LET i=x: LET j=y
510 PRINT AT i,j;" "
512 LET j=y
520 IF i<20 THEN LET i=i+1
530 IF i=20 THEN LET g=g-2: LE
T t=0: BEEP .01,3: BEEP .01,2: B
EEP .01,1: RETURN
540 PRINT AT i,j;"!"
550 RETURN
600 IF i=11 AND j=16 THEN LET
score=score+5: LET t=0: PRINT AT
i,j;" ": BEEP .01,5: LET i=0: L
ET j=0
610 RETURN
1010 CLS: PRINT AT 0,0;"your sc
ore was";score
1015 BEEP .5,5: BEEP .5,4: BEEP
.5,3: BEEP .5,2: BEEP .5,1: BEEP
1,-1
1020 IF score>p THEN CLS: PRIN
T AT 0,1;"enter your name for hi
gh score": LET p=score: INPUT a$
1030 CLS: PRINT AT 10,1;a$;"HA
S THE HIGH SCORE=";p
1040 PRINT AT 21,0;"do you want
to play again? y/n": INPUT l$
1050 IF l$="y" THEN CLS: LET s
core=0: LET g=25: GO TO 60
1060 IF l$="n" THEN STOP

```

```

5 LET X=2
10 LET A$="2345678910JQK"
90 DIM B(5)
100 FOR A=1 TO 5
110 LET B(A)=INT (RND*13)+1
120 NEXT A
200 FOR Z=1 TO 5
210 PRINT "-----"
220 NEXT Z
300 FOR Q=1 TO 3
330 PRINT AT 2,X;A$(B(Q))
340 LET X=X+5
350 PRINT AT 7,0;"HIGH/LOW (H/L)
)"
360 INPUT B$
370 IF B$="H" AND B(Q+1)>B(Q) O
R B$="L" AND B(Q+1)<B(Q) THEN NE
XT Q
380 PRINT AT 2,X;A$(B(Q+1))
390 IF B$="H" AND B(Q+1)>B(Q) O
R B$="L" AND B(Q+1)<B(Q) THEN GO
TO 500
400 PRINT AT 7,0;"YOU LOST
"
450 STOP
500 PRINT AT 7,0;"YOU WON
"

```

DEVIL
CARDS



FOUR CARDS are displayed on the screen. As each one is turned over, the player must guess whether it will be of a higher or lower

value than the card preceding it. Aces are high and a pair of cards results in a loss for the player. One or two turns are easy to guess but it is devilishly difficult

to predict all three turns of the card correctly.

Devil Cards, for the 1K ZX-81, is by Andrew Guilfoyle of Liverpool.



OHM'S LAW, written for the Spectrum by Stephen Dowsett of Yeovil, is an educational program.

When RUN, it will display a clear circuit diagram showing ammeter, voltmeter, resistor and battery. It will then calculate either resistance, voltage or current when values are given for the other two.

```

2 BORDER 6
10 PLOT 200,150
20 DRAW -150,0
30 DRAW 0,-50
40 DRAW -10,0
50 DRAW 0,-20
60 DRAW 20,0
70 DRAW 0,20
80 DRAW -20,0
90 PLOT 50,80
100 DRAW 0,-50
110 DRAW 75,0
120 DRAW 5,10
130 DRAW 5,-20
140 DRAW 5,20
150 DRAW 5,-20
160 DRAW 5,20
170 DRAW 5,-20
180 DRAW 5,20
190 DRAW 5,-10
200 DRAW 35,0
210 DRAW 0,50
220 DRAW 10,0
230 DRAW -20,0
240 PLOT 200,90
250 DRAW -5,0
260 DRAW 10,0
270 PLOT 200,90
280 DRAW 0,60
290 PLOT 200,89
300 DRAW 5,0

```

```

310 DRAW -10,0
320 PLOT 115,30
330 DRAW 0,35
340 DRAW 20,0
350 DRAW 0,10
360 DRAW 20,0
370 DRAW 0,-20
380 DRAW -20,0
390 DRAW 0,10
400 PLOT 155,65
410 DRAW 20,0
420 DRAW 0,-35
430 PRINT AT 8,3;"AMMETER"
440 PRINT AT 11,14;"VOLTMETER"
450 PRINT AT 7,22;"BATTERY"
460 PRINT AT 20,13;"RESISTOR"
470 PRINT AT 9,26;"+"
480 PRINT AT 12,26;"-"
481 PRINT AT 0,10;"OHM'S LAW"
490 PAUSE 500
500 LET Q#="INKEY#"
505 CLS
510 PRINT AT 10,0;"WHAT DO YOU
WANT TO FIND:
E
      (a) RESISTANCE
      (b) VOLTAGE
      (c) CURRENT"
INPUT Q#
520 IF Q#="A" OR Q#="a" THEN G
O TO 1000
530 IF Q#="B" OR Q#="b" THEN G
O TO 1040

```

```

540 IF Q#="C" OR Q#="c" THEN G
O TO 1080
550 IF Q#="" THEN GO TO 500
1000 CLS : INPUT ;"PLEASE ENTER
VOLTAGE IN VOLTS ";A
1010 INPUT ;"PLEASE ENTER CURREN
T IN AMPS ";B
1020 PAUSE 50: LET C=A/B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS

      (c) OHM'S"
1030 PAUSE 500: GO TO 500
1040 CLS : INPUT ;"PLEASE ENTER
RESISTANCE IN OHM'S ";A
1050 INPUT ;"PLEASE ENTER CURREN
T IN AMP'S ";B
1060 PAUSE 50: LET C=A*B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS

      (c) VOLT'S"
1070 PAUSE 500: GO TO 500
1080 CLS : INPUT ;"PLEASE ENTER
VOLTAGE IN VOLT'S ";A
1090 INPUT ;"PLEASE ENTER RESIST
ANCE IN OHM'S ";B
2000 PAUSE 50: LET C=A/B: CLS :
PRINT AT 10,2;"USING OHM'S LAW T
HE RESULT IS

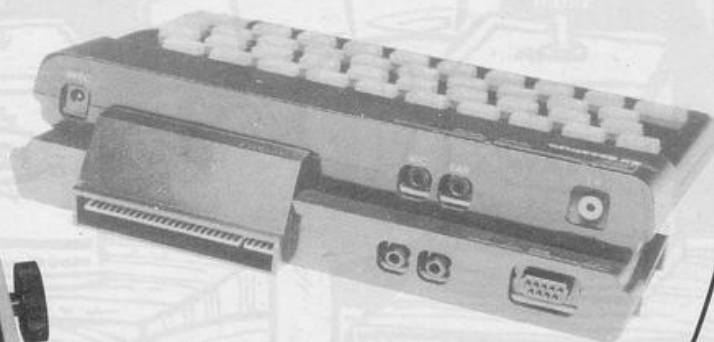
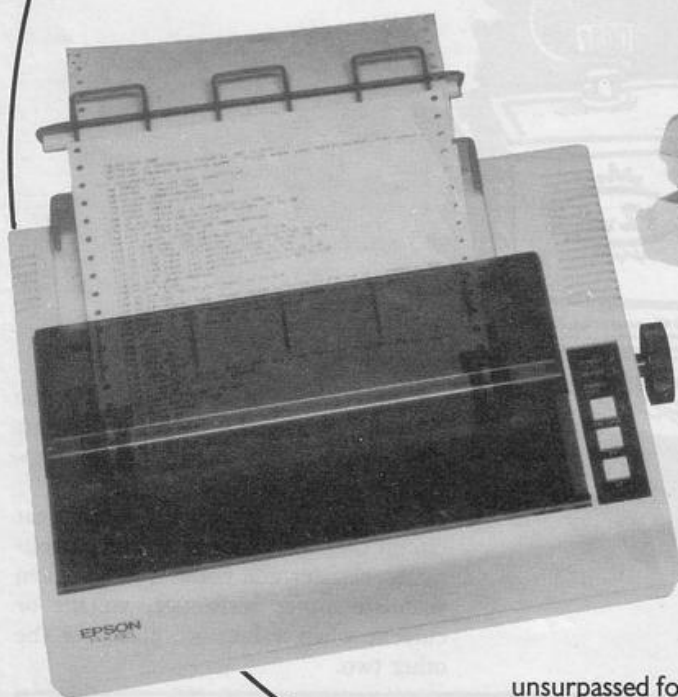
      (c) AMP'S"
2010 PAUSE 500: GO TO 500

```

Learning Box

Competition

Over £450 prizes to be won



Here's your opportunity to enhance your Sinclair ZX Spectrum by winning these valuable peripherals, worth over £350.

1 The Sinclair ZX Spectrum Interface 1 and an Epson RS232 interface for connection with computer peripherals.

2 The Epson RX 80T printer, unsurpassed for reliability, takes everything from a label to an A4 letter size sheet. Prints at 100 characters per second and has a 3 million character memory.

There are also 10 runners-up prizes. Each will receive a LEARNING BOX computer software package, designed specifically for children up to 8, and for use on the Sinclair ZX Spectrum.

Answer the questions below, by ticking the appropriate box. Then complete the tie breaker sentence to the best of your ability.

All entries must be received by 31 July 1984. The judges will be Bob Osborne, Educational Director of Hutchinson Publishing, and Bart Ullstein, Marketing Controller, Learning Box.

The overall winner will receive the Sinclair peripherals, the 10 runners-up a LEARNING BOX of their choice.

Competition Rules

1. The competition is open to UK residents only.
2. Employees of those companies involved in the promotion, their agents and families are excluded from entry.
3. Each entry must be on an official entry form.
4. Entries should be sent to Learning Box Competition, BW House, 11 West Street, London WC2H 9NF.
5. The organisers take no responsibility for any loss or damage whatever arising out of the competition. Proof of posting of entries will not be accepted as proof of delivery.
6. There is no alternative to the prizes which must be taken as specified on the entry form.
7. Competitors may make as many entries as they wish providing each one is on a separate entry form.
8. Entries which do not comply with these rules will be disqualified.
9. No correspondence may be entered into and the judge's decision on all matters relating to the competition will be final.
10. Entries will not be returned. Copyright on all entries shall rest in and belong to Arrow Publishing absolutely.

- | | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| How many Learning Box programs are there? | 2 <input type="checkbox"/> | 4 <input type="checkbox"/> | 6 <input type="checkbox"/> | 8 <input type="checkbox"/> |
| How many items in each Learning Box? | 1 <input type="checkbox"/> | 4 <input type="checkbox"/> | 8 <input type="checkbox"/> | 20 <input type="checkbox"/> |
| How many keys on a Sinclair ZX Spectrum? | 27 <input type="checkbox"/> | 41 <input type="checkbox"/> | 68 <input type="checkbox"/> | 95 <input type="checkbox"/> |
| How many Learning Box programs are for kids up to 6? | 4 <input type="checkbox"/> | 8 <input type="checkbox"/> | 10 <input type="checkbox"/> | 12 <input type="checkbox"/> |

Now complete this sentence in no more than 10 words (IN BLOCK CAPITALS)

LEARNING BOX HELPS CHILDREN TO _____

TO: Learning Box Competition, c/o BW House, 11 West Street, London WC2H 9NF.

Name _____

Address _____

Spectrum
48K Program



Is your child ready for school?

Going to school can be a worrying experience but it can be fun if your child has already started to read and count.

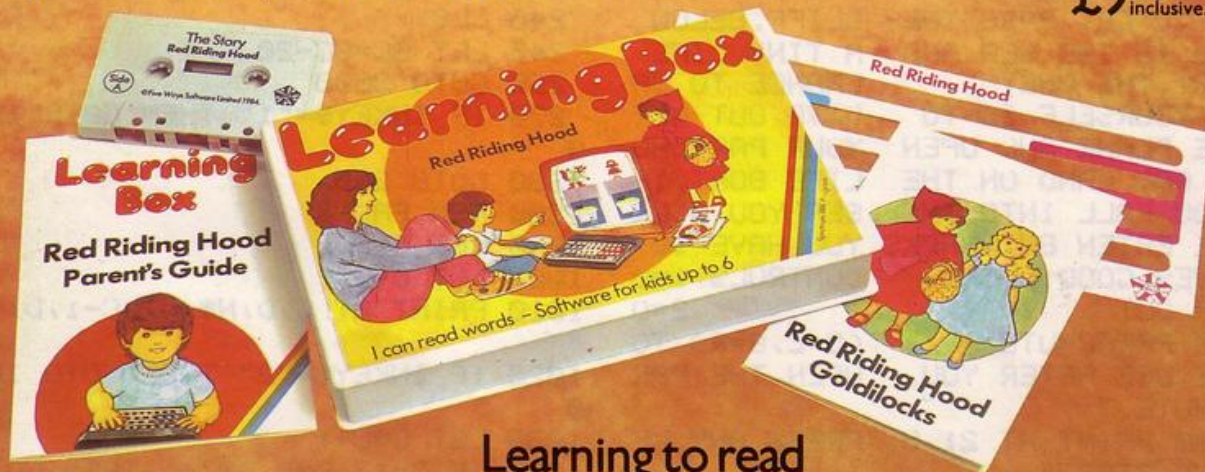
LEARNING BOX is a series of 8 computer programs based on traditional stories. Designed for 3 to 8 year olds, the computer activity is enormously simplified by an overlay for the keyboard. A beautifully illustrated storybook and a

recording of the story provide back-up for the computer activities.

With the very clear Parent's Guide we can help your child get on at school.

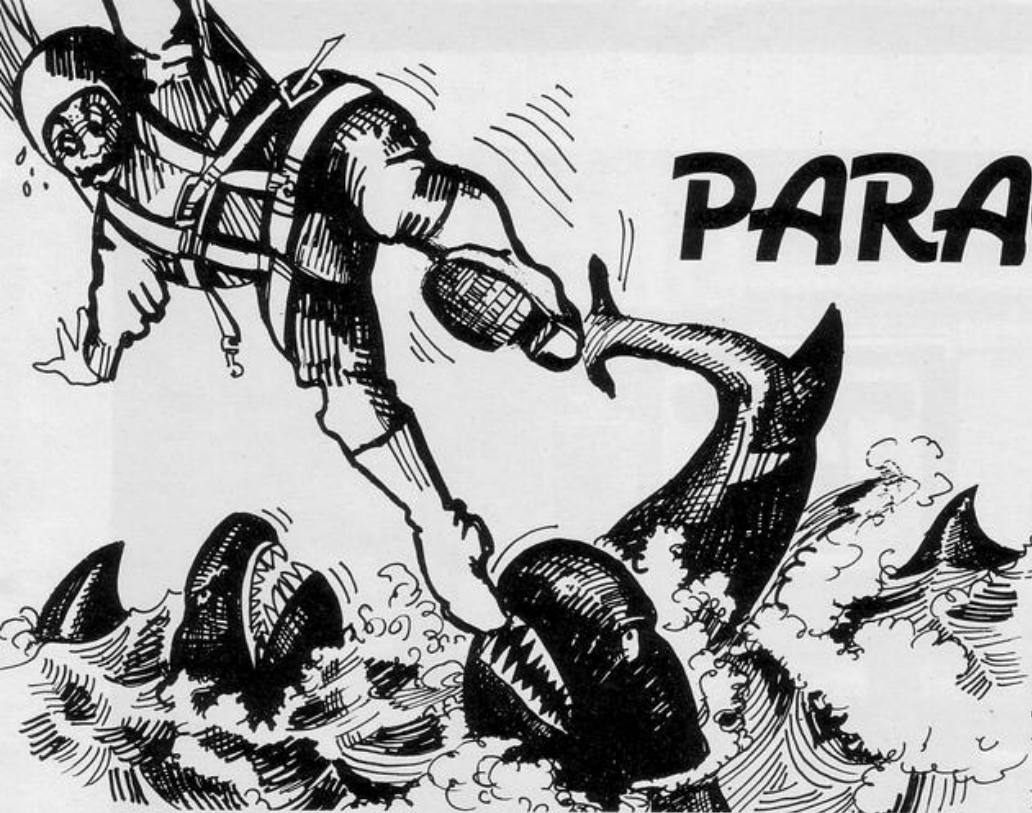
Available from selected branches of Boots, W.H. Smith, leading computer stores and bookshops.

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inclusive.



**Learning to read
and count can be fun!**

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PARACHUTE DROP

DIVE from the aeroplane, open your parachute and then make your way towards the lifeboat on the sea. If you fall into the water you will be eaten by sharks.

Written for the 16K ZX-81 by Hung Ngo of Northampton.

```
5 LET H$="0"
10 LET SC=0
16 LET L=3
17 LET N=3
19 LET I=INT (RND*28)
20 LET S$="
```

1984 zx81 Parac

hute dive

```
25 LET N$="(9w)"
30 LET M$="(9r)"
40 LET P$="(14:2*96)"
50 PRINT "(32*1sP)"
60 PRINT AT 19,0;S$
65 PRINT AT 1,9;"PARACHUTE DIV
E (14*9s)"
70 PRINT AT 3,0;" INFRONT OF
YOU IS A HIGH CLIFF WHICH
YOUR PLANE IS GOING TO CRA
SH INTO.THERE IS NO WAY FOR Y
OU TO GET PASS THE CLIFF.BELOW
YOU IS THE SEA AND A TINY LIFE
BOAT.THE ONLY CHANCE TO SA
VE YOURSELF IS TO DIVE OUT OF
THE PLANE AND OPEN YOUR PARACHU
TE AND LAND ON THE LIFE BOAT.IF
YOU FALL INTO THE SEA YOU WILL
BE EATEN BY SHARKS YOU HAVE 10
DIVES.GOOD LUCK CONTROLS:1=D
IVE OUT 2=0
PEN PARACHUTE (5=L,8=R) TO
BE USE AFTER YOU OPEN THE PAR
ACHUTE."
80 PRINT AT 21,5;"PRESS ANY KE
Y TO START"
90 IF INKEY$="" THEN GOTO 90
100 CLS
110 FOR F=10 TO 1 STEP -1
```

```
120 LET I=INT (RND*28)
130 CLS
140 PRINT AT 0,0;"SCORE:";SC;"
LIVES:";L;" DIVES:";F
150 LET A=N
160 LET B=0
170 PRINT AT 19,0;S$
175 FOR K=1 TO 10
177 PRINT AT K,31;"(1sP)"
180 NEXT K
190 PRINT AT 10,1;"(9s:96:9t)"
200 PRINT AT A,B;P$
210 LET B=B+1
215 PRINT AT A,B-1;" "
220 IF B>28 THEN PRINT AT 10,2;
"OUT OF TIME YOU HAVE CRASHED
YOU ARE DEAD..HA..HA..HA....
PRESS ANY KEY TO CONTINUE..."
230 IF B<29 THEN GOTO 270
235 IF INKEY$="" THEN GOTO 235
240 CLS
245 LET SC=SC-20
260 GOTO 3000
270 IF INKEY$="1" THEN GOTO 100
0
280 GOTO 200
300 REM FALL
1000 LET C=A
1001 LET D=B
1010 PRINT AT C,D;N$;AT C-1,D;"
"
1020 IF INKEY$="2" THEN GOTO 100
0
1030 LET C=C+1
1035 IF C=17 AND D=I+1 THEN GOTO
3000
1040 IF C=18 THEN GOTO 1200
1070 GOTO 1010
```

```

1080 LET Z=C
1090 PRINT AT C,D,H$;TAB D,M$;AT
  C-1,D;" "AT C-1,D-1;" "AT C-1
  ,D+1;" "
1100 PRINT AT C,D-1;" "AT C,D+1
  ;" "
1130 LET C=C+1
1140 IF C=17 AND D=I+1 THEN GOTO
  2000
1150 LET D=D+(INKEY$="8")-(INKEY
  $="5")
1160 IF C=18 THEN GOTO 1200
1170 GOTO 1090
1200 LET X=0
1210 PRINT AT 18,X;"(95:94)"
1220 LET X=X+1
1230 PRINT AT 18,X-1;" "
1240 IF X=D THEN GOTO 1250
1245 GOTO 1210
1250 PRINT AT 18,0;"YOU GOT EATE
  N BY SHARK BAD LUCK"
1255 PAUSE 200
1260 CLS
1265 LET L=L-1
1266 IF L=0 THEN GOTO 4000
1270 NEXT F
2000 PRINT AT 17,I+1,M$
2010 LET SC=SC+Z+7
2900 NEXT F
2999 REM LIVES

```



```

3000 LET L=L-1
3005 IF L=0 THEN GOTO 4000
3010 NEXT F
4000 CLS
4005 PRINT AT 14,10;"SCORE:";SC
4010 PRINT AT 15,10;"gameOver"
4030 PRINT AT 16,3;"PRESS ANY KE
  Y TO PLAY AGAIN"
4040 IF INKEY$="" THEN GOTO 4040
4050 CLS
4060 LET SC=0
4070 LET L=3
4080 GOTO 100
4090 STOP
4100 SAVE "PARACHUTE DIVE"
4110 RUN

```

```

1 PRINT "WHICH LEVEL? 1 TO 10
) 1 IS THE HARDEST."
2 INPUT I
3 LET T=I*10
10 FOR Q=0 TO 21
20 PRINT AT Q,0;"(32*1=P)"
30 NEXT Q
35 LET L=0
40 DIM B(32)
50 LET A=11
60 FOR Y=0 TO 31
70 LET B(Y+1)=A
80 LET X=INT (RND*3)-1
90 PRINT AT A,Y;" "AT A+1,Y;"
  "AT A+2,Y;" "
100 LET A=A+X
110 NEXT Y
120 LET Z=12
130 FOR P=0 TO 31
135 FOR S=0 TO I
136 NEXT S
137 IF Z<(B(P+1) OR Z>(B(P+1)+2 T
HEN GOTO 999
140 PRINT AT Z,P;"(93)"
150 IF INKEY$="7" THEN LET Z=Z-
1
160 IF INKEY$="6" THEN LET Z=Z+
1
180 NEXT P
200 PRINT "EXCELLENT"
210 PAUSE 500
215 CLS
220 GOTO 1
999 PRINT "HARD LUCK"
1000 PRINT "YOU WENT";P;"PLACES
  OUT OF 32"
1005 PAUSE 500
1008 CLS
1010 GOTO 1

```

A NARROW tunnel appears on the screen. Move through it using key 6 to move down and key 7 to move up.

Mole was written for the 16K ZX-81 by Nicholas Austin of Leamington Spa, Warwickshire.

MOLE



SKULL

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...and it's waiting for you

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GAMES MACHINE

ZAP

```

1 CLS
2 LET X=PI-PI
3 LET Y=PI-PI
4 LET T=PI-PI
5 LET S=PI-PI

6 LET A=INT (RND*CODE "a")
7 LET B=RND*CODE "0"+PI/PI
8 PRINT AT A,B;" "
9 PRINT AT X,Y;" "

10 LET X=X+(INKEY$="5")-(INKEY$="8")
11 LET X=X+(X<PI-PI)-(X>CODE "a")
12 LET T=T+PI/PI

13 PRINT AT X,Y;">"
14 IF INKEY$="0" THEN GOTO CODE "a"
15 GOTO CODE "a"
16 PRINT AT X,Y;">=====
=====;AT X,Y;">
17 IF X=A THEN LET S=S+PI/PI
18 IF S=CODE "I" THEN GOTO CODE "a"
19 IF X=A THEN GOTO CODE "a"
20 GOTO CODE "a"
21 PRINT "TIME=";T
22 PAUSE 4E4
23 RUN

```



SHOOT DOWN the alien ships from the left of the screen with your super-zapper laser. Move up with 8, down with 5 and fire with 0. Once you have hit five ships your time in units is displayed.

Zap Zap was written for the 1K ZX-81 by Russell Wooberry of Farnham, Surrey. The best time so far is 36, set by Andrea Wooberry.

YOU CONTROL a hyperactive worm trapped in an electrified box. Hitting the walls of your box or your tail results in death. Move using cursor keys 5 to 8 and survive for as long as possible.

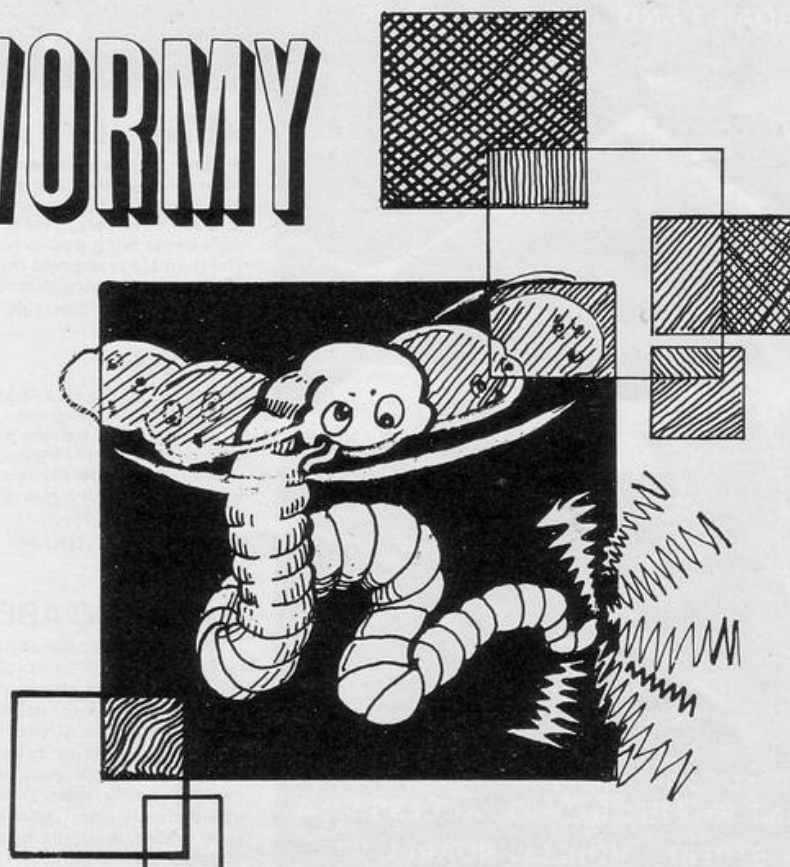
Wormy was written for the 16K ZX-81 by John Taylor of Stafford.

WORMY

```

1 FOR A=VAL "0" TO VAL "15"
2 PRINT AT A,VAL "0";"CLSP";
AT A,VAL "15";"CLSP";AT VAL "0"
,A;"CLSP";AT VAL "15",A;"CLSP"
3 NEXT A
4 LET C=VAL "1"
20 LET B=VAL "5"
21 LET O=VAL "0"
22 LET P=VAL "-1"
20 LET A=VAL "5"
30 PRINT AT A,B;
37 IF PEEK (PEEK 16398+256*PEEK
K 16399)<>0 THEN GOTO 100
38 PRINT "C9h)"
39 IF INKEY$="7" THEN LET P=-1
40 IF INKEY$="6" THEN LET P=1
41 IF P<>0 THEN LET O=0
43 IF INKEY$="5" THEN LET O=-1
44 IF INKEY$="8" THEN LET O=1
45 IF O<>0 THEN LET P=O
49 LET A=A+P
50 LET B=B+O
51 LET S=S+1
60 GOTO 36
110 PRINT S

```



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SLAP DAB

An exciting game based on the arcade game Painter which combines fast action with strategy. Giant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the panel. The game is 100 percent machine code and HI-RES. Graphics also includes Hi-score and running score.

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directions, guns
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HYDROCARBONS

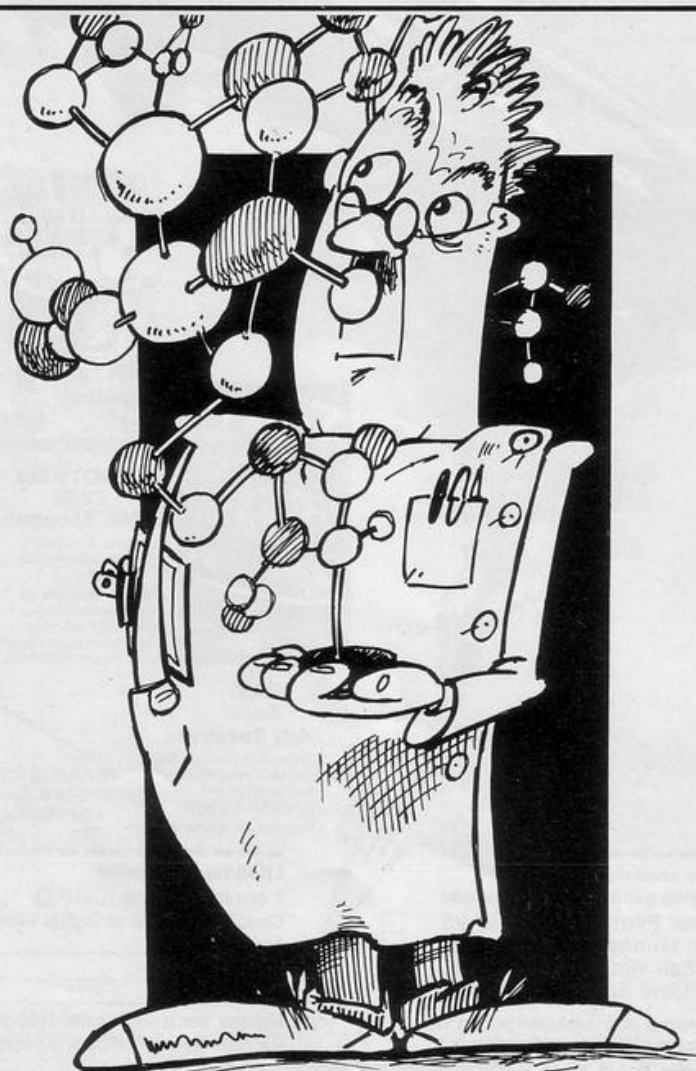
HYDROCARBONS is an educational program designed to test your knowledge of the hydrocarbons C_1H_4 to C_8H_{16} . It can be used either as a test program or it will draw the hydrocarbons and give their chemical formulae.

Written for the 16K ZX-81 by James Prince of Haddington, East Lothian.

```
5 GOSUB 9000
10 PRINT TAB 5;"HYDROCARBONS"
20 PRINT TAB 5;"-----"
30 PRINT AT 4,0;"DO YOU WANT I
  NSTRUCTION ?
(Y/N)"
40 IF INKEY$="Y" THEN GOTO 400
50 IF INKEY$<>"N" THEN GOTO 40
  W" LET T=0
65 CLS
70 PRINT AT 19,0;"P DRAW
  S SCORE      H HANE
  Q QUIT      S HAN TIME "
```

```
80 LET A=INT (RND*15)+1
85 PRINT AT 21,12;H$(A)
90 FOR F=0 TO 50
92 NEXT F
95 FOR F=0 TO 17
100 PRINT AT F,0;"
110 NEXT F
120 INPUT U$
130 PRINT AT 1,0;U$
150 IF U$="S" THEN PRINT AT 1,0
  ;"YOUR SCORE IS ";T
160 IF U$="Q" THEN STOP
170 IF U$="D" THEN GOTO 500
180 IF U$="N" THEN PRINT H$(A)
185 IF U$="N" THEN GOTO 80
190 IF U$="S" THEN GOTO 90
192 LET I=LEN U$
193 LET Y=7-I
195 LET D=C$( TO Y)
197 LET U$=U$+D$
200 IF U$=H$(A) THEN GOTO 230
210 PRINT "NO . THAT IS WRONG T
  RY AGAIN"
220 GOTO 90
230 PRINT "GOOD WORK THAT IS RI
```

```
GHT BUT TRY THIS ONE"
240 LET T=T+1
250 GOTO 50
400 CLS
405 PRINT TAB 5;"HYDROCARBONS"
410 PRINT TAB 5;"-----"
420 PRINT AT 3,0;"THIS PROGRAM
  WILL TEST YOU ON  HYDROCARBONS
  UP TO OCTANE AND  OCTENE
"
430 PRINT "YOU WILL BE GIVEN A
  NAME AND YOU WILL HAVE TO GIVE TH
  E FORMULA OF"
440 PRINT "IT. ALSO ""S"" WILL D
  ISPLAY HOW  MANY YOU HAVE GOT
  RIGHT ""Q"" WILL"
450 PRINT "GET RID OF THE PROGR
  AM ""D"" WILL DRAW THE STRUCTURE
  AND ""N"" WILL NAME THE STRUCTU
  RE FOR YOU."
560 PRINT
570 PRINT "HIT ANY KEY TO START
"
580 IF INKEY$="" THEN GOTO 580
590 GOTO 60
600 IF A=1 THEN PRINT AT 5,13;"
  H";AT 6,13;"I";AT 7,11;"H-C-H";A
  T 8,13;"I";AT 9,13;"H"
610 IF A=2 THEN PRINT AT 5,12;"
  H H";AT 6,12;"I I";AT 7,10;"H-C-
  C-H";AT 8,12;"I I";AT 9,12;"H H"
620 IF A=3 THEN PRINT AT 5,7;"H
  H H";AT 6,7;"I I I";AT 7,5;"H-C
  =C-C-H";AT 8,7;"I I I";AT 9,7;"H
  H H"
630 IF A=4 THEN PRINT AT 5,7;"H
  H H H";AT 6,7;"I I I I";AT 7,5;
  "H-C-C-C-C-H";AT 8,7;"I I I I";A
  T 9,7;"H H H H"
640 IF A=5 THEN PRINT AT 5,7;"H
  H H H H";AT 6,7;"I I I I I";AT
  7,5;"H-C-C-C-C-C-H";AT 8,7;"I I
  I I I";AT 9,7;"H H H H H"
650 IF A=6 THEN PRINT AT 5,7;"H
  H H H H H";AT 6,7;"I I I I I I";
  AT 7,5;"H-C-C-C-C-C-C-H";AT 8,7
  ;"I I I I I I";AT 9,7;"H H H H H
  H"
660 IF A=7 THEN PRINT AT 5,7;"H
  H H H H H H";AT 6,7;"I I I I I I
  I";AT 7,5;"H-C-C-C-C-C-C-C-H";
  AT 8,7;"I I I I I I I";AT 9,7;"H
  H H H H H H"
670 IF A=8 THEN PRINT AT 5,7;"H
  H H H H H H H";AT 6,7;"I I I I I
  I I I";AT 7,5;"H-C-C-C-C-C-C-C-
  C-H";AT 8,7;"I I I I I I I";AT
  9,7;"H H H H H H H H"
680 IF A=9 THEN PRINT AT 7,10;"
  H-C-C-H";AT 8,12;"I I";AT 9,12;"
  H H"
690 IF A=10 THEN PRINT AT 5,11;
  "H";AT 6,11;"I";AT 7,5;"H-C-C-C-
```



BONS

```
H";AT 8,7;"I I I";AT 9,7;"H H H"
```

```
700 IF A=11 THEN PRINT AT 5,11;
"H H";AT 6,11;"I I";AT 7,5;"H-C=
C-C-C-H";AT 8,7;"I I I";AT 9,7
;"H H H H"
```

```
710 IF A=12 THEN PRINT AT 5,11;
"H H H";AT 6,11;"I I I";AT 7,5;"
H-C=C-C-C-C-H";AT 8,7;"I I I I I
";AT 9,7;"H H H H H"
```

```
720 IF A=13 THEN PRINT AT 5,11;
"H H H H";AT 6,11;"I I I I";AT 7
,5;"H-C=C-C-C-C-C-H";AT 8,7;"I I
I I I I";AT 9,7;"H H H H H H"
```

```
730 IF A=14 THEN PRINT AT 5,11;
"H H H H H";AT 6,11;"I I I I I";
AT 7,5;"H-C=C-C-C-C-C-C-H";AT 8,
7;"I I I I I I I I";AT 9,7;"H H H
H H H H"
```

```
740 IF A=15 THEN PRINT AT 5,11;
"H H H H H H";AT 6,11;"I I I I I
I";AT 7,5;"H-C=C-C-C-C-C-C-C-H"
;AT 8,7;"I I I I I I I I I";AT 9,7;"
H H H H H H H H"
```

```
750 GOTO 90
```

```
760 SAVE "HYDROCARBONS"
```

```
770 RUN
```

```
9000 DIM H$(15,7)
```

```
9010 LET H$(1)="ETHANE"
```

```
9020 LET H$(2)="METHANE"
```

```
9030 LET H$(3)="PROPANE"
```

```
9040 LET H$(4)="BUTANE"
```

```
9050 LET H$(5)="PENTANE"
```

```
9060 LET H$(6)="HEXANE"
```

```
9070 LET H$(7)="HEPTANE"
```

```
9080 LET H$(8)="OCTANE"
```

```
9090 LET H$(9)="ETHENE"
```

```
9100 LET H$(10)="PROPENE"
```

```
9110 LET H$(11)="BUTENE"
```

```
9120 LET H$(12)="PENTENE"
```

```
9130 LET H$(13)="HEXENE"
```

```
9140 LET H$(14)="HEPTENE"
```

```
9150 LET H$(15)="OCTENE"
```

```
9200 DIM B$(15,7)
```

```
9210 LET B$(1)="C1H4"
```

```
9220 LET B$(2)="C2H6"
```

```
9230 LET B$(3)="C3H8"
```

```
9240 LET B$(4)="C4H10"
```

```
9250 LET B$(5)="C5H12"
```

```
9260 LET B$(6)="C6H14"
```

```
9270 LET B$(7)="C7H16"
```

```
9280 LET B$(8)="C8H18"
```

```
9290 LET B$(9)="C2H4"
```

```
9300 LET B$(10)="C3H6"
```

```
9310 LET B$(11)="C4H8"
```

```
9320 LET B$(12)="C5H10"
```

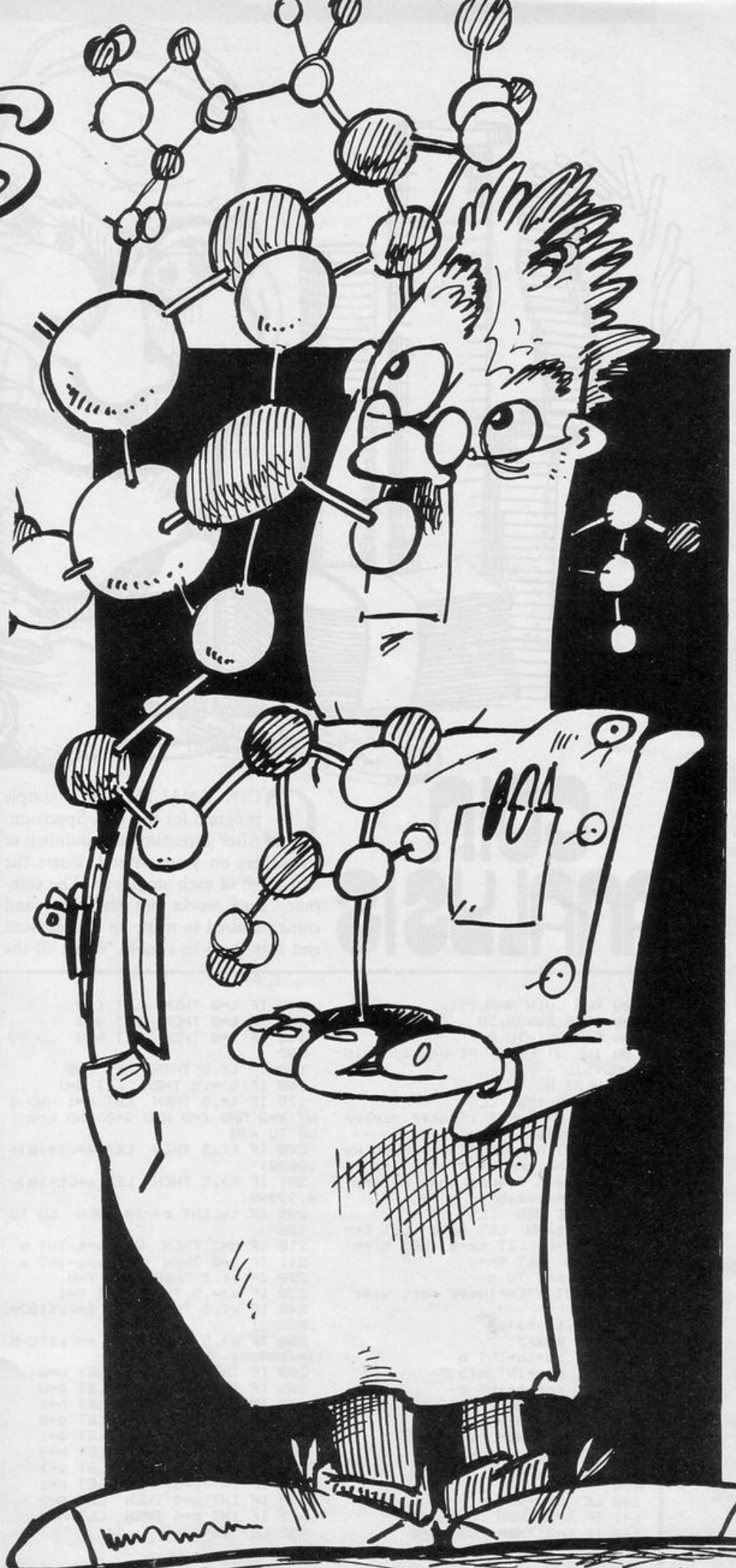
```
9330 LET B$(13)="C6H12"
```

```
9340 LET B$(14)="C7H14"
```

```
9350 LET B$(15)="C8H16"
```

```
9370 LET C$=" "
```

```
9380 RETURN
```





COIN ANALYSIS

C OIN ANALYSIS is a simple program for the 16K Spectrum. After inputting the number of employees on your payroll, insert the nett wage of each employee. The computer then works out the notes and coins required to make up that amount and lists them in a table. When all the

nett amounts have been entered, the total number of each note and coin to be issued is listed.

Written by M J Cooper of Aldershot, Hampshire, it is a program which may be of particular interest to anyone responsible for the payroll of a small business.

```
20 REM COIN ANALYSIS
30 POKE 23609,50
40 FOR N=1 TO 5
50 INK 3: PRINT AT 8+N,0;"COIN ANALYSIS"
55 NEXT N
60 PAUSE 100: CLS
70 INK 0: INPUT "Enter number of employees.. ";n
100 PRINT AT 8,0;"Enter Nett Wage when the screen clears and enter the next figure when column has been printed"
110 PAUSE 200: CLS
115 LET ta=0: LET tb=0: LET tc=0: LET td=0: LET te=0: LET tf=0: LET tg=0: LET th=0
125 FOR m=1 TO n
126 INPUT "Employee nett wage ";a
127 LET ta=ta+a
128 LET b=a/5
129 LET tb=tb+INT b
130 LET c=a-INT b*5
131 LET tc=tc+INT c
132 IF c=0 THEN LET e=0
133 IF c=0 THEN LET f=0
134 IF c=0 THEN LET g=0
135 IF c=0 THEN LET h=0
136 IF c=0 THEN LET d=0: GO TO 490
140 LET t=c-INT c
141 IF t=0 THEN LET d=0
142 IF t=0 THEN LET e=0
```

```
143 IF t=0 THEN LET f=0
144 IF t=0 THEN LET g=0
145 IF t=0 THEN LET h=0: GO TO 490
150 IF t<.5 THEN LET d=0
160 IF t>=.5 THEN LET d=1
175 IF t=.5 THEN LET d=1 AND INT e=0 AND f=0 AND g=0 AND h=0: GO TO 490
200 IF t<.5 THEN LET e=(t*10)+.00001
201 IF t>.5 THEN LET e=(t*10)-4.99999
205 IF t=(INT e)/10 THEN GO TO 126
210 IF d=1 THEN LET y=e-INT e
211 IF d=0 THEN LET y=e-INT e
220 IF y<.5 THEN LET f=0
230 IF y>=.5 THEN LET f=1
240 IF y<.5 THEN LET z=(y*10)+.000001
250 IF y>.5 THEN LET z=(y*10)-5+.000001
260 IF INT z=0 THEN LET h=0
265 IF INT z=0 THEN LET g=0
270 IF INT z=1 THEN LET h=1
275 IF INT z=1 THEN LET g=0
280 IF INT z=2 THEN LET g=1
285 IF INT z=2 THEN LET h=0
290 IF INT z=3 THEN LET g=1
300 IF INT z=3 THEN LET h=1
310 IF INT z=4 THEN LET g=2
315 IF INT z=4 THEN LET h=0
482 LET td=td+d
```

```
484 LET te=te+INT e
486 LET tf=tf+f
488 LET tg=tg+g
490 PRINT: INK 4;"Wages £5 £1 50p 10p 5p 2p 1p"
491 IF LEN STR$ a<=1 THEN PRINT "£";a;" " "INT b;" " "INT c;" " "d;" " "INT e;" " "f;" " "g;" " "h
492 IF LEN STR$ a=2 THEN PRINT "£";a;" " "INT b;" " "INT c;" " "d;" " "INT e;" " "f;" " "g;" " "h
493 IF LEN STR$ a=3 THEN PRINT "£";a;" " "INT b;" " "INT c;" " "d;" " "INT e;" " "f;" " "g;" " "h
494 IF LEN STR$ a=4 THEN PRINT "£";a;" " "INT b;" " "INT c;" " "d;" " "INT e;" " "f;" " "g;" " "h
496 PRINT "-----"
498 NEXT m
500 PRINT "£";ta;"=total nett wages"
510 PRINT TAB 8;tb;"=total £5"
520 PRINT TAB 8;tc;"=total £1"
530 PRINT TAB 8;td;"=total 50p"
540 PRINT TAB 8;te;"=total 10p"
550 PRINT TAB 8;tf;"=total 5p"
560 PRINT TAB 8;tg;"=total 2p"
570 PRINT TAB 8;th;"=total 1p"
800 STOP
```

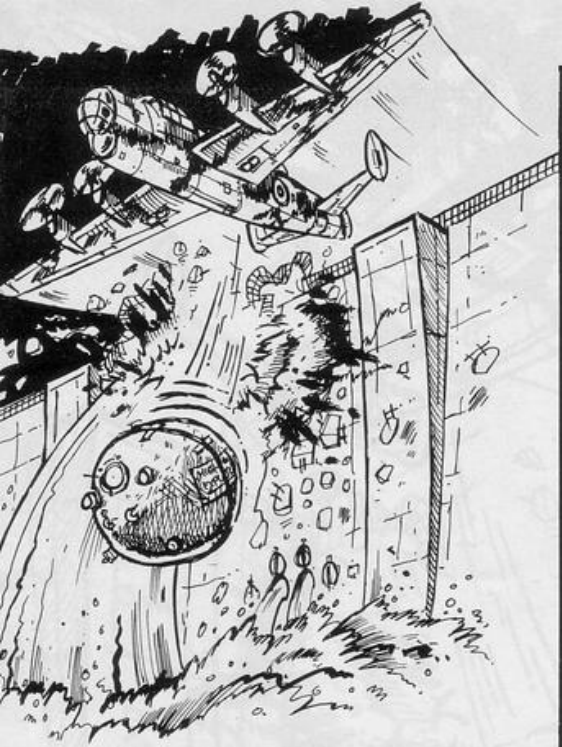
Gibson's Revenge was written for the 16K ZX-81 by J Burnett of Camelford, Cornwall.

GIBSON'S REVENGE

```

920 LET T=0+2
930 PRINT AT 17,T;P$(1)
940 PRINT AT 18,T;P$(2)
950 PRINT AT 19,T;P$(3)
960 PRINT AT 20,T;P$(4)
970 PRINT "GAME-OVER"
980 PAUSE 4E4
990 GOTO 9900
1000 PRINT HI 0,0;
1005 CLS
1009 REM ****INSTRUCTIONS****
1010 PRINT " "
1020 PRINT " "
1030 PRINT " "
1040 PRINT " "
1050 PRINT " "
1060 PRINT " "

```



```

1070 PRINT " "
1080 PRINT " "
1090 PRINT " "
1100 PRINT " "
1110 PRINT " "
1111 PRINT " " DAM-BUSTER
1112 PRINT " " INSTRUCTIO
1113 PRINT " "
1114 PRINT " "
1115 PRINT " "
1116 PRINT " "
1117 PRINT " "
1118 PRINT " "
1119 PRINT " "
1120 PRINT " "
1130 PRINT "PRESS ANY KEY"
1140 PAUSE 4E4
1145 CLS
1150 PRINT " "
1151 PRINT " "
1152 PRINT " " INSTRUCTIO
1153 PRINT " "
1154 PRINT " "
1155 PRINT " "
1160 PRINT " " YOU ARE IN THE
1165 PRINT " " LANCASTER AND
1170 PRINT " " HAVE TO JUDGE
1175 PRINT " " TO DROP THE BO
1180 PRINT " "

```

```

1180 PRINT " "
1185 PRINT " " THE BOMB SOUND
1190 PRINT " " THREE TIMES
1195 PRINT " "
1200 PRINT " " USE""6""TO DRO
P BOMB " "
1210 PRINT " "
1220 PRINT " "
1230 PRINT " "
1240 PRINT " "
1250 PRINT " "
1260 PRINT " "
1265 PAUSE 4E4
1267 CLS
1270 GOTO 99
7999 REM ****PLANE MOVE****
8000 PRINT AT 13,B+2;" "
8010 FOR C=14 TO 19
8020 PRINT AT 12,B;" "
8030 LET B=B+1
8040 PRINT AT C,B+3;" "
8045 PRINT AT C-1,B+2;" "
8050 NEXT C
8060 FOR C=18 TO 15 STEP -1
8065 PRINT AT 12,B;" "
8070 LET B=B+1
8080 PRINT AT C,B+3;" "
8090 PRINT AT C+1,B+2;" "
8099 NEXT C
8100 FOR C=16 TO 19
8110 PRINT AT 12,B;" "
8120 LET B=B+1
8130 PRINT AT C,B+3;" "
8140 PRINT AT C-1,B+2;" "
8149 NEXT C
8150 FOR C=18 TO 17 STEP -1
8155 IF B>=27 THEN GOTO 900
8160 PRINT AT 12,B;" "
8170 LET B=B+1
8180 PRINT AT C,B+3;" "
8190 PRINT AT C+1,B+2;" "
8199 NEXT C
8200 FOR C=18 TO 19
8205 IF B>=27 THEN GOTO 900
8210 PRINT AT 12,B;" "
8220 LET B=B+1
8230 PRINT AT C,B+3;" "
8240 PRINT AT C-1,B+2;" "
8249 NEXT C
8250 IF B+3=A AND C=20 THEN GOTO
8500
8260 IF B+3<>A AND C=20 THEN GOT
0
8270 STOP
8500 FOR C=0 TO 15
8510 PRINT AT C,0;" "
8520 NEXT C
8530 PRINT AT 0,0;" "
8540 PRINT " "
8550 PRINT " "
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```

FOR 16K SPECTRUM (will also run on 48K Spectrum)



CASSETTE A
GHOST GOBBLER
Eat the ghosts before the ghosts eat you. Eat a star and you can chase the ghosts for a while.

Ten programs for £6

TANK BATTLE For 2 players simultaneously or play against the computer. Each player has 2 rotate controls and move and fire controls. The tanks fire steerable missiles.

PHOEBUS A puzzle.

BLACKSPOT Gobble the stars and avoid running into black spots created by crossing your own path.

CUBE Manipulate a cube any size from 2x2x2 to 7x7x7.

MINIFIELD Collect the crowns while avoiding the mines and the electrified fence.

plus an extra...
GRAPHIC DEMO Did you know your Spectrum could do all this?

CASSETTE 1: eleven programs (including 7 in machine code): React, Invaders, Phantom Aliens, Maze of Death, Planet Lander, Bouncing Letters, Bug Splat, 1 Ching, Co-debreak, Robots, Basic Hangman.

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CASSETTE 2: ten games in Basic: Reversi, Awar, Laser Bases, Wordmaster, Rectangles, Crash, Roulette, Pontoon, Penny Shoot, Gun Command.

for 16K ZX-81

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CASSETTE 3: eight programs (including 1 in machine code): Starship Trojan, Star-trek, Princess of Kraal, Battle, Cube, Kalabiasz, Secret Messages, Martian Cricket.

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£5

ALIENKILL Control lasers, rockets and a force field to stop the aliens from landing.
MOUSETRAP Trap the mouse in the corner but not anywhere else.
REVERSI A game of skill with simple rules but sophisticated tactics. Play against the computer.
LASER DEFENCE Control the laser sight to shoot down the alien ships. Machine code sound routines.

EDUCATIONAL COMPENDIUM FOR 16K/48K SPECTRUM £6

All these programs on one cassette.

These programs were developed for use in a Junior School and have been in regular use there for some time. Older people also find them interesting and fun.

TORTOISE GRAPHICS: an educational graphics language.

16K version commands include: forward, left and right through a specified angle, wipe, pen up and down, paper and ink colour, macro, edit.

48K version has extra commands including: backward, quit, cancel, printer and tape commands, auto, home, variables, loops.

TORTUAIL & TORTMAZE: 16K games using the forward, left and right commands. These are good for learning a feeling for distances and angles and are fun to play.

REVEAL: an addictive 16K word game. A piece of writing has had its letters rubbed out and you have to find out what they are. You buy letters or try to predict them. Included are 20 textfiles to be solved and a textmaker which will let you input your own text and store it on tape for someone else to solve.

EQUATION INVADERS: a 16K game to make simple equations more interesting.

ZX-SCRAMBLE with 3 stages.
(machine code) Bomb and shoot your way through the fortified caves.



GUNFIGHT
(machine code)



INVADERS
(machine code)



"quantity as well as quality"
Sinclair User, Oct '82

"if each game was on a separate tape and selling for £5 each I would still recommend them"
ZX Computing, Oct/Nov '82

GALAXY INVADERS (machine code)
Fleets of swooping and diving alien craft to fight off.

SNAKEBITE (machine code)
Eat the snake before it eats you. Variable speed (very fast at top speed).

LIFE (machine code)
A ZX-81 version of the well known game.

3D TIC-TAC-TOE (Basic)
Played on a 4x4x4 board, this is a game for the brain. It is very hard to beat the computer at it.

"Easy to operate, graphically impressive and good value for money."
The Times, 11th Dec '82

"Definitely good value for money at £6... A smooth clear display and a relatively fast response from the keys. Graphics are as good as you will ever get on the 81."
What Micro? Nov '83

7 of the 8 games are in machine code, because this is much faster than Basic.
(Some of these games were previously available from J. Steadman).

CENTIPOID PLUS THREE for 48K SPECTRUM £6



CENTIPOID (machine code).
Centipoid is a full-feature arcade game with mushrooms, spiders, webs, scorpions, gobblers, indestructible dead segments of centipoids that drop down on you, and, of course, the centipoids themselves.
You can choose your own control keys. It is playable from the keyboard or using any joystick interface which, like AGF Interface II, makes the joystick behave like keys on the keyboard.

Plus these games in Basic for the 48K Spectrum on the same cassette.

PANIC



HOUD



3D TIC TAC TOE
A 3D game of skill played against the computer.

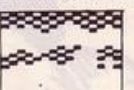
BYTE-MAN (machine code)
(previously available from Mindseye)



SPACE RESCUE (machine code)
(previously available from Mindseye)



BREAKOUT (machine code)



BLITZ (machine code)



PLANETOIDS (machine code)
Rotate, move, fire and hyper-space controls. Wide range of choice of speed and difficulty.

DODGEMS (machine code)
Dodge the computer's car while eating the dots.

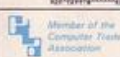
DRAUGHTS (machine code)
Three skill levels.

MERCHANT (Basic)
Make your fortune on trading voyages in the Mediterranean and beyond.

"New polish on old favourites... the quality of the software and the smooth action displays created on the screen make the programs worthwhile for anyone who has a ZX-81 and plays games using it... It is pleasant to see that Orwin's kind of quality is available again."
Sinclair User, Sept '83

"Among the best reviewed was Cassette 5 from Orwin Software. For a mere £6, you get eight top-quality games... All the games are of very high quality and would cost £4 or £5 if sold separately... Many of the other software houses could learn a lesson from these."
What Micro? Games supplement, Nov '83

7 of the 8 games are in machine code because it is much faster than Basic.



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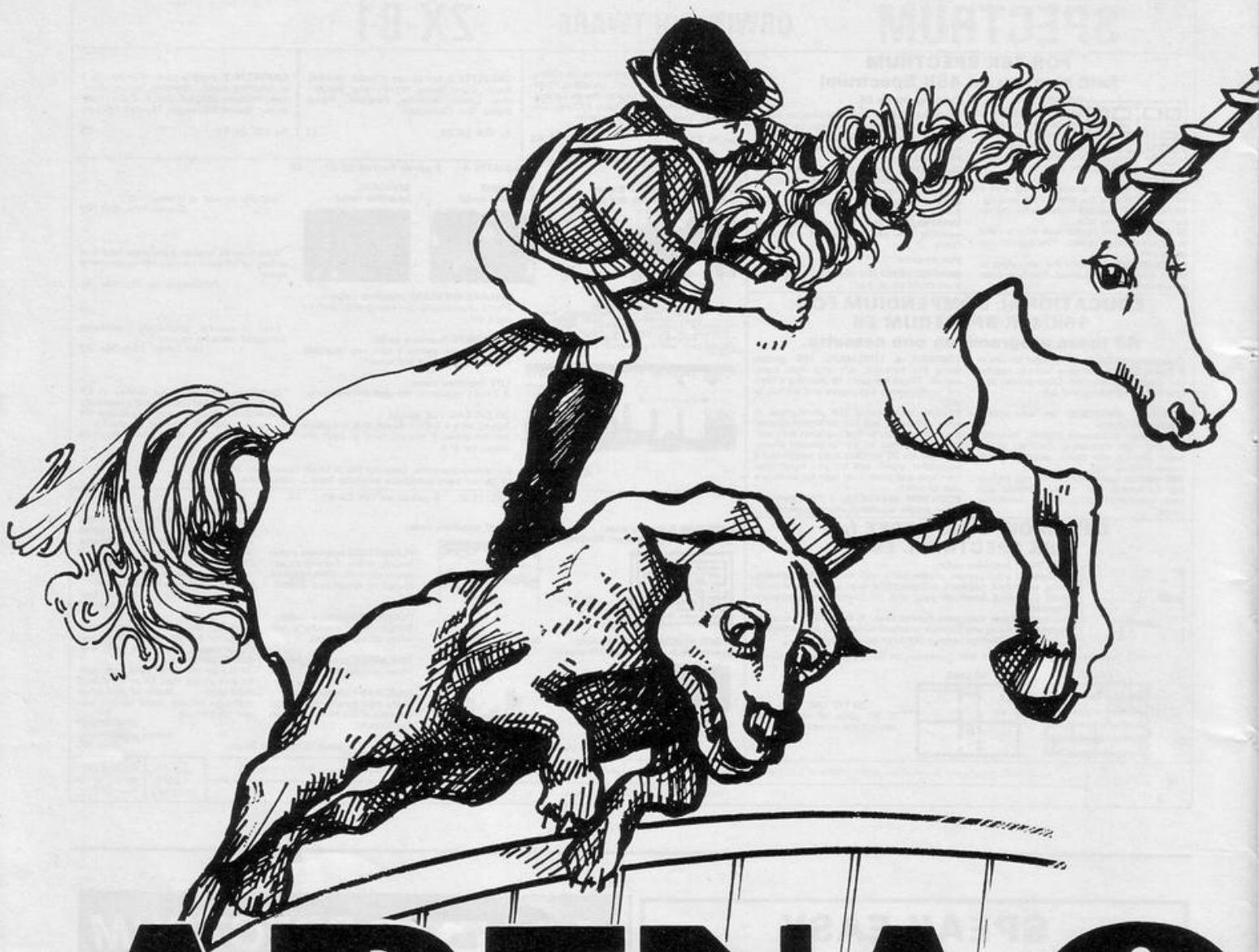
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SP3



ARENA

```
1 INK 0: PAPER 7: BORDER 7: R
ESTORE : CLS
```

```
2 DIM m(30)
3 DIM n(30)
4 DIM o(30)
5 DIM p(30)
6 DIM q(30)
7 DIM r(30)
9 LET j=0
10 DIM a$(30,15)
11 DIM c$(30,15): DIM d$(30,15)
```

```
20 DIM b$(30,16)
30 DIM x(30)
40 DIM y(30)
```

```
43 PRINT : PRINT "INSTRUCTIONS"
PRINT "You are the leader of
a small band of weird charact
ers, whose job is to eliminate a
group of evil creatures who ar
e killing and destroying everyt
hing in their path. You have f
ound them in the arena of vulca
n and you fight them one by one.
The computer chooses then you enter in the
first and number corresponding to your
```

choice. You both start off wi
th 30 creatures and the fir
st party to be killed off loses

```
44 PRINT #0; AT 0,0: INK 4: "Pre
ss any key": IF INKEY$="" THEN
POKE 0,RND: GO TO 44
```

```
45 INPUT "": PRINT "Your cleri
c and Priest can turn the undead
(mummy,skeleton,ghoul and the zo
mbie) if they are lucky.
```

You start
off with 0 experience Points but
if you kill a strong creature w
ith a weaker creature yo gain Po
ints (you lose Points for the re
verse) good luck

```
50 FOR a=1 TO 30
60 READ a$(a): READ c$(a): REA
D c: LET f=0
72 READ m(a): LET o(a)=c: READ
q(a): FOR b=1 TO c
90 LET f=f+INT (RND*8)+1: NEXT
b: LET x(a)=f: NEXT a
110 DATA "Minotaur","gored",7,1
6,2,"Giant rat","bit",1,4,8
```

```
120 DATA "Gremlin","spearred",1,
8,5,"Ghoul","touched",3,6,2
130 DATA "Hydra","bit",5,30,5,"
Manticore","clawed and bit",6,24
,6,"White dragon","froze",7,24,4
,"Acolyte","thumped",1,6,9
```

```
140 DATA "Troll","bit and clawe
d",6,22,4,"Ogre","clubbed",5,8,8
,"Cyclops","thumped",15,30,2
150 DATA "salamander","scortche
d",8,16,2,"Goblin","wounded",1,8
,6
```

```
160 DATA "Skeleton","maced",1,
6,8
```

```
170 DATA "Zombie","hit",3,8,8,
"Giant scorpion","stung",4,24,2
180 DATA "Urc","sliced",2,6,7,"
Mummy","Paralysed",4,24,6,"Hobgo
blin","hit",3,8,6,"Lizard man","
thumped",4,8,5
```

```
190 DATA "Hell hound","burnt",4
,18,4,"Chimera","hit",9,30,4
195 DATA "Weyvern","stung and bu
rnt",7,24,3,"Wood golem","Punche
d",2,8,7,"Bone golem","mutilated
",8,24,2
```

```
200 DATA "Hill giant","squashed
```



YOU ARE the leader of a small band of weird characters and it is your job to wipe out a group of murderous evil creatures. The enemy creatures are trapped in the arena of Vulcan and are ready to fight you one by one. Attack the enemy using your hill dog and kill the offending salamander using your unicorn.

Arena of Vulcan, a 48K Spectrum adventure game, was written by Jolyon Ralph of London SW19.

```

",8,16,4,"Bugbear","stabbed",3,8
,5,"Gargoyle","fanged",4,16,5,"H
arpy","charmed and bit",3,7,12
210 DATA "Stirge","drunk",1,3,1
221 FOR a=1 TO 30
230 READ b$(a): READ d$(a)
231 READ c,d
233 LET f=0
234 READ n(a): LET p(a)=c: READ
r(a)
240 FOR b=1 TO c
250 LET f=f+INT (RND*d)+1: NEXT
b
270 LET v(a)=f
280 NEXT a
290 DATA "Warlord","slashed",5,
8,10,0,"Priest","maced",6,4,4,6
310 DATA "Assassin","stabbed",4
,4,6,7,"Unicorn","horned",3,8,8,
5
320 DATA "Mad dog","bit",5,8,6,
5,"Storm giant","electrocuted",1
5,8,48,2
330 DATA "Gnome","hit",1,8,6,5,
"Elf","sliced",4,6,8,2,"Fighter"
,"chopped",2,10,8,3,"Thief","sta
bbled",1,4,8,7
350 DATA "Owl bear","hugged",5,
8,24,5,"Werebear","hugged",6,8,2
4,2
360 DATA "Roc","pecked",6,8,22,
4,"Cleric","baptised",2,6,6,2
370 DATA "Dwarf","cut",1,8,8,6,
"Halfling","sliced",6,6,8,-2
380 DATA "Hobbit","slashed",1,6
,6,2,"Centaur","knocked",4,8,20,
5
390 DATA "Hippogriff","pecked",
3,8,22,5,"Dwarven hero","chopped
",7,8,8,0
400 DATA "Super-hero","sliced",
8,8,10,-1,"Master thief","stabbe
d",9,4,4,2
410 DATA "Brass dragon","breath
ed on",8,8,30,2,"Pegasus","bit",
2,8,16,6
420 DATA "Giant hawk","pecked",
3,9,6,6,"Blink dog","gnawed",4,
8,6,2
430 DATA "Lawful goblin","struc
k",1,8,8,7
440 DATA "Giant weasel","bit",4
,8,8,7,"Bard","sung to",3,4,6,6,
"Druid","sickled",4,6,4,5
500 LET v=INT (RND*30)+1
501 IF x(v)<=0 THEN GO TO 500
502 PRINT : PRINT
520 PRINT "The computer chooses
his ' ' : INVERSE 1:a$(v):"
LEVEL " :o(v)
530 PRINT BRIGHT 1:"YOU HAVE:"
535 PRINT "NO NAME LE
V H.P.
540 FOR a=1 TO 30
545 LET n=b$(a)
550 IF v(a)>0 THEN PRINT a:" "
:n$:" " :AT 21,18:p(a):" " :AT 21
,23:v(a)
560 NEXT a
570 INPUT "Your Choice?":a
576 IF a>30 OR a<1 OR INT a<>a
THEN GO TO 570
580 IF v(a)<=0 THEN PRINT PAP
ER 3: INK 9: FLASH 1:"He's dead(
Nice try!)": GO TO 570
585 LET n=b$(a): FOR q=16 TO 2
STEP -1: IF n$(q)=" " THEN LET
n=n$(TO q-1): NEXT q
586 LET o=b$(v): FOR q=15 TO 2
STEP -1: IF o$(q)=" " THEN LET
o=o$(TO q-1): NEXT q
587 LET p=c$(v): FOR q=15 TO 2
STEP -1: IF p$(q)=" " THEN LET
p=p$(TO q-1): NEXT q

```

F VULCAN

```

588 LET q=d$(a): FOR q=15 TO 2
STEP -1: IF q$(q)=" " THEN LET
q=q$(TO q-1): NEXT q
590 LET t=q(v): LET u=0-p(a): L
ET z=20-t+u
600 IF v=4 OR v=14 OR v=15 OR v
=18 THEN GO TO 9000
610 LET w=INT (RND*20)+1
620 LET ff=1: IF w>z THEN PRIN
T PAPER 6:"Your ' :n$:' " :q$:" h
is " :o$:" LET w=INT (RND*n(a))+1:
PRINT "He's taken ' :w)' Points
of damage!": BEEP ff,6: PRINT :
LET x(v)=x(v)-w: IF x(v)<=0 THEN
PRINT FLASH 1:"THE ' :o$:' IS
DEAD": LET k=5+((o(v)-p(a))*5):
PRINT "you ' :<("gain" AND k>=0):<
"loose" AND k<0):" " :ABS k:" Poi
nts": LET j=j+k: GO TO 690
630 LET t=r(a): LET u=o(v): LET
u=0-u
640 LET z=20-t+u
660 LET w=INT (RND*20)+1
670 IF w>z THEN PRINT PAPER 5
:"His ' :o$:' " :p$:" your ' :n$:' L
ET w=INT (RND*m(v))+1: PRINT "yo
ur ' :n$:' has taken ' :w)' Points

```

```

of damage!": BEEP ff,5: PRINT :
LET y(a)=y(a)-w: IF y(a)<=0 THE
N PRINT FLASH 1:"YOUR ' :n$:' I
S DEAD": GO TO 690
680 GO TO 590
690 LET c=0
700 FOR a=1 TO 30: IF x(a)>0 TH
EN LET c=1
710 NEXT a
720 IF c=0 THEN GO TO 9500
730 LET c=0: FOR a=1 TO 30: IF
y(a)>0 THEN LET c=1
735 NEXT a
740 IF c=1 THEN GO TO 500
750 PRINT INK 2: PAPER 6: FLAS
H 1:"I WON": PRINT "YOU GOT ' :j)
' POINTS": DIM w$(1): INPUT "ano
ther game? ' :w$:' IF w$(1)="y" OR
w$(1)="Y" THEN GO TO 1
760 STOP
9000 IF a<>14 AND a<>2 THEN GO
TO 610
9010 PRINT PAPER 4:"TURN CREATU
RE OF THE UNDERWORLD": LET o=INT
(RND*12)

```

```

9020 IF o>8 THEN LET x(v)=0: PR
INT PAPER 6:"You have turned hi
s ' :o$:' and you get 50 points":
LET j=j+50: GO TO 690
9025 IF o<=8 THEN PRINT PAPER
5:"But he carries on"
9030 GO TO 610
9500 PRINT " " : INK 3
: PAPER 6: FLASH 1:"YOU WON""an
d you got ' :j)' Points"
9510 IF j<=0 THEN PRINT INK 4:
PAPER 2: FLASH 1:"YOU MINDLESS
MURDERER"
9515 IF j>0 AND j<100 THEN PRIN
T INK 3: PAPER 6: FLASH 1:"YOU
LUCKY PERSON"
9516 IF j>=100 THEN PRINT INK
1: PAPER 5: FLASH 1:"YOU COURAGEO
US HERO"
9520 DIM w$(1): INPUT "another g
ame? ' :w$:' IF w$(1)="y" OR w$(1)
="Y" THEN GO TO 1
9730 LET c=0: FOR a=1 TO 30: IF
y(a)>0 THEN LET c=1

```

GET THE RIGHT ANGLE ON YOUR SPECTRUM

Trickstick turns your Spectrum into the most sophisticated games machine in the world. Your fingers rest on the Trickstick's six sensitive pads (four directions and two fire buttons) and the harder you press the faster you go or the harder you turn.

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The SP80 simply plugs into the sockets in the 16k Spectrum. Full fitting instructions are provided. It is easy to fit and no soldering is required.

See 48/80 FORTH for another angle.

UPGRADE YOUR ISSUE 2 OR 3 SPECTRUM FOR JUST £23 AND GET A £4.50 COPY OF BEYOND HORIZONS ABSOLUTELY FREE

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48/80 FORTH - £14.95

The latest, best and most complete version of this popular language for the Spectrum. FORTH runs many times faster than machine code - a tonic if you're fed up with all those GOTOs.

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The manual provides both the normal technical definitions of the language, and an outstanding brief introduction for the beginner. Each tape also includes a superb EDITOR program to give you full control of the 16 (48k) or 32 (80k) disk screens.

A FORTH Toolkit (giving floating point etc) and an extension for the Microdrive will be available shortly. 48/80 FORTH uses standard FIG-FORTH definitions with extensions to exploit the special characteristics of the Spectrum, including BEEP (for real arcade quality sound), DRAW, PLOT and CIRCLE.

BEYOND HORIZONS - £4.50

This teaching program has already made computing less mysterious for thousands of people. It guides you through the Spectrum 48k memory, teaches you to PEEK and POKE systems variables, shows you how the display file and colour attributes work, how a BASIC program is stored byte by byte, and much much more. Outstanding value for those who get stuck on the second half of the Spectrum manual.

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OXYGEN ALERT

YOU ARE a robot on an interstellar cargo spaceship. Your object is to find and patch a leak in

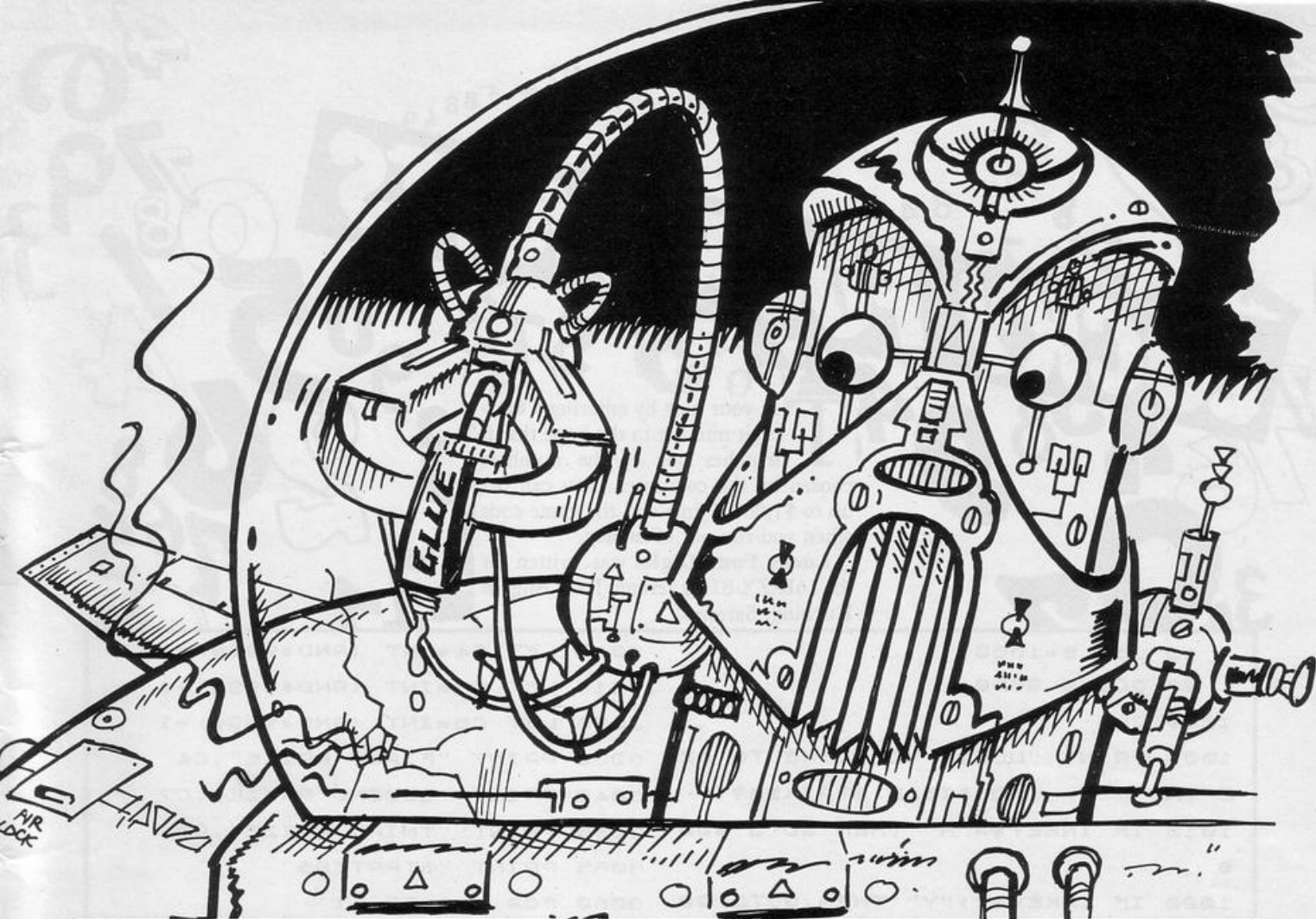
the hull of the ship and to kill five aliens who have sneaked in, before you run out of power.

Oxygen Alert was written for the 16K ZX-81 by Colin Hunniford of Berkhamsted, Hertfordshire.

```
30 RAND
40 SLOW
50 PRINT "
OXYGEN
ALERT"
60 PRINT "
70 PRINT "
T
I"
80 PRINT "
90 PRINT " YOU ARE A ROBOT
ON AN INTER- STELLA CARGO S
PACE SHIP. YOU HAVE BEEN SE
NT TO FIND AN OXYGEN LEAK IN TH
E HULL OF THE SPACE SHIP."
100 PRINT " TO MOVE ABOUT Y
OU MUST TYPE NORTH, SOUTH, EAS
T OR WEST. TO GET RID OF UNWANT
ED ALIENS YOU TYPE, SHOOT, AND T
O BUNG UP THE HOLE YOU MUST TYP
E ,SEAL."
110 PRINT "PRESS A KEY"
120 IF INKEY<>" " THEN GOTO 120
130 IF INKEY$="" THEN GOTO 130
135 FAST
140 CLS
150 PRINT "NEW UNIT"
160 FOR I=1 TO 5
170 PRINT AT I,0;" ";TAB 31;" "
180 NEXT I
190 PRINT "
```

```
200 PRINT AT 5,0;"NEW UNIT"
210 DIM A$(10,10)
220 LET A$(1) =" "
230 LET A$(2) =" "
240 LET A$(3) =" "
250 LET A$(4) =" "
260 LET A$(5) =" "
270 LET A$(6) =" "
280 LET A$(7) =" "
290 LET A$(8) =" "
300 LET A$(9) =" "
310 LET A$(10) =" "
320 PRINT "
330 FOR I=1 TO 10
340 PRINT " "+A$(I)+" "
350 NEXT I
360 PRINT "
370 LET LB=10
380 GOTO 430
390 LET Y=INT (RAND*10+1)
400 LET X=INT (RAND*10+1)
410 IF A$(Y,X) <>CHR$ 0 THEN GOT
O 390
420 RETURN
430 GOSUB 390
440 LET A$(Y,X) ="O"
450 FOR I=1 TO 5
460 GOSUB 390
470 LET A$(Y,X) ="M"
480 NEXT I
490 GOSUB 390
500 LET PP=90
510 LET SP=0
520 SLOW
530 GOSUB 1300
540 PRINT AT 5,16;"LASER BULBS"
```

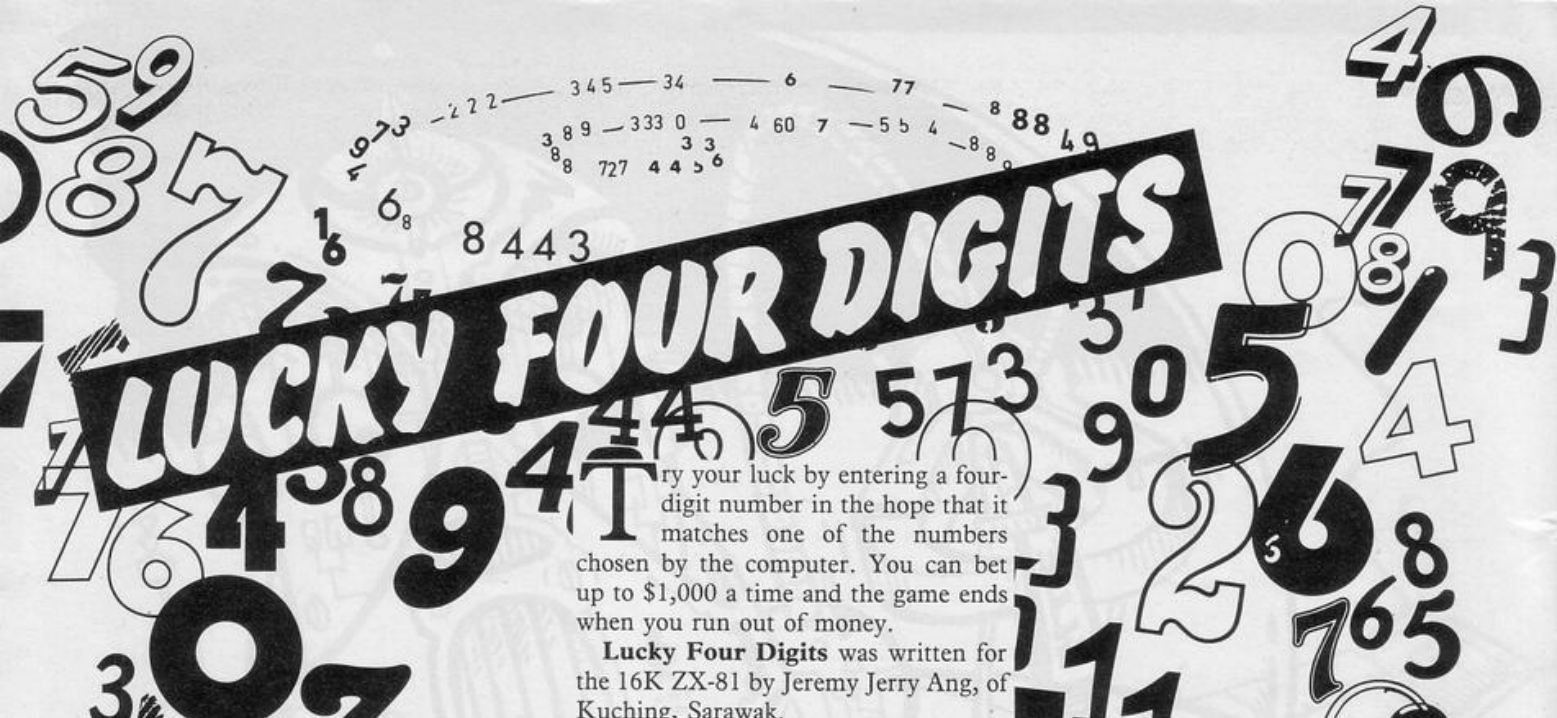
```
" ;AT 9,16;" "; "123456789X" ( TO L
B) ; "....." ( TO 10-LB) ; " ";R
T 10,16;
595 GOSUB 1400
600 PRINT AT Y+9,X;"* "
605 GOSUB 1300
610 PRINT AT 13,16;"ALIEN UNIT"
;AT 14,16;" "; "123456789X" ( TO
INT (PP/9) ; "....." ( TO 10
-INT (PP/9) ; " ";AT 15,16;"
620 PRINT AT 18,16;"MOVIE HERE"
;AT 19,16;" "; "123456789X" ( TO
SP) ; "....." ( TO 10-SP) ; " ";
;AT 20,16;" "
630 IF A$(Y,X)="" THEN LET T=0
640 IF A$(Y,X) ="M" THEN LET T=1
650 IF A$(Y,X) ="O" THEN LET T=2
660 PRINT AT 21,0;"HERE IS "
("NOTHING" AND T=0); ("AN ALIEN"
AND T=1); ("THE LEAKAGE HOLE" AN
D T=2)
670 GOSUB T*100+1000
680 IF SP=10 THEN GOTO 2000
700 INPUT B$
710 IF B$="" THEN GOTO 700
720 IF LEN B$=1 THEN GOTO 750
730 IF B$( TO 2) ="SH" THEN GOTO
1500
740 IF B$( TO 2) ="SE" THEN GOTO
2300
750 IF T=1 THEN GOTO 2100
760 IF B$(1) ="N" OR B$(1) ="E" O
R A$(1) ="U" OR B$(1) ="S" THEN GO
TO 750
770 GOTO 2200
780 LET Y1=Y+(B$(1) ="S" AND Y<1
```



```

0)-(B$(1)="N" AND Y>1)
790 LET X1=X+(B$(1)="E" AND X<1)
0)-(B$(1)="W" AND X>1)
800 IF A$(Y1,X1)>CHR$ 127 THEN
GOTO 950
810 PRINT AT Y+9,X;CHR$ 0
820 LET Y=Y1
830 LET X=X1
840 LET PP=PP-1
850 IF NOT PP THEN GOTO 1800
890 GOTO 590
1000 PRINT AT 2,7;"WHATUT
LIA"; AT 3,7;"HUTRI
19L"; AT 4,7;"IV 19L
IV"
1010 RETURN
1100 GOSUB 1300
1105 PRINT AT 2,12;"███";
AT 3,12;"███";
AT 4,12;"███";
AT 5,12;"███";
1110 FOR I=0 TO 5
1120 PRINT AT 5,12;"███"
1130 IF VAL "16514"-VAL "9" THEN
1140 PRINT AT 5,12;"███"
1150 NEXT I
1160 RETURN
1200 GOSUB 1300
1210 PRINT AT 1,12;"███";
AT 2,12;"███";
AT 3,12;"███";
AT 4,12;"███";
AT 5,12;"███";
AT 6,12;"███";
1220 RETURN
1300 FOR I=1 TO 6
1310 PRINT AT I,1;"
1320 NEXT I
1330 RETURN
1400 PRINT AT 21,0;"
"
1410 RETURN
1500 IF T<>1 THEN GOTO 1600
1510 IF LB<1 THEN GOTO 1700
1520 IF PP<2 THEN GOTO 1800
1530 PRINT AT 2,10;"FALL";
AT 3,10;"FALL";
AT 4,10;"FALL";
AT 5,10;"
"
1540 LET LB=LB-INT (RND*(3 AND L
B/2)+1)
1545 LET PP=PP-2
1550 LET T=0
1560 LET A$(Y,X)=CHR$ 0
1570 LET SP=SP+1
1580 GOSUB 1300
1590 GOTO 590
1600 GOSUB 1400
1610 PRINT AT 21,0;"NO MONSTERS
TO SHOOT HERE"
1620 RETURN
1700 GOSUB 1400
1710 PRINT AT 21,0;"NO MORE LASE
R BOLTS.ALIEN WINS."
1720 PAUSE 500
1730 GOTO 1900
1800 GOSUB 1400
1810 PRINT AT 21,0;"NOT ENOUGH P
OVER LEFT"
1820 PAUSE 500
1900 GOSUB 1300
1910 PRINT AT 2,10;"FALL";
AT 3,10;"FALL";
AT 4,10;"FALL";
1920 GOSUB 1400
1930 PRINT AT 21,0;"YOU HAVE SEE
N DESTROYED"
1940 STOP
2000 PRINT AT 2,5;"FALL A
FALL";AT 3,5;"FALL A
FALL";AT 4,5;"FALL A
FALL";AT 5,5;"
"
2010 GOSUB 1400
2020 PRINT AT 21,0;"YOU HAVE SCO
RED 100 PER CENT"
2030 STOP
2100 GOSUB 1400
2110 PRINT AT 21,0;"WHAT ABOUT T
HE ALIEN ?"
2120 GOTO 700
2200 GOSUB 1400
2210 PRINT AT 21,0;"UNKNOWN ENTR
Y"
2220 GOTO 700
2300 GOSUB 1400
2310 IF PP<2 THEN GOTO 1800
2320 GOSUB 1300
2330 PRINT AT 2,9;"FALL F
F"; AT 3,9;"FALL F
F"; AT 4,9;"FALL F
F"; AT 5,9;"F"
2340 PRINT AT 21,0;"YOU HAVE SEA
LED THE LEAK.WELDONE"
2350 LET A$(Y,X)=CHR$ 0
2360 LET SP=SP+5
2370 LET PP=PP-2
2380 PAUSE 500
2390 GOTO 590
2400 SAVE "ALER"
2500 RUN

```



Try your luck by entering a four-digit number in the hope that it matches one of the numbers chosen by the computer. You can bet up to \$1,000 a time and the game ends when you run out of money.

Lucky Four Digits was written for the 16K ZX-81 by Jeremy Jerry Ang, of Kuching, Sarawak.

```

10 LET E=1000
20 GOSUB 9000

1000 CLS
1005 PRINT "WOULD YOU LIKE TO SE
E THE          POSSIBLE STRIKES?"
1010 IF INKEY#="N" THEN GOTO 200
0
1020 IF INKEY#<>"Y" THEN GOTO 20
p
1030 IF INKEY#="" THEN GOTO 1010
1500 PRINT "POSSIBLE FOUR DIGI
S STRIKE"
1510 FOR I=1 TO 28
1520 PRINT "....."
1525 NEXT I
1550 LET P=INT (RND*9999)+1
1555 LET P1=INT (RND*3000)+1
1560 PRINT ,P,P1
1570 PRINT AT 21,0;"PRESS A LETT
ER"
1580 IF INKEY#="" THEN GOTO 1580
2000 CLS
2010 PRINT "YOU BETS,PLEASE"
2020 INPUT B
2030 IF B<1 OR B<>INT B THEN GOT
0 2020
2035 PRINT "ALL BETS ARE VALID"
2040 PRINT "YOUR NUMBER IN FOUR
DIGITS ";
2050 INPUT A7
2060 PRINT A7
3000 PRINT "TODAY'S FOUR DIGITS R
RESULTS"

3010 LET C4=INT (RND*9999)+1
3015 LET C7=INT (RND*9999)+1
3020 LET C8=INT (RND*9999)+1
3030 PRINT "FIRST PRIZE",C4
3040 PRINT "SECOND PRIZE",C7
3050 PRINT "THIRD PRIZE",C8
3055 PRINT "STARTERS"
3060 FOR J=1 TO 11
3070 LET C5=INT (RND*7000)+1
3075 PRINT C5,
3080 IF A7=C5 THEN GOTO 6400
3085 NEXT J
3090 PRINT "CONSOLATION"
4000 FOR J=1 TO 10
4010 LET C6=INT (RND*9800)+1
4020 PRINT C6,
4030 IF A7=C6 THEN GOTO 6500
4040 NEXT J
4050 IF A7=C7 THEN GOTO 6000
4060 IF A7=C4 THEN GOTO 6030
4070 IF A7=C8 THEN GOTO 6600
5005 PAUSE 100
5010 LET E=E-B
5012 IF E<=0 THEN GOSUB 7000
5013 CLS
5015 PRINT "YOUR BANKROLL IS NOW
";E
5020 LET I#=""
ANOTH
ER TRY???
5025 PRINT AT 21,0;I#
5030 LET I#=I#(2 TO )+I#(1)
5040 IF INKEY#="Y" THEN GOTO 200
0

```

```

5043 IF INKEY$="" THEN GOTO 5025
5045 IF INKEY$<>"Y" THEN GOSUB 7
5000 CLS
5005 PRINT "YOU STRUCK SECOND PRIZE"
5007 LET E=E+B*500
5015 GOTO 5015
5030 CLS
5040 PRINT "YOU STRUCK FIRST PRIZE"
5045 LET E=E+(B*2000)
5050 GOTO 5015
5400 CLS
5405 PRINT "YOU STRUCK A STARTER"
5410 LET E=E+(250*B)
5420 GOTO 5015
5500 CLS
5505 PRINT "YOU STRUCK A CONSOLATION"
5510 LET E=E+(B*50)
5520 GOTO 5015
5600 PRINT "YOU STRUCK THIRD PRIZE"
5605 CLS
5610 LET E=E+(B*500)
5620 GOTO 5015
7000 CLS
7007 PRINT AT 11,12;"GAME OVER"
7009 PRINT AT 21,0;"YOU END WITH $";E
7100 STOP
9000 PRINT AT 2,0;"LUCKY FOUR DIGIT"
9010 PRINT AT 4,0;"PRIZES FOR $1.00 BET";AT 6,0;"FIRST PRIZE-$2000"
9020 PRINT AT 8,0;"SECOND PRIZE-$1,000";AT 10,0;"THIRD PRIZE-$500"
9040 PRINT AT 12,0;"STARTERS-$250"
9050 PRINT AT 14,0;"CONSOLATION-$50"
9060 PRINT AT 16,0;"PRESS NEWLINE WHEN READY"
9070 IF INKEY$="" THEN GOTO 9070
9080 RETURN
9900 SAVE "FOUR DIGIT"
9999 RUN

```

```

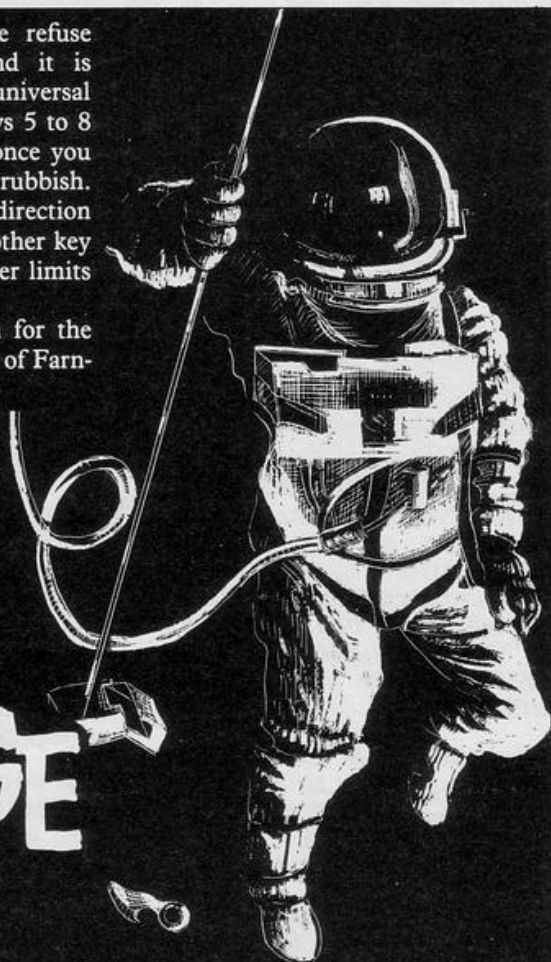
1 LET C=CODE "."
2 LET T=CODE " "
3 LET X=CODE "I"
4 LET Y=CODE " "
5 FOR I=CODE " " TO CODE ":"
6 PRINT AT RND*CODE " ",RND*CODE " ";
7 NEXT I
8 IF INKEY$="5" THEN LET C=CODE " "
9 IF INKEY$="6" THEN LET C=CODE "I"
10 IF INKEY$="6" THEN LET C=CODE "I"
11 IF INKEY$="7" THEN LET C=CODE "I"
12 IF INKEY$="8" THEN GOTO CODE "5"
13 LET T=T+CODE " "
14 PRINT AT X,Y;" "
15 IF C=CODE " " THEN LET Y=Y-CODE " "
16 IF C=CODE "I" THEN LET Y=Y+CODE " "
17 IF C=CODE "I" THEN LET X=X+CODE " "
18 IF C=CODE "I" THEN LET X=X-CODE " "
19 LET X=X-(X-CODE "I")+(X-CODE "I")
20 LET Y=Y-(Y-CODE "I")+(Y-CODE "I")
21 PRINT AT X,Y;">"
22 GOTO CODE "5"
23 PRINT AT CODE "I",CODE "E";
TIME=T

```

YOU ARE the universe refuse collection operative and it is your task to collect the universal garbage. Move with cursor keys 5 to 8 and press 0 to see your time once you have collected every speck of rubbish. Once you start moving in one direction you will keep moving until another key is pressed or you reach the outer limits of space.

Garbage Man was written for the 1K ZX-81 by Russell Woobery of Farnham, Surrey.

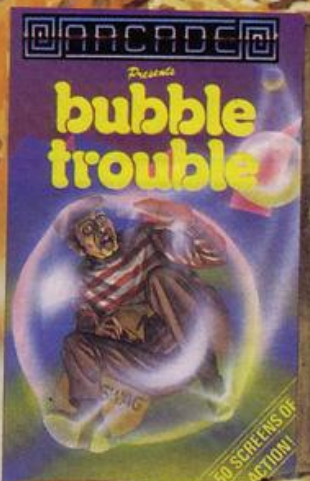
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ARCADE

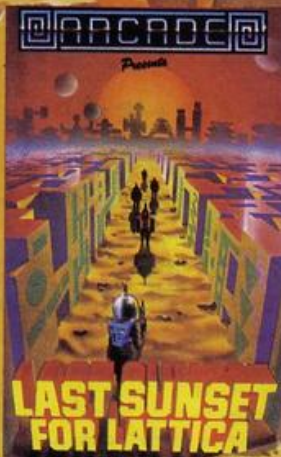
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THE ZONE



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WAITING TO GET
OUT



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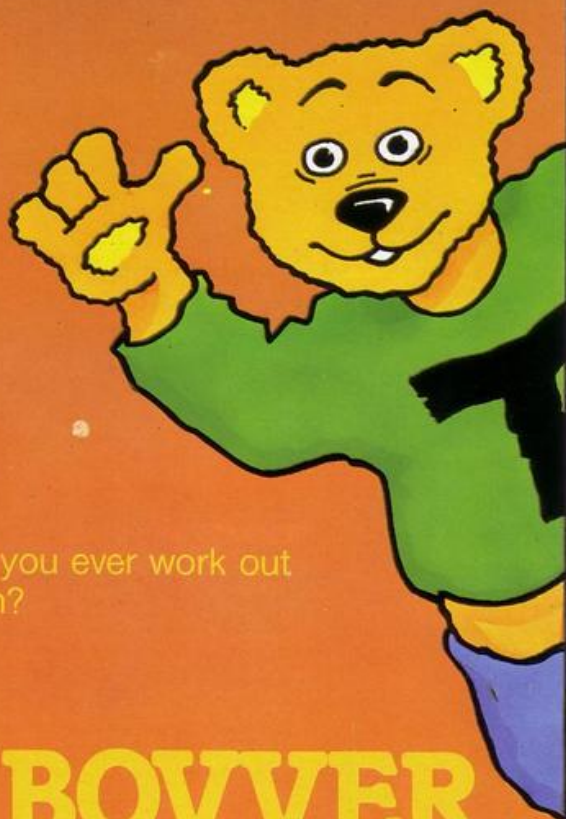
It's no picnic!

But if you go down to the woods today, will you help Ted get his batteries?

Or will you get bovvered?

Or get the cocktail?

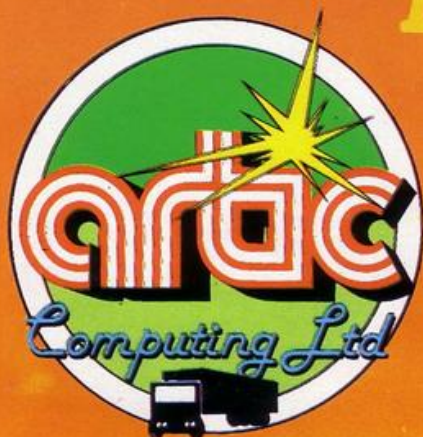
Will you ever reach the 8th round?



Come to that, will you ever work out the scoring system?

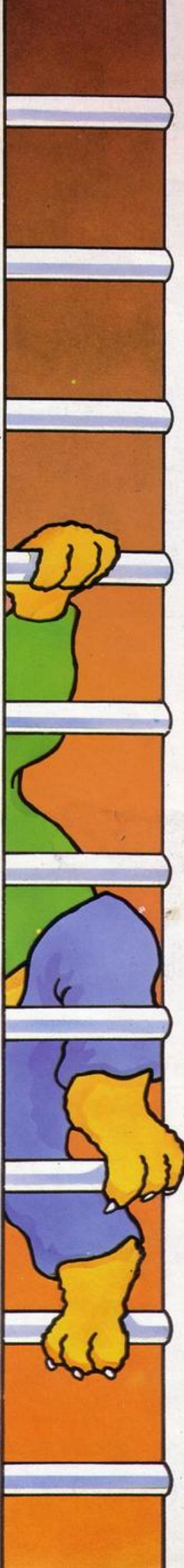
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£6.95



For Sinclair Spectrum 48K

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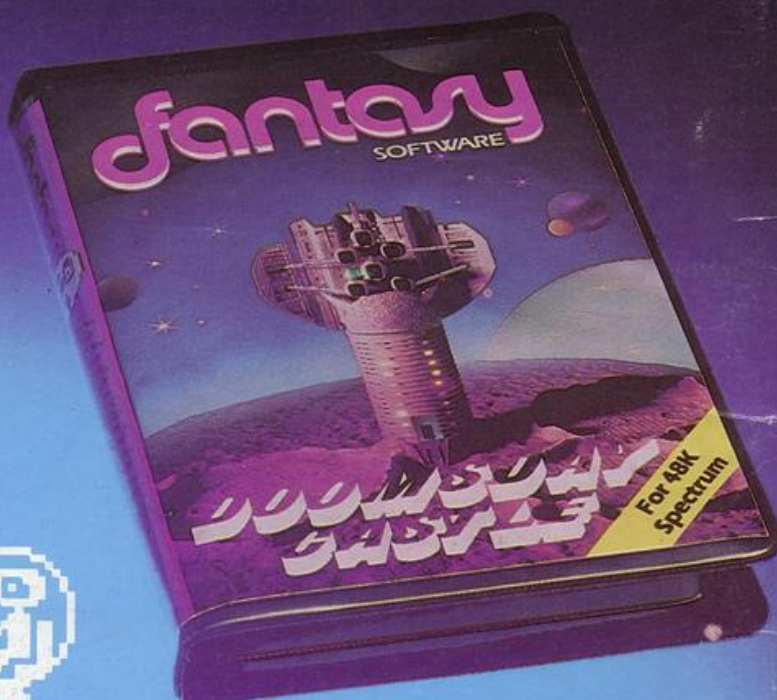
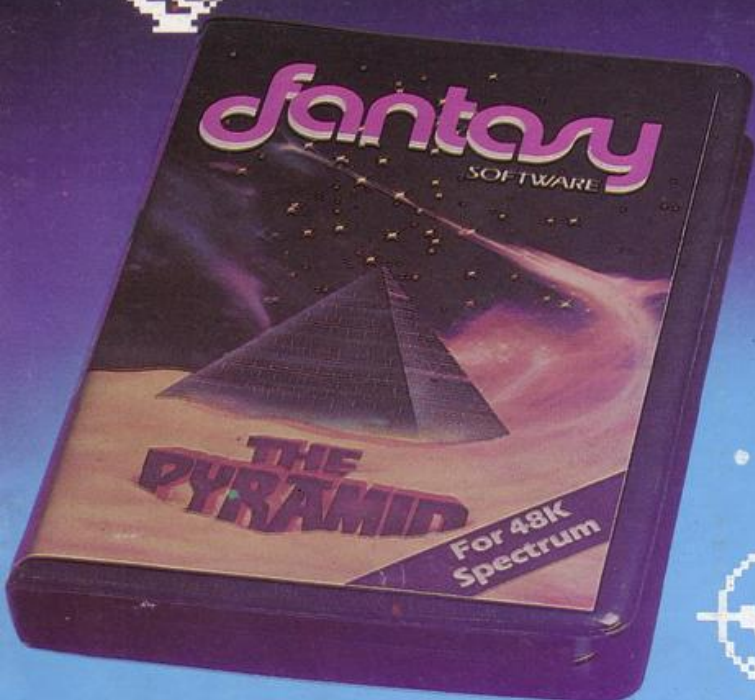


fantasy

SOFTWARE

The battle could be yours.....

.....but it won't be easy!



This is 'ZIGGY', shown above, in his exploratory capsule and is a true representation of the on-screen graphics.

THE PYRAMID

THE PYRAMID is an arcade style game which has a very adventurous feel to it.

The Pyramid contains 120 chambers on 15 levels. In order to get from one chamber to another you must fight off the indigenous aliens to collect an energised crystal which will neutralize the force field guarding the two exits.

The Pyramid is inhabited by a total of 60 weird and exotic alien types, all of which are beautifully animated. You will meet a whole variety of demons, droids, insects and monsters, with a sprinkling of the more unusual, the extra-terrestrial tweezers, galactic strawberry, cosmic claw, mutant eye, plus a whole host of entities that defy rational description. You'll no doubt invent your own nicknames.

You proceed to explore the pyramid from top to bottom with the difficulty generally increasing with the depth of level. Depending on the choice of exit from each chamber you are likely to have a different game every time you play.

Apart from the challenge of trying to achieve the highest score possible the pyramid contains a number puzzle to solve. The more chambers you successfully visit the more information is gathered to enable you to discover the secret numbers of the pyramid. The puzzle won't take you days to solve, it will probably take you a few months.

DOOMSDAY CASTLE

DOOMSDAY CASTLE consists of a labyrinth of 74 complexly inter-connected Halls and Passages where you will meet a whole host of adversaries serving the infinitely evil Scarthax, the Garthrogs, the Orphacs, the phenomenally nasty Googly Bird and the Urks which manifest themselves in over fifty unbelievably weird and wonderful guises.

Scarthax has scoured the Universe to bring together the six ancient stones of life force. United in Doomsday Castle they are being used to wield an irresistible power over the cosmos, emanating waves of corruption through every galaxy.

To save the Universe, you must battle your way through the Castle to find and collect the six stones and use their force against Scarthax to destroy Doomsday Castle, hopefully escaping yourself before the final cataclysmic explosion.

The task is not easy (saving the Universe never is!) and it will take you many games to unfold the structure of Doomsday Castle and discover the locations of the ancient stones.

The addictive arcade style action will keep you coming back to play but the overall challenge should still keep you occupied for months.

FANTASY SOFTWARE is available from W.H.SMITHS, JOHN MENZIES, BOOTS, LASKYS, GREENS, RUMBELOWS, SPECTRUM GROUP, COMPUTERS FOR ALL and all other good software retailers.

The Pyramid at £5.50 and Doomsday Castle at £6.50 from

FANTASY SOFTWARE, FALCONBERG LODGE, 27A ST GEORGES ROAD, CHELTENHAM, GLOS GL50 3DT
despatched by return first class post together with free membership and current newsletter of the Fantasy Micro Club.
Trade Enquiries welcome — telephone 0242-583661.