

basic TRAINING



Whodunit?

A terrible crime has taken place, and the police don't have a clue. There are six suspects in the case, but only one is the criminal. Who is the guilty one? Is it Mary Mouse? Or the famous Prince Petunia? Or Carmen Cat? Maybe the butler did it—Butler Bug that is.

Luckily, there is a famous detective on hand to solve the crime. (That's you!) The computer will give you clues for each suspect. (It may repeat, so be patient.) Only the criminal had a reason (motive), the right weapon and the opportunity to commit the crime. You have three guesses to decide "whodunit." Each time you play, the computer picks a different criminal and a different set of clues.

On these two pages you'll find a version of the program for Apple II computers and one for TI 99/4A. For other computers, follow the instructions on the next page.

Our thanks to Terence "Turbo" Groening, 14, of Milford, Wisconsin for clueing us in on this program.

Apple

```

10 DIM S$(6), S(6,3)
20 HOME: CLEAR
30 PRINT "WHODUNIT?????"
40 GOSUB 480
50 Z=X:CS=$
60 FOR I=1 TO 3
70 S(Z,I)=1:NEXT I
80 FOR I=1 TO 6
90 IF I=Z THEN 130
100 FOR K=1 TO 2
110 J=INT (RND (1) * 3) + 1
120 S(I,J)=1:NEXT K
130 NEXT I
140 REM LOOP
150 GOSUB 480
160 PRINT:PRINT $$
170 I=INT (RND (1) * 3) + 1
180 ON I GOTO 190, 220, 250
190 IF S(X,I)=1 THEN 210
200 PRINT "HAD NO MOTIVE": GO
    TO 280
210 PRINT "HAD A MOTIVE": GOTO
    280
220 IF S(X,I)=1 THEN 240
230 PRINT "HAD WRONG
    WEAPON":GOTO 280
240 PRINT "HAD RIGHT
    WEAPON":GOTO 280
250 IF S(X,I)=1 THEN 270
260 PRINT "HAD NO
    OPPORTUNITY":GOTO 280
270 PRINT "HAD THE
    OPPORTUNITY"
280 PRINT:PRINT "ARE YOU READY
    TO GUESS? Y/N?"
290 INPUT RS
300 IF RS="Y" THEN 320
310 GOTO 140
320 REM GUESS
330 G=G+1
340 PRINT "WHOM DO YOU
    SUSPECT?"
350 INPUT GS
360 IF LEFT$(GS,1)=LEFT$(CS,1)
    THEN 400
370 PRINT "WRONG"
380 IF G <= 2 THEN 140
390 GOTO 420
400 PRINT "RIGHT-
    IN":G:"GUESSES!"
410 GOTO 420
420 PRINT "OUT OF GUESSES!!"
430 PRINT "IT WAS":CS
440 PRINT "PLAY AGAIN? Y/N"
450 INPUT RS
460 IF RS="Y" THEN 20
470 END
480 RESTORE
490 X=INT (RND (1) * 6) + 1
500 FOR I=1 TO X
510 READ AS:SS=AS:NEXT I
520 RETURN
530 DATA BUTLER BUG, DUKE DOG,
    MARY MOUSE, CARMEN CAT,
    PRINCE PETUNIA, GARY
    GRASSHOPPER
    
```

TI 99/4A

```

10 DIM S(6,3)
20 FOR X = 1 TO 6
30 READ AS
40 $$ (X) = AS
50 NEXT X
60 CALL CLEAR
70 PRINT "WHODUNIT???"
80 FOR I = 1 TO 6
90 FOR J = 1 TO 3
100 S(I,J) = 0
110 NEXT J
120 NEXT I
130 G = 0
140 Z = INT (RND * 6) + 1
150 FOR I = 1 TO 3
160 S(Z,I) = 1
170 NEXT I
180 FOR I = 1 TO 6
190 IF I = Z THEN 240
200 FOR K = 1 TO 2
210 J = INT (RND * 3) + 1
220 S(I,J) = 1
230 NEXT K
240 NEXT I
250 REM LOOP
260 X = INT (RND * 6) + 1
270 PRINT
280 PRINT $$ (X)
290 I = INT (RND * 3) + 1
300 ON I GOTO 310, 360, 410
310 IF S(X,I) = 1 THEN 340
320 PRINT "HAD NO MOTIVE"
330 GOTO 450
340 PRINT "HAD A MOTIVE"
350 GOTO 450
360 IF S(X,I) = 1 THEN 390

```

```

370 PRINT "HAD WRONG
WEAPON"
380 GOTO 450
390 PRINT "HAD RIGHT WEAPON"
400 GOTO 450
410 IF S(X,I) = 1 THEN 440
420 PRINT "HAD NO
OPPORTUNITY"
430 GOTO 450
440 PRINT "HAD OPPORTUNITY"
450 PRINT
460 PRINT "ARE YOU READY TO
GUESS Y = N?"
470 INPUT R$
480 IF R$ = "Y" THEN 500
490 GOTO 250
500 REM GUESS
510 G = G + 1
520 PRINT "WHOM DO YOU
SUSPECT?"
530 INPUT G$
540 IF SEG$(G$,1,1) = SEG$(
$$ (Z), 1, 1) THEN 580
550 PRINT "WRONG"
560 IF G <= 2 THEN 250
570 GOTO 600
580 PRINT "RIGHT-GOT IT IN "; G;
"
GUESSES"
590 GOTO 620
600 PRINT "OUT OF GUESSES!!"
610 PRINT "IT WAS "; $$ (Z)
620 PRINT "PLAY AGAIN Y/N?"
630 INPUT R$
640 IF R$ = "Y" THEN 60
DATA BUTLER BUG, DUKE DOG,
MARY MOUSE, CARMEN CAT,
PRINCE PETUNIA, GARY
GRASSHOPPER

```



IDM

Use the Apple II version. Change line 20 to read:
20 CLS: CLEAR

Commodore 64/128

Use the Apple II version. Change line 20 to read:
20 PRINT CHR\$(147): CLR

Atari

400/800, 400XL/800XL

Use the Apple II version. Add or replace these lines:

```

10 DIM $$ (20), C$(20), G$(20), A$(20),
R$(1), S(6,30)
20 PRINT CHR$(125): G = 0
21 FOR I = 1 TO 6
22 FOR J = 1 TO 3
23 S(I,J) = 0
24 NEXT J: NEXT I
360 IF G$(1,1) = C$(1,1) THEN 400

```

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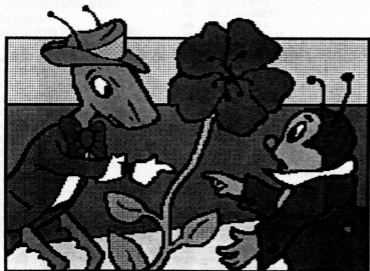
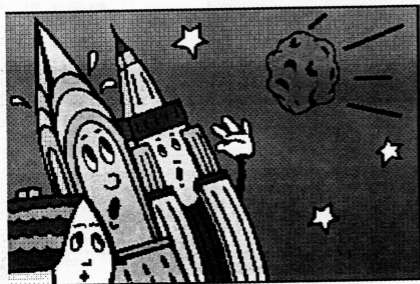


ILLUSTRATION BY ANDREW L. STUBBS

basic TRAINING

PROGRAMS FOR YOUR COMPUTER



Meteor

IBM

When Halley's Comet was in sight last year, some people were nervous about comets hitting the Earth. Well, now that it's on its way back to the edge of the solar system, we can all relax. That is, except for the people who live in the houses drawn by this program.

Unfortunately, their homes are about to be squashed by a meteor from outer space! Bryan Lucas, 14, of Aurora, Colorado created this smashing program.

```
10 SCREEN 1:KEY OFF
20 CLS:SOUND ON
30 LINE(1,198)-(320,198),2
40 LINE(1,199)-(320,199),2
50 LINE(1,175)-(40,197),2,B
```

```
60 LINE(45,175)-(85,197),2,B
70 LINE(90,175)-(130,197),2,B
80 LINE(135,175)-(175,197),2,B
90 LINE(180,175)-(220,197),2,B
100 LINE(225,175)-(265,197),2,B
110 LINE(270,175)-(310,197),2,B
120 FOR Z = 1 TO 170 STEP 5
130 SOUND 500-Z,3,15,0
140 CIRCLE(Z,Z),7
150 PAINT(Z,Z),10
160 PAINT(Z,Z),0
170 PAINT(Z,Z),0
180 NEXT Z
190 SOUND 37,17,15,0
200 FOR D = 1 TO 1000: NEXT D
210 FOR P = 1 TO 115 STEP 6
220 Z = 198
230 FOR D = 1 TO 100: NEXT D
240 SOUND 300 + P,15,0
250 CIRCLE(Z,Z),P...3,12
260 LINE(180,175)-(220,197),0,B
270 IF P <> 31 THEN 300
280 LINE(135,175)-(175,197),0,B
290 LINE(225,175)-(265,197),0,B
300 IF P <> 79 THEN 330
310 LINE(270,175)-(310,197),0,B
320 LINE(90,175)-(130,197),0,B
330 NEXT P
```

X-tra!!!

Apple

Here's an X-tra special colorful program to run on your Apple II. It was X-ecuted by Todd Zimnoch, of Baltimore, Maryland, and we think it is X-cellent!

```
10 HOME : GR
20 COLOR = 1
30 FOR S = 0 TO 39
40 VLN O,39 AT S
50 NEXT S
60 FOR S = 0 TO 39
70 COLOR = INT ( RND (1)*
232 + 1)
80 PLOT 0,S: PLOT S,S: PLOT S,0:
PLOT 39,S: PLOT S, 39: PLOT
39-S,S: PLOT S,39-S
90 NEXT S
100 GOTO 30
```

Canary

Atari

This program is as free as a bird. We won't even send you a bill. Run it, and you can use your joystick to make your Atari sing like a canary. Thanks to John Dean, 13, of Kearnsville, West Virginia for hatching this program.

```
10 GRAPHICS 2
20 SETCOLOR 2,0,0
25 X = 120:Y = 48
30 A = PEEK(106)-8:POKE
54279,A
40 PM = 256*A
50 POKE 53248,X
60 FOR I = PM + 512 TO PM + 640
70 POKE I,0: NEXT I
80 POKE 704,25
```

```

90 FOR I = PM + 512 + Y TO
   PM + 516 + Y
100 READ A:POKE LA
110 NEXT I
120 DATA 25,63,14,4,12
130 A = STICK(0)
140 IF A = 15 THEN 130
150 IF A = 11 THEN X = X - 1:POKE
   53248,X
160 IF A = 7 THEN X = X + 1:POKE
   53248,X
170 IF A <> 13 THEN 220
180 FOR I = 6 TO 0 STEP -1
190 POKE PM + 512 + Y + I,
   PEEK(PM + 511 + Y + I)
200 NEXT I:Y = Y + 1
210 IF A <> 14 THEN 250
220 FOR I = 0 TO 6
230 POKE PM + 511 + Y + I,
   PEEK(PM + 512 + Y + I)
240 NEXT I:Y = Y - 1
250 POKE 755,1
260 POKE 712,150:POKE 710,150
270 POSITION 7,5
280 PRINT #6:"CANARY"
290 FOR ST = 0 TO A
300 SOUND 0,ST,14,4
310 NEXT ST
320 SOUND 0,0,0,0
330 GOTO 130

```



Batting Practice

Commodore 64/128

It's the middle of winter, and in most places it's too cold to be outside playing baseball. You can still get in a little batting practice, though, with this "Batting Practice" program. Run the program and a ball will be pitched from left to right on your screen. When it gets over the plate, swing your bat by pressing the letter "H" (for hit). Dewey Spencer, 13, of Ayer, Massachusetts hit a home run when he wrote this program.

```

240 REM THE HITS
250 ON B GOTO 260,280,300,320
260 PRINT "POP FLY!!!"
270 Q = 16:D = 40:GOTO 340
280 PRINT "HOME RUN!!!"
290 Q = 12:D = 42:GOTO 340
300 PRINT "LINE DRIVE!!!"
310 Q = 5:D = 47:GOTO 340
320 PRINT "GROUNDER!!!"
330 Q = 4:D = 50:GOTO 340
340 FOR P = 1 TO Q
350 POKE 1,81
360 FOR T = 1 TO 50:NEXT T
370 POKE 1,96:1 = I - D
380 NEXT P
390 GOTO 410
400 PRINT "STRIKE!!!"
410 FOR DE = 1 TO 500:NEXT DE
420 GOTO 50

```



```

10 REM BATTING PRACTICE
20 PRINT CHR$(147)
30 POKE 53280,2:POKE 53281,0
40 PRINT CHR$(5)
50 REM GAME LOOP
60 PRINT CHR$(147)
70 I = 1739
80 FOR P = 1 TO 3
90 POKE 1,111:1 = I + 1
100 NEXT P
110 POKE 1621,78
120 REM PITCHING LOOP
130 I = 1584
140 FOR P = 1 TO 39
150 POKE 1,81
160 FOR T = 1 TO 90:NEXT T
170 POKE 1,96:1 = I + 1
180 GET AS:IF AS <> "H"
   THEN 210
190 POKE 1621,77
200 IF I > 1617 AND I < 1622
   THEN 230
210 NEXT P
220 GOTO 400
230 B = 1622 - I

```

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Planet Processor

Apple II

A lot of people have computer systems. But how many have their own solar systems? Be the first on your block with your own collection of custom-made planets. Just type in this program and follow the built-in instructions.

Jared Harel, 14, of New Albany, Indiana, created this out-of-this-world program.

```
10 HOME:HGR
20 VTAB 23: INPUT "HOW MANY
  STARS?":S
30 FOR I=1 TO 5
40 C=INT(7*RND(1))
50 IF C=4 THEN 40
60 HCOLOR=C
70 X=INT(279*RND(1))
80 Y=INT(159*RND(1))
90 HPLLOT X,Y:NEXT I
100 VTAB 23
110 INPUT "HOW MANY
  PLANETS? (1-7)":P
120 IF P>7 THEN 100
130 FOR K=1 TO P
140 PRINT "RADIUS FOR
  PLANET":K
150 PRINT "INPUT 1-25"
160 INPUT RA(K): NEXT K
170 HOME
180 FOR K=1 TO P
190 C=INT(7*RND(1))
200 IF C=0 OR C=4 THEN 190
210 HCOLOR=C
220 REM
230 XC=INT(279*RND(1))
240 YC=INT(159*RND(1))
250 FOR R=RA(K) TO 1 STEP-1
260 IF R+XC>279 THEN 230
270 IF R+YC>159 THEN 230
280 IF XC<0 THEN 230
290 IF YC<0 THEN 230
300 HPLLOT XC+R,YC
310 FOR I=0 TO 6.6 STEP .3
320 X=R*COS(I)+XC
330 Y=-R*SIN(I)+YC
340 HPLLOT X,Y
```

```
350 NEXT I: NEXT R: NEXT K
360 FOR I=1 TO 20
370 C=INT(RND(1)*7)
380 X4=INT(RND(1)*279)
390 Y4=INT(RND(1)*159)
400 HCOLOR=C
410 HPLLOT X4,Y4:NEXT I
420 HOME: VTAB 22
430 PRINT "SOLAR SYSTEM
  FINISHED"
```

Summer Sprites

Commodore 64/128

Here's a short program that will show you sprites on the Commodore 64. When the program runs, colored diamonds appear one at a time in the upper left-hand corner of your screen. They bounce around until eight are showing, then they begin to "turn off" one at a time. The program will continue as long as you're in a sprightly mood.

```
10 REM SPRITES
20 PRINT CHR$(147)
30 POKE 53280,0
40 POKE 53281,0
50 XY=53248
60 EN=53269
70 COL=53287
80 POI=2040
90 DAT=3840
100 DIM VX(8),VY(8)
```

```
110 FOR I=0 TO 7
120 READ VX(I):READ VY(I):NEXT
130 DATA 2,3,1,1,2,1,3,4,3,2,4,5,8,10,
  2,2
140 FOR I=0 TO 15
150 POKE XY+I,0:NEXT
160 FOR I=0 TO 63
170 READ X
180 POKE DAT+I,X:NEXT
190 FOR I=0 TO 7
200 POKE COL+I,I+1
210 POKE POI+I,60:NEXT
220 POKE EN,255
230 NUM=0:INC=1
240 FOR I=0 TO NUM
250 X=PEEK(XY+2*I)+VX(I)
260 IF X>255 THEN VX(I)=
  -VX(I):X=255
270 IF X<50 THEN VX(I)=
  -VX(I):X=50
280 POKE XY+2*I,X
290 NEXT
300 FOR I=0 TO NUM
310 X=PEEK(XY+2*I+1)+VY(I)
320 IF X>200 THEN VY(I)=
  -VY(I):X=200:NUM=NUM+
  INC:IF NUM=8 THEN INC=-
  1:NUM=7
330 IF X=200 AND NUM=0 THEN
  INC=1
340 IF X<50 THEN VY(I)=
  -VY(I):X=50
350 POKE XY+2*I+1,X
360 NEXT:GOTO 240
1010 DATA 1,128,0,3,192,0,7,224,0
1020 DATA 15,240,0,31,248,0,63,252,0
1030 DATA 127,254,0,255,255,0,
  255,255,0
1040 DATA 127,254,0,63,252,0,
  31,248,0
1050 DATA 15,240,0,7,224,0,3,192,0
1060 DATA 1,128,0,0,0,0,0,0,0,0
1070 DATA 0,0,0,0,0,0,0,0
```

Moon Journey

Atari 800/400 XL

This month we have two "looney" (or is that lunar?) programs. The first is a short animated cartoon of a space voyage. You will see a space-ship blast off, fly over a very strange lunar landscape and then land.

A program like this only comes around once in a blue moon. Our thanks to **Daniel Top**, 9, of Miami, Florida, for rocketing it to us.

```

10 POKE 752,1
20 A = 80:B = 75:C = 83
30 GRAPHICS 7 + 16
40 COLOR 3:PLOT 80,80
50 DRAWTO 90,80
60 DRAWTO 90,60
70 COLOR 2
80 PLOT 84,A: DRAWTO 86,B
90 DRAWTO 88,A: DRAWTO 84,A
100 COLOR 1
110 DRAWTO 84,C: DRAW TO 88,C
120 DRAWTO 88,A
130 SOUND 0,80,8,9
140 IF B = 0 THEN 160
150 A = A-1:B = B-1:C = C-1:GOTO 30

160 GRAPHICS 7 + 16
170 COLOR 3:PLOT 80,80
180 DRAWTO 90,80: DRAWTO 90,60
190 SOUND 0,0,0,0
200 FOR R = 1 TO 500:NEXT R
210 GRAPHICS 7 + 16
220 FOR X = 80 TO 60 STEP -1
230 COLOR 2
240 PLOT 60,2
250 DRAWTO 100,2: DRAWTO 121,22
260 DRAWTO 121,52: DRAWTO 100,73
270 DRAWTO 60,73: DRAWTO 39,52
280 DRAWTO 39,22: DRAWTO 60,2
290 PLOT 50,33: DRAWTO 60,34
300 DRAWTO 55,40: DRAWTO 50,33
310 PLOT 65,7: DRAWTO 100,60
320 COLOR 1
330 PLOT 80,X
340 SOUND 0,80,8,4
350 NEXT X
360 FOR U = 1 TO 500:NEXT U
370 A = 1:C = 10
380 GRAPHICS 7 + 16
390 COLOR 2
400 PLOT 0,60: DRAWTO 50,50
410 DRAWTO 80,50: DRAWTO 150,60

420 COLOR 1:PLOT 80,A
430 DRAWTO 75,C: DRAWTO 85,C
440 DRAWTO 80,A
450 IF C = 50 THEN 480
460 SOUND 0,80,8,9
470 A = A + 1:C = C + 1:GOTO 380
480 PLOT 80,41: DRAWTO 80,34
490 COLOR 3
500 DRAWTO 85,34: DRAWTO 85,38
510 DRAWTO 81,38
520 SOUND 0,0,0,0
530 FOR I = 1 TO 1500:NEXT I

```



WWW.BYTEUNIVERSITY.COM/STUDENTS/DT11

Lunar Explorer

IBM PCjr. (128K) and IBM PC with color graphics

Here's another "moonlighting" program. This one is a real action game. You must move your spaceship through the cavern without hitting the floor or ceiling. Keep your ship from falling by tapping any key.

Brandon Tibbets, 16, of West Hartford, Connecticut, landed this program for us.

```

10 RANDOMIZE TIMER
20 CLS: CLEAR, 32768!
30 SOUND ON
40 SCREEN 5: KEY OFF
50 RM = 1: XB = 40
60 DRAW "BM@.6C12R16L1H1L
12D2C4R12L1G1L8BL1BU4C
11R10H1LSU1R8H1L6R1E1R2
D1C15R1D1R1D1BD1BL3C3L
3U1F1U1E1"
70 DIM S(85)
80 GET(0,0)-(16,8),S
90 CLS
100 LINE(0,0)-(60,20),6
110 FOR A = 1 TO 8
120 READ X,Y: LINE-(X,Y),6
130 NEXT A
140 PAINT(160,10),6,6
150 PAINT(160,190),6,6
160 FOR X = 60 TO 240 STEP 20
170 Z = INT(RND*43 + 1) + XB

```

```

180 LINE(X,20)-(X + 10,Z),6
190 LINE-(X + 20,20),6
200 PAINT(X + 10,22),6,6
210 Z = INT(RND*50 + 1) + 100
220 LINE(X + 10,180)-(X + 20,Z),6
230 LINE-(X + 30,180),6
240 PAINT(X + 20,178),6,6
250 NEXT
260 LOCATE 1,10
270 PRINT "LEVEL"; RM
280 X = 1: Y = 30: YAD = 0
290 PUT(X,Y),S
300 KS = INKEY$
310 IF KS = "" THEN
YAD = YAD + 4: GOTO 350
320 YAD = YAD - 1
330 NOISE 4,8,5
340 NOISE 4,4,5
350 PUT(X,Y),S: X = X + 1
360 Y = Y + YAD
370 IF POINT(X + 17,Y + 6) = 6 OR
POINT(X + 9,Y - 1) = 6 OR
POINT(X + 8,Y + 9) = 6 THEN
430
380 PUT(X,Y),S
390 IF X < >303 THEN GOTO 300
400 PLAY "T355L64MLO0
V15EFEE"
410 RM = RM + 1: XB = XB + 2
420 CLS: RESTORE: GOTO 100
430 NOISE 6,13,1
440 NOISE 6,15,2
450 NOISE 6,12,1
460 LOCATE 10,15
470 PRINT "GAME OVER"
480 PRINT "PLAY AGAIN? Y/N"
490 INPUT A$
500 IF A$ = "N" THEN 530
510 RM = 1: CLS: RESTORE: XB = 40:
GOTO 100
520 DATA 260,20,290,90,320,90,320,
110,290,110,270,180,70,180,0,199
530 END

```

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Basic Training

Animal Keeper

Did you ever want to run your own zoo? Or be a naturalist, studying animals from around the world? This program won't catch real animals for you, but it will let you collect information about animals.

This program is a database. When you type it in, you'll find there are facts about four animals stored in your files. (We chose four animals from the article on prehistoric creatures in this month's issue.) You can read about the animals, or you can start adding your own animals to the file. **NOTE:** When entering information, be sure not to use any commas.

You can also have the computer make up new animals, which you have to name. If you have a disk drive, you can save your files for the next time you run the program. If you don't have a disk drive, leave out lines 690-760 and lines 790 through 890.

The program is written for Apple II computers. To adapt it for IBM or Commodore Machines, follow the instructions after the program.



ILLUSTRATION BY WALTER BIRCH

Apple II

```
10 DIM N$(30), H$(30), F$(30),
   Y$(30), C$(30)
20 DS = CHR$(4)
30 GOSUB 1020
40 HOME
50 PRINT "WELCOME TO
   ANIMAL KEEPER"
60 PRINT "WOULD YOU LIKE
   TO:
70 PRINT "1) READ ABOUT
   ANIMALS?"
80 PRINT "2) ENTER NEW
   ANIMALS?"
90 PRINT "3) HAVE THE
   COMPUTER MAKE UP AN
   ANIMAL?"
110 PRINT "5) SAVE YOUR FILES
   ON A DISK?"
120 PRINT "6) LOAD OLD FILES?"
130 PRINT "7) END"
140 PRINT: PRINT "CHOOSE ONE
   BY NUMBER"
150 INPUT XS: X = VAL(X$)
160 ON X GOTO
   180,390,500,610,680,780,910
170 GOTO 40
180 REM READ ABOUT
   ANIMALS
190 HOME
200 PRINT "WOULD YOU LIKE
   TO:
210 PRINT "1) CHOOSE AN
   ANIMAL"
220 PRINT "2) LET COMPUTER
   CHOOSE"
230 PRINT "3) RETURN TO MAIN
   MENU"
240 INPUT XS
250 IF XS = "3" THEN 40
260 IF XS = "1" THEN 300
270 P = INT (RND (1) * Q) + 1
280 A = P:B (1) = P:B(2) = P:
   B(3) = :B(4) = P
290 GOSUB 920: GOTO 190
300 PRINT: PRINT
310 PRINT "ENTER NAME OF
   ANIMAL"
320 P = 1: INPUT AS
330 IF AS = N$(P) THEN 280
340 IF N$(P) = "XXX" THEN 360
350 P = P + 1: GOTO 330
360 PRINT: PRINT "NO SUCH
   ANIMAL ON FILE"
370 PRINT "PRESS RETURN TO
   CONTINUE"
380 INPUT AS: GOTO 190
390 REM ENTER NEW
   ANIMAL
400 Q = Q + 1: HOME
410 PRINT "NEW ANIMAL"
420 INPUT "NAME: "; N$(Q)
430 INPUT "WHERE FOUND: ";
   H$(Q)
440 INPUT "FOOD: "; F$(Q)
450 INPUT "AGE OF SPECIES: ";
   Y$
460 INPUT "SPECIAL
   CHARACTERISTICS: ";
   C$(Q)
470 INPUT "IS EVERYTHING
   CORRECT? Y/N": AS
480 IF AS = "N" THEN Q = Q - 1:
   GOTO 400
490 N$(Q + 1) = "XXX":
   GOTO 40
500 REM RANDOM ANIMAL
510 A = 0: FOR X = 1 TO 4
520 B(X) = INT (RND (1) * Q) + 1
530 NEXT X
540 GOSUB 920
550 PRINT: INPUT "DO YOU
   WANT TO SAVE THIS
   ANIMAL? Y/N": AS
560 IF AS <> "Y" THEN 590
```

```

570 Q = Q + 1: INPUT "ENTER
NAME OF ANIMAL:";
NS(Q)
580 HS(Q) = HS(B(1));
FS(Q) = FS(B(2))
590 YS(Q) = YS(B(3));
CS(Q) = CS(B(4))
600 NS(Q + 1) = "XXX";
GOTO 40
610 REM LIST ANIMALS
620 HOME
630 FOR X = 1 TO Q
640 PRINT NS(X): NEXT X
650 PRINT
660 INPUT "WHEN DONE,
PRESS RETURN"; AS
GOTO 40
670 REM SAVE FILES
680 PRINT DS: "OPEN
ANIMFILE"
700 PRINT DS: "WRITE
ANIMFILE"
710 FOR X = 1 TO Q
720 PRINT NS(X): PRINT HS(X)
730 PRINT FS(X): NEXT YS(X)
740 PRINT CS(X): NEXT X
750 PRINT "XXX"
760 PRINT DS: "CLOSE
ANIMFILE"
770 GOTO 40
780 REM LOAD OLD FILES
790 Q = 1
800 PRINT DS: "OPEN
ANIMFILE"
810 PRINT DS: "READ
ANIMFILE"
: INPUT NS(Q)
820 IF NS(Q) = "XXX" THEN
890
840 : INPUT HS(Q)
850 : INPUT FS(Q)
860 : INPUT YS(Q)
870 : INPUT CS(Q)
880 Q = Q + 1: GOTO 820
890 PRINT DS: "CLOSE
ANIMFILE"
Q = Q - 1: GOTO 40
910 END
920 REM PRINT ROUTINE
930 HOME
940 PRINT "ANIMAL NAME:";
NS(A)
950 PRINT "WHERE FOUND:";
HS(B(1))
960 PRINT "TYPE OF FOOD:";
FS(B(2))
970 PRINT "AGE OF SPECIES:";
YS(B(3))
980 PRINT "SPECIAL
CHARACTERISTICS:";
CS(B(4))

```

```

990 PRINT: PRINT "WHEN
DONE, PRESS RETURN"
1000 INPUT RS
1010 RETURN
1020 REM LOAD DATA
1030 FOR X = 1 TO 4
1040 READ AS: NS(X) = AS
1050 READ AS: HS(X) = AS
1060 READ AS: FS(X) = AS
1070 READ AS: YS(X) = AS
1080 READ AS: CS(X) = AS
1090 NEXT X
1100 Q = 4: NS(5) = "XXX"
1110 RETURN
1120 DATA ECHIDNA,
AUSTRALIA AND NEW
GUINEA, ANTS TERMITES
AND WORMS, 180 MILLION
YEARS, WHEN IN DANGER
THEY ROLL INTO A BALL,
THEY LAY EGGS
1130 DATA DUCK-BILLED
PLATYPUS, AUSTRALIA,
CRAYFISH SHRIMP SNAILS
AND FISH, 180 MILLION
YEARS, THEY LAY EGGS
HAVE DUCKLIKE BILLS
AND WEBBED FEET
1140 DATA OKAPI, AFRICAN
RAIN FOREST, PLANTS, 30
MILLION YEARS, THEY
HAVE ZEBRA STRIPES AND
A NECK LIKE A GIRAFFE
1150 DATA COELACANTH,
INDIAN OCEAN,
UNKNOWN, 350 MILLION
YEARS, HAS LEG-LIKE FINS

```

IBM

Change all HOME statements to CLS. Change or add these lines:

```

690 OPEN "ANIMFILE" FOR
OUTPUT AS #1
700 FOR X = 1 TO Q
710 AS = NS(X): WRITE #1, AS
715 AS = HS(X): WRITE #1, AS
720 AS = FS(X): WRITE #1, AS
725 AS = YS(X): WRITE #1, AS
730 AS = CS(X): WRITE #1, AS
740 NEXT X
750 AS = "XXX": WRITE #1, AS
760 CLOSE #1
800 OPEN "ANIMFILE" FOR
INPUT AS #1
810 INPUT #1, AS: NS(Q) = AS

```

```

820 IF NS(Q) = "XXX" THEN 890
830 INPUT #1, AS: HS(Q) = AS
840 INPUT #1, AS: FS(Q) = AS
850 INPUT #1, AS: YS(Q) = AS
860 INPUT #1, AS: CS(Q) = AS
870 Q = Q + 1: GOTO 810
880 CLOSE #1
890 REM

```

Commodore 64/128

Change all HOME statements to PRINT CHR\$(147). Change or add these:

```

690 OPEN 3,8,3,"@:
ANIMFILE.SEQ,W"
700 FOR X = 1 TO Q
710 PRINT #3, NS(X)
720 PRINT #3, HS(X)
730 PRINT #3, FS(X)
740 PRINT #3, YS(X)
750 PRINT #3, CS(X)
755 NEXT X
760 PRINT #3, "XXX"
765 PRINT #3: CLOSE 3
800 OPEN 3,8,3,"@:ANIMFILE,
SEQ,R"
810 INPUT #3, AS: NS(Q) = AS
820 IF NS(Q) = "XXX" THEN 890
830 INPUT #3, AS: HS(Q) = AS
840 INPUT #3, AS: FS(Q) = AS
850 INPUT #3, AS: YS(Q) = AS
860 INPUT #3, AS: CS(Q) = AS
870 Q = Q + 1: GOTO 810
880 PRINT #3: CLOSE 3
890 REM

```

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ILLUSTRATION BY MARTIN LEWIS, MAAN

Basic Training



Surf's Up

IBM PCjr and IBM PC with color graphics card.

It's the middle of winter, but some folks are still surfing, and not just the ones in Florida. The surfer in this animation program is still "hanging 10" on her video surfboard. Just run the program, watch her surf and listen to the waves.

Thanks to Patrick Wilson, 11, of Portland, Oregon, for shipping us this program.

```
10 SOUND ON
30 CLS:KEY OFF:SCREEN 1
30 LINE (0,175)-(319,175),1
40 PAINT (0,175),1
50 M$="E4:F4:H4:U8:H4;
F4:F4:H4:U6;"
```



```
60 B$="C2:BM140,170:R80;G10;
L60:H10:C2:BM200,
170:U55:M143,167,M200,167"
70 X1=0:Y1=0:X2=10:Y2=199
80 FOR A=1 TO 60
90 LINE (X1,Y1)-(X2,Y2),1
100 Y1=Y1+4:X2=X2+4
110 NEXT A
120 DRAW B$
130 PAINT (180,173),2
140 PAINT (180,163),2
150 CIRCLE (180,155),10,1
160 PAINT (180,155),1
170 LINE (140,170)-(220,170)
180 NOISE 6,15,950
190 PSET (40,100)
200 DRAW "E4:H4:L20:F4;G4;
R20"
210 PAINT (33,99),3
220 PSET (25,94):DRAW "C2:XM$;"
230 CIRCLE (29,75),3,2
240 PAINT (29,74),2
250 LOCATE 9,6:PRINT "S"
260 LOCATE 8,7:PRINT "U"
270 LOCATE 7,8:PRINT "R"
280 LOCATE 6,9:PRINT "F"
290 LOCATE 5,10:PRINT "'S UP!"
300 FOR DE=1 TO 150:NEXT DE
310 PSET (40,100)
320 DRAW "C0;E4:H4:L20;
F4;G4:R20"
330 PAINT (33,99),0
340 PSET (25,94):DRAW "C0:XM$;"
350 CIRCLE (29,75),3,0
360 PAINT (29,74),0
370 PSET (40,104)
380 DRAW "E4:H4:L20:F4;G4;
R20"
390 PAINT (33,103),3
400 PSET (25,98):DRAW "C2:XM$;"
410 CIRCLE (29,79),3,2
420 PAINT (29,78),2
430 FOR DE=1 TO 150:NEXT DE
440 PSET (40,104)
450 DRAW "C0;E4:H4:L20;
F4;G4:R20"
460 PAINT (33,103),0
470 PSET (25,98):DRAW "C0:XM$;"
480 CIRCLE (29,79),3,0
490 PAINT (29,78),0
500 GOTO 190
```

Doodler

Commodore 64/128

You've probably seen programs that let you draw on your computer screen with your joystick. Here's one that's a little different. Moving the joystick in different directions will fill your screen with colorful doodles. Press the fire button and the word "Zap!!" will appear. Push the joystick down and your screen will scroll in that direction. And hitting the FL key clears the screen so you can start over.

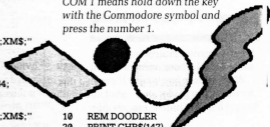
This program was drawn to our attention by Steve Murphy of Fairfax, Virginia.

NOTE: When typing the program, you sometimes have to press more than one key at a time.

CRSR UP means press the Shift key and the up-down CRSR key. **CRSR DN** means press the up-down CRSR key.

CRSR L means press the Shift key and the right-left CRSR key. **CTRL** followed by a number means hold down the CTRL key and press the number.

COM 1 means hold down the key with the Commodore symbol and press the number 1.

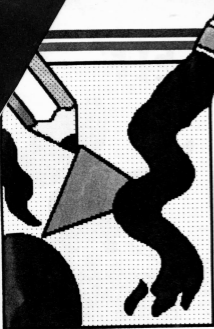


```
10 REM DOODLER
20 PRINT CHR$(147)
30 PRINT "AFTER START, PRESS F1
TO CLEAR SCREEN"
40 FOR D=1 TO 1000:NEXT D
50 PRINT CHR$(147)
60 JV=PEEK(56320):FR=JV
AND 16
70 JV=15-(JV AND 15)
80 IF JV=0 THEN 100
90 GOSUB 200
100 GET B$
```

you bounce a video "ball" off of the sides of your computer screen.

When you start the game, you'll see a ball heading for the bottom of your screen. Use the left and right arrow keys to make your paddle move along the bottom of the screen. You score points for hitting the ball with your paddle or hitting one of the three targets at the top of the screen. You lose points for letting the ball fall to the bottom. If you can score 30 points, you win.

Thanks to **Ben Marty**, 13, of North Fargo, North Dakota for bouncing this program our way.



```

110 IF B$ = "F1" THEN $0
120 IF FR = 16 THEN $0
130 PRINT " CTRL 2 CTRL 0
    !!!ZAP!!!";
140 GOTO 60
150 REM CHOOSE COLOR
210 IF JV = 1 THEN PRINT " CTRL 1
    CRSR UP CRSR L CTRL 9 ";
220 IF JV = 2 THEN PRINT " CTRL 8
    CRSR DN CRSR L CTRL 9 + ";
230 IF JV = 4 THEN PRINT SPC(39)
    " CTRL 4 CRSR L CRSR UP CTRL
    9 ";
240 IF JV = 5 THEN PRINT " CTRL 6
    CRSR UP CRSR L CRSR L CTRL
    9 ";
250 IF JV = 6 THEN PRINT " CTRL 3
    CRSR DN CRSR L CRSR L CTRL
    9 ";
260 IF JV = 8 THEN PRINT " CTRL 5
    CRSR R CRSR L CTRL 9 SHIF
    T
    O ";
270 IF JV = 9 THEN PRINT " COM 1
    CRSR UP CTRL 9 ";
280 IF JV = 10 THEN PRINT " CTRL 2
    CRSR DN CTRL 9 ";
290 RETURN
  
```

Rebound

Apple II

This program won't make you jump out of your seat, but it will let

```

10 HOME : GR
20 COLOR = 15
30 VLIN 0,39 AT 0
40 HLIN 0,39 AT 0
50 VLIN 0,39 AT 39
60 COLOR = 10: HLIN 0,39 AT 39
70 COLOR = 14: HLIN 19,28 AT 5
80 PLOT 5,5: PLOT 34,5
90 A = 18: PTS = 5: X = 6: Y = 1
100 X1 = 6: Y1 = 1
110 COLOR = 13
120 HLIN A,A + 4 AT 37
130 VTAB 22: HTAB 15
140 PRINT "POINTS": PTS: " "
150 IF PEEK (-16384) > 127 THEN
    GOSUB 410
160 IF SCRN(X,Y + 1) = 10 THEN
    PTS = PTS - 4: DIR(2) = 1: H =
    4: OP = PTS
170 IF SCRN(X + 1,Y) = 15 THEN
    DIR(1) = 1
180 IF SCRN(X - 1,Y) = 15 THEN
    DIR(1) = 0
190 IF SCRN(X,Y - 1) = 15 THEN
    DIR(2) = 0
200 IF SCRN(X + 1,Y) = 14 THEN
    DIR(1) = 1: PTS = PTS + 2
210 IF SCRN(X - 1,Y) = 14 THEN
    DIR(1) = 0: PTS = PTS + 2
220 IF SCRN(X,Y + 1) = 14 THEN
    DIR(2) = 1: PTS = PTS + 2
230 IF SCRN(X,Y - 1) = 14 THEN
    DIR(2) = 0: PTS = PTS + 2
240 IF SCRN(X + 1,Y) = 13 THEN
    PTS = PTS + 1: DIR(1) = 1
250 IF SCRN(X + 1,Y + 1) = 13 THEN
    PTS = PTS + 1: DIR(1)
    = 1: DIR(2) = 1
  
```

```

260 IF SCRN(X - 1,Y) = 13 THEN
    PTS = PTS + 1: DIR(1) = 0
270 IF SCRN(X - 1,Y + 1) = 13
    THEN PTS = PTS + 1: DIR(1) =
    0: DIR(2) = 1
280 IF DIR(1) = 0 THEN X = X + 1
290 IF DIR(2) = 0 THEN Y = Y + 1
300 IF DIR(1) = 1 THEN X = X - 1
310 IF DIR(2) = 1 THEN Y = Y - 1
320 COLOR = 15: PLOT X,Y:
    COLOR = 0: PLOT X1,Y1
330 X1 = X: Y1 = Y
340 IF H > 0 THEN H = H - 1: PTS
    = OP
350 IF PTS < 0 OR PTS > 29 GOTO
    370
360 GOTO 110
370 HOME
380 IF PTS > 29 THEN 400
390 PRINT "YOU LOST!": END
400 PRINT "YOU WON!": END
410 GET D$: COLOR = 0
420 HLIN A,A + 4 AT 37
430 IF D$ = CHR$(8) THEN IF A > 2
    THEN A = A - 2
440 IF D$ = CHR$(21) THEN IF A +
    4 < 38 THEN A = A + 2
450 IF A = 2 AND D$ = CHR$(8)
    THEN A = A - 1
460 IF A = 3 AND D$ = CHR$(21)
    THEN A = A + 1
470 COLOR = 13: HLIN A,A + 4
    AT 37
480 RETURN
  
```

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Basic Training



Robot Space Search

As an Interspace Detective (second class) your biggest wish is to get a promotion to Interspace Detective, first class. But in order to get your new badge, you have to prove yourself by cracking the case of the robot robbers!

Someone (or something) has stolen four top-secret robots from the Cleveland Mega-tech Cosmic Laboratories. Your job is to find as many robots as you can and bring them back to Earth.

Luckily, you can use your trusty planet-hopping vehicle to visit any of the nine planets in the solar system while searching for the robots. (We've even printed a rough map of the solar system for you to use.) Just follow the instructions of the computer to get from planet to planet.

There's one catch—you only have 100 units of fuel. Traveling to distant planets can burn up a lot. And recovering robots can take anywhere from one to 15 units. You have to get back to Earth to make your report, so keep your eye on the fuel gauge.

If you do get back and make your report, you get 50 points for every robot you've recovered. You can also score points for naming the location of robots, even if you didn't actually pick them up.

The program is written for Apple II computers. Following it are instructions for adapting it to other computers. Thanks to **John George, Jr.**, 13, of Altoona, Pennsylvania, for giving us the idea for this program.

Commodore 64/128

Change all HOME statements to
PRINT CHR\$(147)

Add or replace these lines:
5 POKE 53281,1:POKE 53280,1
960 FU=FU-1
961 C=C+1:IF C>8 THEN C=1
962 POKE 53281,C:POKE 53280,C
1011 POKE 53281,1:POKE 53280,1

IDM

Change all HOME statements to
CLS

Add or replace these lines:
5 SOUND ON
960 FU=FU-1
965 SOUND 700,8

END

Apple II

10 HOME
20 DIM P\$(10),MB\$(9),D(9),AD(9),
TS(9)

```
30 FU = 100:CL = 3:R = 0:S = 0
40 FOR X = 1 TO 9
50 READ A$:P$(X) = A$
60 READ A:D(X) = A
70 READ A$:MB$(X) = A$
80 READ A:AD(X) = A
90 TS(X) = "":NEXT X
100 FOR X = 1 TO 4
110 T = INT (RND (1) * 9) + 1
120 IF T = 3 THEN 110
130 IF TS(T) <> "" THEN 110
140 TS(T) = "T":NEXT X
150 REM GAME LOOP
160 IF FU < 1 THEN 650
170 GOSUB 870
180 IF TS(CL) = "T" THEN 200
190 PRINT "NO ROBOT
DETECTED":GOTO 310
200 PRINT "SHIP'S
SENSORS REPORT"
210 PRINT "STOLEN ROBOT IN
ORBIT"
220 PRINT "DO YOU WISH TO
RETRIEVE IT? Y/N"
230 INPUT AS
240 IF AS <> "Y" THEN 310
250 F = INT (RND (1) * 15) + 1
260 FU = FU - 1:GOSUB 950
270 PRINT "ROBOT
SUCCESSFULLY
RECOVERED":PRINT
280 TS(CL) = "":R = R + 1:S = S
+ 50
290 FOR DE = 1 TO 1500:NEXT
DE
300 GOTO 1500
310 IF CL <> 3 THEN 340
320 PRINT "DO YOU WISH TO
MAKE A REPORT? Y/N?"
330 INPUT AS:IF AS = "Y" THEN
670
340 PRINT "TYPE DESTINATION
PLAN ET"
350 INPUT DPS
360 FOR N = 1 TO 10
370 IF DPS = P$(N) THEN 390
380 NEXT N
390 IF N <> CL THEN 420
400 PRINT "DESTINATION IS
CURRENT LOCATION—RE-
ENTER"
410 GOTO 310
420 IF N < 10 THEN 450
430 PRINT "NO SUCH PLANET—
RE-ENTER"
440 GOTO 310
450 HOME
460 PRINT "DESTINATION
SELECTED":P$(N)
```



PHOTO TOP: JIM HURN; BOTTOM: DR. JEFFREY T. MITCHELL

```

470 IF NBS(N) = "M" THEN MS =
    " MILLION": GOTO 500
480 MS = " BILLION"
490 PRINT
500 PRINT "DISTANCE FROM
    SUN."
510 PRINT D(N); M$;
    " KILOMETERS"
520 PRINT
530 G = ABS (AD(CL) - AD(N))
540 PRINT "DISTANCE FROM "
    ;PS(CL)
550 PRINT G:
    " ASTRONOMICAL UNITS"
560 PRINT "FUEL REMAINING:"
    ;FU
570 PRINT: PRINT "ENTER
    COMMAND, THEN PRESS
    RETURN:"
580 PRINT "S TO START
    ENGINE."
590 PRINT "N TO SELECT NEW
    DESTINATION."
600 INPUT AS
610 IF AS <> "S" THEN 170
620 F = INT (G): IF F < 1 THEN F
    = 1
630 GOSUB 950
  
```

```

640 CL = N: GOTO 150
650 HOME: PRINT "OUT OF
    FUEL"
660 GOTO 340
670 HOME
680 PRINT "COMPUTER
    REPORTS:"
690 PRINT "YOU HAVE
    RECOVERED "; R:
    " ROBOTS"
700 IF R > = 4 THEN 840
710 R = 4 - R FOR Y = 1 TO R
720 PRINT "ENTER LOCATIONS
    OF REMAINING ROBOTS."
730 INPUT "PLANET:": AS
740 FOR X = 1 TO 10
750 IF AS = PS(X) THEN 790
760 NEXT X
770 IF X < 10 THEN 790
780 PRINT "NO SUCH PLANET":
    GOTO 830
790 IF T$(X) = "T" THEN 810
800 PRINT "NO ROBOT AT THAT
    LOCATION": GOTO 830
810 S = S + 25: T$(X) = ""
820 PRINT "ROBOT RECORDED
    AT "; AS
830 NEXT Y
  
```

```

840 PRINT "YOUR SCORE IS: "; S
850 PRINT "GAME OVER"
860 END
870 HOME
880 PRINT "NAVIGATION
    COMPUTER REPORT.":
    PRINT
890 PRINT "YOU ARE IN ORBIT
    ABOVE "; PS(CL)
900 IF MBS(CL) = "M" THEN MS =
    " MILLION": GOTO 920
910 MS = " BILLION"
920 PRINT D(CL); M$;
    " KILOMETERS FROM THE
    SUN"
930 PRINT
940 RETURN
950 FOR X = 1 TO F: HOME
960 FU = FU - 1: PRINT CHR$(
    7)
970 PRINT "SHIP'S ENGINE
    ACTIVATED"
980 PRINT "REMAINING FUEL: "
    ; FU
990 IF FU < 1 THEN X = F
1000 FOR DE = 1 TO 300: NEXT DE
1010 NEXT X
1020 FOR DE = 1 TO 600: NEXT DE
1030 RETURN
1040 DATA MERCURY,579,M,39
1050 DATA VENUS,108.2,M,72
1060 DATA EARTH,149.6,M,1
1070 DATA MARS,227.9,M,1.52
1080 DATA JUPITER,778.3,M,5.2
1090 DATA SATURN,1,427,B,9.54
1100 DATA URANUS,2.869,B,19.18
1110 DATA NEPTUNE,4.496,B,
    30.06
1120 DATA PLUTO,5.9,B,39.44
  
```

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PROGRAMS FOR YOUR COMPUTER

Confusing But Amusing

Now that you've read about the latest amusement park rides, here's a very strange amusement park of your own. In this confusing but amusing game, the aim is to get out of the amusement park. But there's a catch. There's a man at the gate who won't let you out without the password.

The password is a five-letter word and the letters have been scattered in the rides of the park. When you go on the rides, keep your eyes open and maybe you'll see them. Some rides may have no letters, others may have more than one. It's different every time you play. (So is the password.)

If you get the five letters but can't figure out the word, try going to Amusement and Match. There's a computer there that will help you. And keep track of your money and how you're feeling. Too many rides can make you sick.

The program is written for Apple II computers. To change it for IBM machines, change line 5 to CLS, and add line 12 RANDOMIZE TIMER. To change it for the Commodore 64/128, change line 5 to PRINT CHR\$(147), and add line 12] = RND (-TI).

Apple II

```
1 GOTO 10
5 HOME
8 RETURN
10 DIM WS(15), RS(5,5), C(5)
15 TIME1 = 4000: TIME2 = 3000
20 N = 25: I = 1
```

```
30 FOR X = 1 TO 15
40 READ AS: WS(X) = AS
50 NEXT X
60 FOR X = 1 TO 5
70 FOR Y = 1 TO 5
80 RS(X,Y) = "" : C(X) = 1
90 NEXT Y: NEXT X
100 W = INT (RND(1) * 15) + 1
110 FOR X = 6 TO 1 STEP - 1
120 D = 1
130 Y = INT(RND(1) * 5) + 1
140 IF RS(Y,D) <> "" THEN D = D + 1: GOTO 140
150 RS(Y,D) = MID$(WS(W),X,1): PRINT RS(Y,D);
160 NEXT X
170 GOSUB 5
180 IF I > 5.5 THEN 1350
190 PRINT "CONFUSING AMUSING PARK"
200 PRINT: PRINT TAB(5); "RIDE", "COST"
210 PRINT "1) TWIRLING TERROR", "5.00"
220 PRINT "2) REPULSIVE ROLLER", "2.00"
230 PRINT "3) HAUNTED HORROR", "3.00"
240 PRINT "4) SOGGY SLIDE", "1.00"
250 PRINT "5) MIX AND MATCH", "2.00"
260 PRINT "6) DEADLY DROP", "1.00"
270 PRINT "7) LET ME OUTTA HERE!"
280 PRINT: PRINT "YOU HAVE $": N
290 GOSUB 1410
300 PRINT "YOU FEEL ": I$
310 PRINT: PRINT "PICK A RIDE BY NUMBER"
320 INPUT P$
330 P = VAL(P$)
340 ON P GOTO 360,490,640,770,880,1150,1250
350 GOTO 170
360 REM TWIRLING TERROR
370 GOSUB 5: IF N < 5 THEN 1380
380 N = N - 5: I = I + 7
390 PRINT "YOU ARE STRAPPED INTO A SMALL CAR"
400 PRINT "IT RISES INTO THE AIR"
410 PRINT "YOU START SPINNING"
420 PRINT "SUDDENLY IT STOPS AND YOU DROP"
430 IF RS(1,C(1)) = "" THEN 460
440 PRINT "THE LETTER "; RS(1,C(1)); " FLASHES BY."
450 C(1) = C(1) + 1
460 PRINT "LUCKILY, THE CAR STOPS FIVE INCHES FROM THE GROUND"
470 FOR DE = 1 TO TIME1: NEXT DE
480 GOTO 170
490 REM REPULSIVE ROLLER
500 GOSUB 5: IF N < 2 THEN 1380
510 N = N - 2: I = I + 5
520 PRINT "YOU SIT IN THE FRONT SEAT"
530 PRINT "OF A GLEAMING ROLLER COASTER"
540 PRINT "SLOWLY, IT ROLLS UPHILL"
550 PRINT "YOUR STOMACH RISES AS YOU DROP"
560 PRINT "YOU HEAR SOMEONE SCREAMING"
570 IF RS(2,C(2)) = "" THEN 600
580 PRINT "THE LETTER "; RS(2,C(2)); " FLASHES BY"
590 C(2) = C(2) + 1
600 FOR DE = 1 TO TIME2: NEXT DE
610 PRINT "THE RIDE STOPS AND YOU STUMBLE OUT."
620 FOR DE = 1 TO TIME1: NEXT DE
630 GOTO 170
640 REM HAUNTED HORROR
650 GOSUB 5: IF N < 3 THEN 1380
660 N = N - 3: I = I + 5
```



```

670 PRINT "YOU WALK INTO A
DUNGEON"
680 PRINT "WEIRD NOISES FILL
THE AIR"
690 FOR DE = 1 TO TIME2:
NEXT DE
700 PRINT "A COFFIN OPENS
AND A SKELETON LUNGES
AT YOU."
710 PRINT "YOU SCREAM IN
FRIGHT."
720 IF RS(3,C(3)) = "" THEN 750
730 PRINT "YOU SEE THE
LETTER ";RS(3,C(3));" IN
THE COFFIN."
740 C(3) = C(3) + 1
750 FOR DE = 1 TO TIME1:
NEXT DE
760 GOTO 170
770 REM SOGGY SLIDE
780 GOSUB 5: IF N < 1 THEN
1380
790 N = N - 1: I = I + 4
800 PRINT "YOU CLIMB A
LADDER TO THE TOP OF A
SLIDE."
810 PRINT "DOWN YOU DROP
THROUGH WAVES OF
WATER."
820 IF RS(4,C(4)) = "" THEN 850
830 PRINT "THE LETTER ";
RS(4,C(4));" FLASHES BY."
840 C(4) = C(4) + 1
850 PRINT "YOU FALL INTO A
LARGE POOL."
860 FOR DE = 1 TO TIME1:
NEXT DE
870 GOTO 170
880 REM MIX AND MATCH
890 GOSUB 5: IF N < 2 THEN
1380
900 N = N - 2
910 PRINT "YOU ARE IN A
SMALL DARK ROOM."
920 PRINT "THERE IS A
COMPUTER SCREEN ON
THE WALL."
930 PRINT "ENTER LETTERS
TO BE MIXED."
940 INPUT M$
950 IF LEN(M$) = 5 THEN 990
960 PRINT "WRONG NUMBER
OF LETTERS"

```

```

970 GOTO 1130
980 X = 1: Y = 1
990 IF MID$(W$(W),X,1) =
MID$(M$,Y,1) THEN 1020
1000 Y = Y + 1: IF Y <= 5 THEN
990
1010 GOTO 1040
1020 Y = 1: X = X + 1: IF X <= 5
THEN 990
1030 GOTO 1060
1040 PRINT "SORRY, WRONG
LETTERS"
1050 GOTO 1130
1060 FOR X = 1 TO 30
1070 Z$ = ""
1080 FOR Y = 1 TO 5
1090 Z = INT(RND(1) * 5) + 1
1100 Z$ = Z$ + MID$(M$,Z,1)
1110 NEXT Y: PRINT Z$: NEXT X
1120 PRINT: PRINT "THE WORD
IS:";W$(W)
1130 FOR DE = 1 TO TIME2:
NEXT DE
1140 GOTO 170
1150 REM DEADLY DROP
1160 GOSUB 5: IF N < 1 THEN
1380
1170 N = N - 1: I = I + 3
1180 PRINT "YOU CLIMB ON TOP
OF A TABLE."
1190 PRINT "SOMEONE PUSHES
YOU OFF"
1200 IF RS(5,C(5)) = "" THEN
1230
1210 PRINT "YOU SEE THE
LETTER ";RS(5,C(5));" ON
THE TABLE."
1220 C(5) = C(5) + 1
1230 FOR DE = 1 TO TIME1:
NEXT DE
1240 GOTO 170
1250 GOSUB 5: REM EXIT
1260 PRINT "A MAN AT THE
GATE STOPS YOU."
1270 PRINT "HE ASKS FOR THE
PASSWORD:"
1280 INPUT P$
1290 IF P$ = W$(W) THEN 1330

```

```

1300 PRINT "SORRY, THAT'S
NOT IT."
1310 FOR DE = 1 TO TIME1:
NEXT DE
1320 GOTO 170
1330 PRINT "YOU'RE OUT!!"
1340 GOTO 1360
1350 PRINT "YOU'RE TOO SICK
TO GO ON."
1360 PRINT "GAME OVER"
1370 END
1380 PRINT "NOT ENOUGH
MONEY"
1390 FOR DE = 1 TO TIME2:
NEXT DE
1400 GOTO 170
1410 ON I GOTO 1420,1430,1440,
1450,1460
1420 I$ = "FINE": GOTO 1470
1430 I$ = "FAINT": GOTO 1470
1440 I$ = "VERY SICK": GOTO
1470
1450 I$ = "READY TO
VOMIT": GOTO 1470
1460 I$ = "YOU CAN'T TAKE
ANYMORE"
1470 RETURN
1480 DATA LUNCH,THING,
DROOP,CRUMB,HIKES,
1490 DATA KITES,GAMES,
WRING,CLOCK,PLUSH
1500 DATA PITCH,MINER,
ALONG,BREAK,SHARK

```

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PROGRAMS FOR YOUR COMPUTER



Space Chase

Here's an outer space adventure game that's more fun than a barrel of Vulcan space mice. The game is simple to play. In each situation, your control panel will show you a list of things you can do. Just type in the number of your choice and see what happens. **Hint:** You'll have to read carefully.

The program is for Apple II computers. To adapt it to other computers, just follow these instructions:

Atari 400/800, 400XL/800XL

Change all HOME statements to PRINT CHR\$(125)

Commodore 64/128

Change all HOME statements to PRINT CHR\$(147)

IBM

Change all HOME statements to CLS

```

10  B = 0:A = 0:F = 0:G = 0
20  DIM N$(15)
30  HOME
40  PRINT "WHAT IS YOUR
    NAME?"
50  INPUT N$
60  HOME
70  IF A = 1 THEN 140
80  PRINT "YOU ARE TAKING A
    NAP IN YOUR"
90  PRINT "STARSHIP, THE SS
    FLEABITE"
100 PRINT "SUDDENLY, AN ALIEN
    VESSEL APPEARS."
110 PRINT "IT COULD BE SPACE
    PIRATES!"
120 PRINT "YOU LEAP FOR THE
    CONTROL PANEL."
130 GOTO 150
140 PRINT "THERE'S NOTHING
    THERE"
150 FOR DE = 1 TO 7000: NEXT DE
160 IF F = 0 THEN 190
170 G = G + 1
180 IF G = 3 THEN 1100
190 GOSUB 1190
200 ON C GOTO 210,250,310,390,
    1130,70
210 GOSUB 1340
220 IF X = 7 AND Y = 3 THEN 470
230 IF X = 4 AND Y = 8 THEN 800

240 GOTO 1060
250 IF A <> 1 THEN 280
260 GOSUB 1040
270 GOTO 150
280 PRINT "THE BEAM HAS NO
    EFFECT."
290 PRINT "THE ALIENS DRAW
    CLOSER"
300 GOTO 150
310 IF A <> 1 THEN 340
320 GOSUB 1040
330 GOTO 150
340 PRINT "TORPEDO
    LAUNCHED!!!"
350 FOR DE = 1 TO 3000: NEXT DE
360 PRINT "THE ALIENS DESTROY
    YOUR TORPEDO AND LAUNCH
    THEIR OWN."
370 PRINT "IT WILL HIT YOU IN 30
    SECONDS"
380 F = 1: GOTO 440
390 IF A <> 1 THEN 420
400 GOSUB 1040
410 GOTO 150
420 PRINT "IT STRANGE NOISE
    COMES OUT OF YOUR RADIO."
430 PRINT "IT SOUNDS LIKE 7 DOG
    BARKS FOLLOWED BY 3 CAT
    SCREECHES."
440 PRINT "THE ALIEN SHIP
    VANISHES."
450 A = 1
460 GOTO 150
470 HOME
480 PRINT "YOU ARE IN ORBIT
    AROUND A SMALL PLANET."
490 PRINT "IT IS DESERTED."
500 IF B = 1 THEN 530
510 PRINT "BUT YOUR SHIP'S SEN-
    SORS SPOT A SMALL OBJECT
    FLOATING NEARBY."
520 PRINT "IT LOOKS LIKE A
    BOMB"
530 FOR DE = 1 TO 7000: NEXT DE
540 GOSUB 1190
550 ON C GOTO 560,620,710,780,
    1130,480
560 GOSUB 1340
570 IF X = 4 AND Y = 8 THEN 800
580 IF X = 7 AND Y = 3 THEN 600
590 GOTO 1060
600 PRINT "YOU'RE ALREADY
    THERE!"
610 GOTO 530
620 IF B <> 1 THEN 650
630 GOSUB 1040

```



WWW.BRNET.NL/NEWS/AS/BOOKS/8776

```

640 GOTO 530
650 PRINT "SLOWLY THE TRAC-
TOR BEAM DRAWS THE"
660 PRINT "OBJECT TO THE SS
FLEABITE"
670 B = 1
680 PRINT "IT'S NOT A BOMB—
JUST A LARGE TIN CAN."
690 PRINT "INSIDE ARE 4 PING-
PONG BALLS AND 8 RED
CUBES."
700 GOTO 530
710 IF B <> 1 THEN 740
720 GOSUB 1040
730 GOTO 530
740 PRINT "TORPEDO
LAUNCHED!!!"
750 PRINT "OBJECT
DESTROYED!!"
760 B = 1
770 GOTO 530
780 PRINT "THERE IS NO
RESPONSE"
GOTO 530
800 HOME
810 PRINT "YOU ARE NEAR A
LARGE SPACE STATION"
820 PRINT "AN ALIEN FACE FILLS
YOUR VIEWSCREEN"

```

```

830 PRINT "HE/SHE/IT IS VERY
UGLY."
840 FOR DE = 1 TO 7000: NEXT DE
850 GOSUB 1190
860 ON C GOTO 870,930,950,990,
1130,810
870 GOSUB 1340
880 IF X = 7 AND Y = 3 THEN 480
890 IF X = 4 AND Y = 8 THEN 910
900 GOTO 1060
910 PRINT "YOU'RE ALREADY
THERE"
920 GOTO 840
930 PRINT "THE BEAM HAS NO
EFFECT."
940 GOTO 840
950 PRINT "BY NOW, YOU SHOULD
HAVE LEARNED "
960 PRINT "TORPEDOS ARE
RUDE."
970 PRINT "THE ALIENS VAPOR-
IZE YOUR SHIP"
GOTO 1170
980 GOTO 1170
990 PRINT "AFTER A FEW SEC-
ONDS, YOU HEAR"
1000 PRINT "AN ALIEN VOICE SAY:
WELCOME"
1010 PRINT "TO THE PARTY. WHAT
TOOK YOU SO LONG?"
1020 GOTO 1170
1030 GOTO 1180
1040 PRINT "THERE'S NOTHING
THERE, CAPTAIN ":N$
1050 RETURN
1060 PRINT "WHERE ARE YOU?"
1070 PRINT "THOSE CO-ORDI-
NATES WERE WRONG."
1080 PRINT "YOU ARE LOST IN
SPACE"
1090 GOTO 1170
1100 PRINT "TORPEDO HIT!!"
1110 PRINT "YOU'RE STUCK IN
SPACE"
1120 GOTO 1170
1130 PRINT "YOU GO INTO HYPER-
SPACE AND"
1140 PRINT "ARE TRANSPORTED
TO ANOTHER PART"
1150 PRINT "OF THE GALAXY"
1160 PRINT "YOU GO BACK TO
SLEEP"

```

```

1170 PRINT "END OF GAME"
1180 END
1190 HOME
1200 PRINT "STARSHIP CONTROL
PANEL"
1210 PRINT "WHAT ARE YOUR IN-
STRUCTIONS."
1220 PRINT "CAPTAIN ":N$;"?"
1230 PRINT
1240 PRINT "1. START ENGINES"
1250 PRINT "2. TRACTOR BEAM"
1260 PRINT "3. MEGABOOM
TORPEDO"
1270 PRINT "4. MAKE RADIO
CONTACT"
1280 PRINT "5. GET OUT OF HERE—
QUICK"
1290 PRINT "6. VIEWSCREEN"
1300 INPUT C
1310 IF C < 0 OR C > 6 THEN 1190
1320 PRINT
1330 RETURN
1340 PRINT "INPUT NEW CO-ORDI-
NATES X,Y"
1350 INPUT X,Y
1360 PRINT
1370 PRINT "THE WARP ENGINES
START UP"
1380 PRINT "YOU ZOOM THROUGH
SPACE"
1390 FOR DE = 1 TO 3000: NEXT DE
1400 RETURN

```

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Correction

In our December 1986 issue, there was an error in the TI 99/4A adaptation of "Time Machine." It should include the instruction to delete line 10 of the Apple version.

basic TRAINING

PROGRAMS FOR YOUR COMPUTER

First Rate FX

Apple, Atari 400/800 400XL/800XL

In Hollywood, "FX" stands for "special effects," and that's what these two programs do—they create special sound effects on your computer. Just select the sound you want to hear from the menu, type in the number of your choice and hit RETURN. Then see if you can create other sounds and add them to these programs.

Thanks to Andrew Helms, 13 of Baltimore, Maryland, for the Apple program and Daniel Top, 9, of Miami, Florida, for the Atari version.

Apple

```
10 ONERR GOTO 60
20 DATA 173, 48, 192, 136, 208, 5,
  206, 1, 3, 240, 9, 202, 208, 245,
  174, 0, 3, 76, 2, 3, 96
30 FOR I = 770 TO 790
40 READ J: POKE LJ
50 NEXT I
60 HOME
70 PRINT "APPLE FX"
80 PRINT "1-ZAPPO"
90 PRINT "2-WACCO"
100 PRINT "3-EXIT"
110 INPUT "YOUR CHOICE?": C
120 HOME
130 PRINT "TO END NOISE PRESS
  CONTROL-C"
140 ON C GOTO 160, 230, 270
150 GOTO 60
160 FOR X = 1 TO 100
170 POKE 768, X: POKE 769, 4
180 CALL 770: NEXT X
190 FOR Y = 100 TO 1 STEP -1
200 POKE 768, Y: POKE 769, 4
210 CALL 770: NEXT Y
220 GOTO 160
230 P = INT (RND (1) * 255) + 1
240 POKE 768, P: POKE 769, 5
250 CALL 770
260 GOTO 230
270 HOME: END
```



ILLUSTRATION BY BOB BROWN

Atari

```
10 REM FX
20 SOUND 0,0,0,0
30 PRINT CHR$(125)
40 PRINT "ATARI FX"
50 PRINT "1. PING"
60 PRINT "2. ALIEN DISCO"
70 PRINT "3. ZAP"
80 PRINT "4. EXIT"
90 PRINT "CHOOSE ONE"
100 INPUT A
110 ON A GOTO 130, 180, 230, 290
120 GOTO 90
130 FOR B = 15 TO 0 STEP -0.8
140 FOR X = 1 TO 7
150 SOUND 0, 60, 10, B
160 NEXT X: NEXT B
170 GOTO 20
180 FOR X = 1 TO 3
190 FOR C = 500 TO 0 STEP -0.8
200 SOUND 0, 60, 10, C
210 NEXT C: NEXT X
220 GOTO 20
230 FOR X = 1 TO 20
240 FOR Y = 1 TO 5
250 FOR Z = 1 TO 3
260 SOUND 0, Y * 10 + Z * 2.10, Y * Z
270 NEXT Z: NEXT Y: NEXT X
280 GOTO 20
290 END
```

Probability Pegs

TI 99/4A

You've probably never seen a program like this before. When you run it, colored balls drop down the screen through a series of "pegs." Each time a ball "hits" a peg it has a 50 percent chance of falling to the left or the right. A ball could fall to the right every time, or it could fall to the left every time. But with most balls, the lefts and rights even out and they wind up near the middle. That's how this program demonstrates the law of probability.

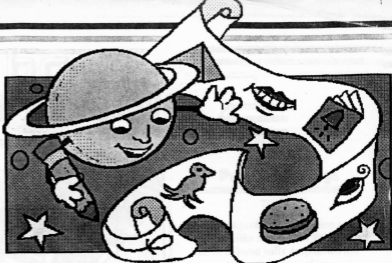
Michael Wasserman, 19, of Chicago, Illinois, took a chance and sent this program to us.

```
10 CALL CLEAR
20 CALL CHAR
  (33,"00003C3C3C3C")
30 FOR J = 1 TO 13 STEP 2
40 FOR I = 1 TO 31 STEP 2
50 CALL HCHAR(J,I,33)
60 NEXT I
70 NEXT J
80 FOR J = 2 TO 14 STEP 2
90 FOR I = 2 TO 30 STEP 2
100 CALL HCHAR(J,I,33)
110 NEXT I
120 NEXT J
130 FOR U = 64 TO 159
140 CALL CHAR
  (U,"3C7EFFFFFFE3C")
150 NEXT U
160 FOR F = 5 TO 16
170 CALL COLOR(F,F,I)
180 NEXT F
190 CALL HCHAR(18,5,32,21)
200 OLC = 1
210 ROW = 2
220 COL = 17
230 XS = STR$(X)
240 FOR D = 1 TO LEN(XS)
250 H = ASC(SEG$(XS,D,1))
260 CALL HCHAR(3,4 + D,H)
270 NEXT D
280 RANDOMIZE
290 CYT = INT(96 * RND) + 64
300 CALL HCHAR(ROW-1,OLC,32)
```

```

310 CALL HCHAR(ROW,COL,CYT)
320 IF ROW = 24 THEN 490
330 CALL GCHAR
    (ROW+1,COL,W)
340 OLC = COL
350 ROW = ROW + 1
360 IF W = 32 THEN 310
370 B = INT(2*RND) + 1
380 IF B = 2 THEN 440
390 CALL GCHAR(ROW,COL+1,W)
400 IF W > 33 THEN 490
410 IF W < 32 THEN 470
420 COL = COL + 1
430 GOTO 300
440 CALL GCHAR(ROW,COL-1,W)
450 IF W < 33 THEN 490
460 IF W = 32 THEN 390
470 COL = COL - 1
480 GOTO 300
490 X = X + 1
500 CALL SOUND(50,760,1)
510 IF X < 90 THEN 210
520 FOR D = 1 TO 2000
530 NEXT D

```



Space Hieroglyphics

Commodore 64/128

In this issue we have a story about a teenager who solved the mystery of some Maya hieroglyphics. Well, we dare you to figure out what these strange symbols mean. Are they a Martian phone book? A fast food menu from Jupiter? Or a grocery list from Alpha Centauri? Just run this program and see for yourself.

This message was brought to you by **Paul Slocum**, 11, of Richardson, Texas.

```

10 PRINT CHR$(5)
20 Y = 100: X = 100
30 POKE 53281, 0: POKE 53280, 0
40 PRINT CHR$(147)
50 V = 53248
60 POKE V + 21, 255
70 FOR A = 0 TO 7
80 POKE 2040 + A, 13: NEXT A
90 FOR A = 0 TO 7
100 POKE V + 39 + A, A: NEXT A
110 POKE V + 4, 100: POKE V + 5,
    100
120 FOR A = 0 TO 62
130 POKE 832 + A, 255: NEXT A
140 FOR F = 1024 TO 2023
150 Q = INT (RND (1)*127) + 128
160 POKE F, Q: NEXT F
170 FOR A = 0 TO 15
180 POKE V + A, 100 + A: NEXT A
190 A = INT (RND (1)*4) + 1

```

```

200 ON A GOTO 210, 220, 230, 240
210 X = X + 2: GOTO 250
220 Y = Y - 2: GOTO 250
230 Y = Y + 2: GOTO 250
240 X = X - 2
250 Q = INT (RND (1)*8)
260 POKE 53270, 88 + Q
270 POKE V + 4, Y: POKE V + 5, X
280 G = INT (RND (1)*15)
290 H = INT (RND (1)*999) + 55296
300 POKE H, G
310 P = H - 55296 + 1024
320 POKE P, PEEK (P - 128)
330 U = U + 1: IF U = 5 THEN U = 0:
    GOTO 350
340 GOTO 190
350 I = I + 2
360 IF I > 15 THEN I = 0
370 POKE V + 1, Y: POKE V + 1
    + 1, X
380 GOTO 190

```

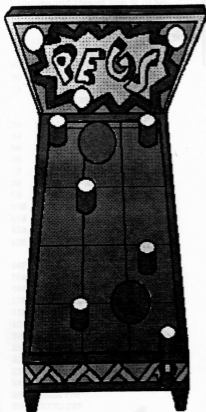
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Basic Training

Party Program

IBM, Apple II, Commodore 64/128

Here's a computer game to play with a bunch of friends—the more the merrier! First the program asks you for the names of everyone who will play. Type them in, one at a time.


Then you must type in a list of commands. These can be phrases such as, "jump around," or "bark like a dog."

Then the computer asks for a list of places or objects. Type them in as part of a phrase. For example: "under the table," or "with a spoon."

When you're done, the program mixes up all three lists and starts giving orders to the players. You can just have fun doing the crazy things the computer says, or you can make a game out of it by keeping score. Every time you follow the computer's orders, you get one point.


The program is written for the IBM PC and compatibles. To use it on Apple II machines, change all CLS commands to HOME. To use it on the Commodore 64/128, change all CLS commands to PRINT CHR\$(147).

```
10 REM PARTY
20 DIM N$(30), C$(30), P$(30)
30 N=0:C=0:P=0
40 CLS
50 PRINT "ARE YOU READY TO
PARTY?"
60 PRINT "Y OR N":
70 INPUT A$
80 IF A$<>"Y" THEN 280
```



```
90 CLS
100 GOSUB 300
110 GOSUB 390
120 GOSUB 480
130 P$(P)="WITH ":P=P+1
140 REM RANDOM CHOICES
150 CLS
160 N1=INT(RND(1)*N)
170 C1=INT(RND(1)*C)
180 P1=INT(RND(1)*P)
190 PRINT N$(N1);"—YOU
MUST ";
200 PRINT C$(C1);
205 PRINT " ";
210 PRINT P$(P1);
220 IF P$(P1)<>"WITH " THEN 250
230 N1=INT(RND(1)*N)
240 PRINT N$(N1)
250 PRINT
260 INPUT "KEEP PLAYING? Y/
N":A$
270 IF A$="Y" THEN 140
280 PRINT "TOO BAD!"
290 END
300 REM NAMES
310 CLS
320 PRINT "ENTER NAME AND
PRESS RETURN"
330 PRINT "WHEN DONE WITH
NAMES, JUST PRESS
RETURN"
340 X$=""
350 INPUT X$:IF X$="" THEN
380
360 N$(N)=X$:N=N+1
370 GOTO 300
380 RETURN
390 REM COMMANDS
400 CLS
410 PRINT "ENTER A
COMMAND AND PRESS
RETURN"
420 PRINT "WHEN DONE WITH
COMMANDS, PRESS
RETURN"
430 X$=""
440 INPUT X$:IF X$="" THEN
470
450 C$(C)=X$:C=C+1
460 GOTO 390
470 RETURN
480 REM OBJECTS OR PLACES
490 CLS
500 PRINT "ENTER PHRASE
WITH OBJECT OR PLACE,
THEN PRESS RETURN"
510 PRINT "WHEN DONE, JUST
PRESS RETURN"
```

```
520 X$=""
530 INPUT X$:IF X$="" THEN
560
540 P$(P)=X$:P=P+1
550 GOTO 480
560 RETURN
```



Maze Craze

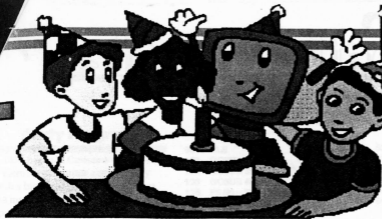
Apple II, Commodore 64/128

You might get lost when you play this game, but that's part of the fun. This program draws a maze on your computer screen. You have to find your way from the lower right hand corner to the upper left hand corner. Better hurry, though. You only have a limited number of moves before you lose.

You move by pressing the I, J, K, or M keys. The computer keeps track of how many moves you've made and displays the number on your screen. If you get stuck, you can get rid of part of the maze. First, press the S key, then press I, J, K, or M, depending on which part of the maze you want to go through. But you can only do this three times, so don't waste it.

This program found its way to us from **Stuart Zilm**, of Kelowna, British Columbia, Canada. We're glad it didn't get lost on the way.

```
Apple II
10 HOME:GR:M=0:S=0
20 COLOR=6
30 FOR A=0 TO 39
40 FOR B=0 TO 39
50 PLOT A,B
60 NEXT B:NEXT A
70 REM CREATE MAZE
80 COLOR=0
90 FOR X=1 TO 750
100 A=INT(RND(1)*40)
```



```

110 B=INT(RND(1)*40)
120 PLOT A,B
130 NEXT X
140 COLOR=4: PLOT 0,0
150 COLOR=15: PLOT 39,39
160 C=39:D=39
170 A=39:B=39
180 REM MOVEMENT
190 GET A$
200 IF A$ <> "S" THEN 310
210 IF S > 4 THEN 310
220 S=S+1
230 GET A$
240 GOSUB 530
250 IF A < 0 THEN 300
260 IF B < 0 THEN 300
270 IF B > 39 THEN 300
280 IF A > 39 THEN 300
290 COLOR=6: PLOT A,B
300 A=C:B=D: GOTO 180
310 GOSUB 530
320 IF A=C AND B=D THEN 180
330 IF A < 0 THEN A=0: GOTO 450
340 IF A > 39 THEN A=39: GOTO 450
350 IF B > 39 THEN B=39: GOTO 450
360 IF B < 0 THEN B=0: GOTO 450
370 IF SCRN(A,B)=0 THEN
  A=C:B=D: GOTO 450
380 COLOR=15: PLOT A,B
390 COLOR=6: PLOT C,D
400 M=M+1
410 IF M > 110 THEN 460
420 HOME: PRINT M
430 IF A=0 AND B=0 THEN 480
440 C=A:D=B
450 GOTO 180
460 PRINT "YOU RAN OUT OF
  MOVES"
470 GOTO 490
480 PRINT "YOU WON!!!"
490 PRINT "PLAY AGAIN? Y/N"
500 GET A$
510 IF A$="Y" THEN 10

```

```

520 END
530 REM DIRECTIONS
540 IF A$="I" THEN B=B-1
550 IF A$="M" THEN B=B+1
560 IF A$="K" THEN A=A+1
570 IF A$="J" THEN A=A-1
580 RETURN

```

Commodore 64/128

```

10 PRINT CHR$(147)
20 POKE 53281,1:POKE 53280,4
30 M=0:S=0
40 REM CREATE MAZE
50 FOR X=1 TO 450
60 A=INT(RND(1)*919)+1104
70 POKE A,102
80 POKE A+54272,2
90 NEXT X
100 POKE 1104,81
110 POKE 2023,81
120 POKE 56295,0
130 P=2023:P1=2023
140 REM MOVEMENT
150 GET A$:IF A$="" THEN 150
160 IF A$<>"S" THEN 240
170 IFS>3 THEN 240
180 S=S+1
190 GET A$:IF A$="" THEN 190
200 GOSUB 440
210 IF P<1104 OR P>2023 THEN
  230
220 POKE P,32
230 P=P1:GOTO 140
240 GOSUB 440
250 IF P=P1 THEN 140
260 IF P<1104 THEN P=P1:
  GOTO 360
270 IF P>2023 THEN P=P1:
  GOTO 360

```

```

280 IF PEEK(P)=102 THEN P=P1:
  GOTO 360
290 POKE P,81:POKE P+54272,0
300 POKE P1,32
310 M=M+1
320 IF M>80 THEN 370
330 PRINT CHR$(19):PRINT M
340 IF P=1104 THEN 390
350 P1=P
360 GOTO 140
370 PRINT "YOU RAN OUT OF
  MOVES"
380 GOTO 400
390 PRINT "YOU WON!!!"
400 PRINT "PLAY AGAIN? Y/N"
410 GET A$:IF A$="" THEN 410
420 IF A$="Y" THEN 10
430 END
440 REM DIRECTIONS
450 IF A$="I" THEN P=P-40
460 IF A$="M" THEN P=P+40
470 C=(P-1103)/40
480 IF C=INT(C) THEN 500
490 IF A$="K" THEN P=P+1
500 C=(P-1064)/40
510 IF C=INT(C) THEN 530
520 IF A$="J" THEN P=P-1
530 RETURN

```



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