34 MORE Tested, Ready-To-Run Game Programs in BASIC

by Delton T. Horn
34 More Tested, Ready-To-Run Game Programs in BASIC
Other TAB books by the author:

No. 1167  Electronic Music Synthesizers
No. 1338  Basic Electronics Theory—with projects & experiments
No. 1438  The Beginner's Book of Electronic Music
34 More Tested, Ready-To-Run Game Programs in BASIC

by Delton T. Horn
Contents

Preface 6

1 One Player Games 7
   Craps 8
   High/Low 12
   Guess The Variables 16
   Hangman 23
   Freebishl 34
   Crops 41
   There's Gold In Them There Skyscrapers 49
   Lost In The Jungle 56
   Galactic Search 72
   High Bid 90
   High Bid II 95
   Balancing The Scales 99
   Memory Tes 104
   What Comes Next 109
   Go Fish 113
   Quiz Whiz 122
   Tic Tac Toe 127

2 Two Player Games 135
   To And Fro 136
   Passing Points 141
   Money Mad 147
   Gambling Boxes 155
   Stack Cut 161

3 Frustration 169
   Main Game Program 171
   Two Man Frustration 176
   Frustration vs the Computer 181
   The Computer vs. Itself 184

4 Non Games 188
   Coin Flipper 189
   Surprise Poem 192
   Favorite Song 192
   Tunesmith 198

5 Helpful Programs 202
   Binary/Decimal 202
   Day of the Week 207
   Ohm's Law 210
   Fahrenheit/Celsius 214

Appendix Notes On Programming In BASIC 217

Index 224
Preface

Computers have countless practical applications in business, science, education, home finance and many other fields. But there's no reason why they can't be used for fun and games too.

This book is a collection of fun and helpful programs. They've provided me with hours of entertainment, and I hope they can do the same for you. Some (Coin Flipper, Craps, Hangman, for example) are fairly standard games. Others (Money Mad, Crops, Freebish!) are more unique. Some (Favorite Song, Surprise Poem) aren't even games, but computerized gags: you'll just have to run the programs to find out what they do!

For each program, I've given two complete listings. One is in standard BASIC, which can be run on most home computers either directly or with only minor changes. The second set of listings is in the abbreviated BASIC used in Radio Shack's Level I TRS-80 computer.

Unfortunately, there isn't much standardization in graphics generation. For this reason none of the games in this book use graphics. You can, however always program in your own graphics.

Some of the programs in this book are quite simple, or based on luck. Others can be quite challenging to play. Some are designed to help you. All are designed for fun. I hope you enjoy them.

Delton T. Horn
Chapter 1
One-Player Games

This chapter contains an assortment of games which pit a single player against the computer. They range from the familiar (Craps and Hangman) to the bizarre (Freebish!), and from games of luck (Craps), through games of simple logic (High/Low) and games of strategy and choices (Crops and Galactic Search). I hope you find them fun and challenging. Feel free to program in any variations you might think of.
Craps

Just in case you're not familiar with the game of Craps, let's discuss how it's played. You make a bet (step 15) and roll a pair of dice (steps 85 - 120). If you roll two one's (Snake eyes, steps 25 & 160) or two six's (Boxcars, steps 30 & 175) on your first roll, you lose. On the other hand, if the total of the dice on your first roll equals 7 or 11 (steps 35, 40 & 125), you win. Any other total is recorded as your point and you roll again (steps 45 & 50).

You keep rolling until you match your point (steps 65 & 125) or get 7 or 11 for a total (steps 70, 75 & 185). Matching your point wins, but getting a 7 or 11 on any but the first roll loses.

The computer uses a random number generator to simulate rolling the dice (steps 95 - 110): each of the dice can be from 1 to 6, so the totals can be from 2 to 12. The computer checks for wins and losses, and keeps tabs on your bets if you play more than one round.

Of course this is a game of pure chance so it does not take skill or strategy to play. Consequently, it won't be as entertaining as many of the other games in this book. But the program is simple and fun, and it's worth running a few times just for kicks. See Fig. 1-1 for the flowchart.

**Standard BASIC**

10 PRINT“LET'S SHOOT SOME CRAPS, PAL!”: PRINT
12 LET F=0
14 PRINT“WHAT IS YOUR BET”:
16 INPUT E
20 GOSUB 85
25 IF C=2 THEN GOTO 160
30 IF C=12 THEN GOTO 175
35 IF C=7 THEN GOTO 125
40 IF C=11 THEN GOTO 125
45 LET D=C
50 PRINT“YOUR POINT IS”;&D
55 GOSUB 85
60 PRINT “YOUR POINT WAS”;D
63 GOSUB 120
67 IF C=D THEN GOTO 125
70 IF C=7 THEN GOTO 185
75 IF C=11 THEN GOTO 185
80 GOTO 55
85 PRINT“PRESS 'ENTER' TO ROLL”
87 INPUT A$
Fig. 1-1. Craps flowchart.
FOR X=1TO200:NEXT X
LET A=INT(RND(0)*6)+1
LET B=INT(RND(0)*6)+1
PRINT:PRINT"","***",A,"YOUR ROLL",B,"***"
LET C=A+B
PRINT:PRINT:PRINT "YOU JUST ROLLED ";C
FOR X=1TO333:NEXT X:RETURN
PRINT" ","YOU WIN!"
LET F=F+E
IF F<0 THEN GOTO 195
PRINT"SO FAR YOU'VE WON ";F
LET Y=1:LET N=0
PRINT"WANT TO PLAY AGAIN?"
INPUT G
IF G=1 THEN GOTO 15
END
PRINT" SNAKE EYES!"
GOSUB 120
PRINT" ","YOU LOSE!"
LET F=F-E
GOTO 135
PRINT"BOX CARS!"
GOTO 162
PRINT"YOU CRAPPED OUT!"
GOTO 162
PRINT"SO FAR YOU'VE LOST ";F
GOTO 145

TRS-80 BASIC
10 P."LET'S SHOOT SOME CRAPS,PAL!";P.:F=0
15 IN."WHAT'S YOUR BET";E:GOS.70:IF C=2 G.135
20 IF C=12 G.145
25 IF C=7 G.105
30 IF C=11 G.105
35 D=C:P."YOUR POINT IS ";D
40 GOS.70:P."YOUR POINT WAS ";D:GOS.100:IFC=D G. 105
45 IF C=7 G. 150
50 IF C=11 G. 150
55 .40
70 IN."PRESS ENTER TO ROLL ";A$:F.X=1TO200:N.X
80 P."****":A,"YOUR ROLL",B,"****"
85 F.X=1TO25:N.X:N.H:C=A+B:P."YOU JUST ROLLED ";C
90 F.X=1TO333:N.X:RET..
105 P." ","YOU WIN!":F=F+E
110 IF F<0 G.155
115  P. "SO FAR YOU'VE WON $"; F
120  Y=1: N=0: IN. "WANT TO PLAY AGAIN"; G: IF G=1 G. 15
125  END
135  P. "SNAKE EYES!"
140  P. ", "YOU LOSE!"; F=E: G. 110
145  P. " BOX CARS!"; G. 140
150  P. "YOU CRAPPED OUT!"; G. 140
155  P. "SO FAR YOU'VE LOST $"; F: G. 120

Sample Run

LET'S SHOOT SOME CRAPS, PAL!
WHAT'S YOUR BET? 100
PRESS 'ENTER' TO ROLL?

*** 5  YOUR ROLL  3  ***
YOU JUST ROLLED 8
YOUR POINT IS 8
PRESS 'ENTER' TO ROLL?

*** 4  YOUR ROLL  2  ***
YOU JUST ROLLED 6
YOUR POINT WAS 8
PRESS 'ENTER' TO ROLL?

*** 6  YOUR ROLL  1  ***
YOU JUST ROLLED 7
YOU CRAPPED OUT

YOU LOSE!

SO FAR YOU'VE LOST $100
WANT TO PLAY AGAIN? YES
WHAT'S YOUR BET? 250
PRESS 'ENTER' TO ROLL?

*** 6  YOUR ROLL  5  ***
YOU JUST ROLLED 11

YOU WIN!

SO FAR YOU'VE WON $150
WANT TO PLAY AGAIN? NO

Summary of Variables Used

A  Die #1
B  Die #2
C  Total of last roll
D  Point
E  Current bet
F  Record of winnings (or losses)
G  Timing
H  Timing
N  No (to "PLAY AGAIN?")
X  Timing
Y  Yes (to "PLAY AGAIN?")
High/Low

High/Low is probably the simplest game in this book. The computer randomly selects a number which you try to guess. You get seven tries, and each time the computer tells you if you are too high or too low. In the easy version the number is between 1 and 25. The medium version is between 1 and 40, and the hard version is between 1 and 55. If you prefer you can enter any upper limit you like when the computer asks you if you want an easy, medium or hard game (step 20). The computer only looks at the first letter of any word you type: entering “EASY”, “EGG”, or just “E” will all be the same to the machine. The values for E, M and H are set in line 15, but you can just enter a number instead of one of the variables. Entering “8” would make for a pathetically easy game, and entering “888888” would be practically impossible.

The computer asks you for a guess seven times (steps 45 to 75). Your guess (called F in the program) is compared to the computer’s number (X). If there is a match, the program will be sent to steps 105 to 145 for a win statement. Otherwise the computer determines if your guess is too high or too low and prints the appropriate statement.

If you haven’t found the correct number by your seventh guess, the computer tells you the correct number and ends the game. See Fig. 1-2 for the flowchart.

Standard BASIC

10 PRINT:PRINT“”,“HIGH/LOW”:PRINT
15 LET E=25:LET M=40:LET H=55
20 INPUT“EASY, MEDIUM, OR HARD GAME”;G
25 LET X=INT(RND(1)*G)+1
30 FOR Z=1 TO 55:NEXT Z
35 PRINT“I AM THINKING OF A NUMBER FROM 1 TO ”;G
40 PRINT“YOU GET 7 GUESSES”:PRINT
42 FOR Z=1 TO 444:NEXT Z
45 FOR Y=1 TO 7
50 INPUT “YOUR GUESS”;F
55 FOR Z=1 TO 333:NEXT Z
60 IF F=X GOTO 105
65 IF F > X PRINT “TOO HIGH!”
70 IF F < X PRINT “TOO LOW!”
75 NEXT Y
80 PRINT“SORRY. TIME’S UP.”
Fig. 1-2. High-Low flowchart.
85 PRINT "THE NUMBER WAS ";
90 FOR Z=1 TO 333: NEXT Z
95 PRINT X
100 END
105 FOR L=1 TO 20
110 FOR Z=1 TO 20
115 PRINT
120 NEXT Z
125 PRINT" ","WINNER!"
130 FOR Z=1 TO 50:NEXT Z
135 NEXT L
140 PRINT: PRINT "THE NUMBER WAS "; X
145 PRINT "YOU GOT IT ON GUESS "; Y
150 END

**TRS-80 BASIC**

15 IN."EASY, MEDIUM OR HARD GAME":G:X=RND(G)
20 F.Z=1 TO 555:N.Z.P."I AM THINKING OF A NUMBER FROM 1 TO "; G
25 P."YOU GET 7 GUESSES.":P.:F.Z=1 TO 444:N.Z
30 F.Y=1 TO 7:IN. "YOUR GUESS";F.F.Z=1 TO 333:N.Z
35 IF F=X G.60
40 IF F > X P."TOO HIGH!"
45 IF F < X P."TOO LOW!"
50 N.Y:P."SORRY. TIME'S UP.";P."THE NUMBER WAS ";
55 F.Z=1 TO 333:N.Z.P.X: END
60 F.L=1 TO 20:CLS:P.:P.:P.:F.Z=1 TO 50:N.Z
65 P." ","WINNER!":F.Z=1 TO 50:N.Z.N.L:P.
70 P."THE NUMBER WAS "; X.P."YOU GOT IT ON GUESS "; Y
75 END

**Sample Run**

**HIGH/LOW**

**EASY, MEDIUM OR HARD GAME? EASY**

**I AM THINKING OF A NUMBER FROM 1 TO 25**

**YOU GET 7 GUESSES**

**YOUR GUESS? 10**

**TOO LOW!**

**YOUR GUESS? 20**

**TOO HIGH!**

**YOUR GUESS? 15**

**TOO LOW!**

**YOUR GUESS? 17**

**WINNER!**

**THE NUMBER WAS 17**

**YOU GOT IT ON GUESS #4**
Summary Of Variables Used

E  Easy game. E=25
F  Guess
F  Game range
H  Hard game. H=55
L  Timing variable
M  Medium game. M=40
X  Secret number
Y  Guess count
Z  Timing variable
Guess The Variables

This game is simple enough in concept: it’s another number guessing game. But playing this one just might tax your mathematical abilities somewhat. If you always hated algebra, you might want to skip ahead to the next chapter, but if you enjoy solving a good puzzle, read on.

The object of the game is to guess the value of the four variables (A, B, C & D). In an easy game they are between 1 & 10, in a medium game they are between 1 & 20, and in a hard game they are between 1 & 40.

If you request a clue (steps 45, 50, & 225 - 485) the computer will give you an algebraic equation using two or more of the variables, and tell you the result. For example, the computer might give you the following clue; “C + D/A = 7”. By combining several of these clues, you try to determine what the individual variables are.

If you decide to guess the variables (steps 45, 55, & 115 - 170) the computer will ask for each variable in turn, comparing your guesses with the correct answers. If you get all four right, you win, of course (steps 165 & 175 - 210). If you miss any, the computer will tell you how many you had right, but not which ones, and count it as half a clue.

You get up to 20 clues (step 60), then you must take one final stab at guessing the variables (steps 70-80 & 115 - 170). If you miss this time, the computer prints out the correct answers, (steps 85 - 110) and you lose.

The first clue is always the sum of the four variables (A + B + C + D) (steps 30 & 35). The other clues are randomly chosen from a list of 25 equations (steps 225 - 485). The computer keeps track of which equations have already been used, so no clue will be used twice in one game (steps 230 & 235).

You might want to use a calculator to help you play this game, or at least a pencil and paper.

This is a good game to teach children math, but let them have fun with it. If you turn it into an extra chore nobody will get much out of it.

It’s also a good puzzler for adults. You might want to add some additional clues yourself. I think the program makes it quite obvious how this is done.
5 FOR Z=1TO25:PRINT:NEXT Z
10 PRINT"GUESS THE VARIABLES":PRINT
15 LET E=10:LET M=20
17 LET H=40:LET Q=1
20 PRINT"EASY, MEDIUM OR HARD":INPUT V
22 LET A=INT(RND(1)*V)+1
24 LET B=INT(RND(1)*V)+1
26 LET C=INT(RND(1)*V)+1
28 LET D=INT(RND(1)*V)+1
30 LET X=A+B+C+D
35 PRINT"A+B+C+D=":X
40 FOR Z=1TO25:LET A(Z)=0:NEXT Z
45 PRINT"ENTER 1 FOR CLUE OR 2 TO GUESS ";
47 INPUT W
50 IF W=1 GOSUB 225
55 IF W=2 GOSUB 115
60 IF Q>19.5 GOTO 70
65 GOTO 45
70 PRINT"SORRY. YOU'VE HAD 20 CLUES."
75 PRINT"HERE'S YOUR LAST CHANCE TO GUESS."
80 GOSUB 115
85 PRINT"HERE ARE THE CORRECT ANSWERS":PRINT
90 PRINT"A = ";:GOSUB 220:PRINT A
95 PRINT"B = ";:GOSUB 220:PRINT B
100 PRINT"C = ";:GOSUB 220:PRINT C
105 PRINT"D = ";:GOSUB 220:PRINT D
110 END
115 PRINT"A =":INPUT E
120 PRINT"B =":INPUT F
125 PRINT"C =":INPUT G
130 PRINT"D =":INPUT H
135 LET T=0: IF E=A THEN LET T=T+1
140 IF F=B THEN LET T=T+1
145 IF G=C THEN LET T=T+1
150 IF H=D THEN LET T=T+1
155 FOR Z=1TO444:NEXT Z
160 PRINT "YOU GOT ";T:"VARIABLES CORRECT."
165 IF T=4 GOTO 175
170 LET Q=Q+0.5:RETURN
175 PRINT"YOU USED ";Q:"CLUES."
180 IF Q<10 PRINT"FANTASTIC!"
185 IF Q<4 PRINT"DID YOU CHEAT?"
190 IF Q>16 PRINT"I'M NOT PARTICULARLY IMPRESSED."
195 END
220 FOR Z=1TO333:NEXT Z;RETURN
LET S=INT(RND(0)*25)+1
IF A(S)=1 GOTO 225
LET A(S)=1:LET Q=Q+1
IF S=1 GOTO 370
IF S=2 GOTO 380
IF S=3 GOTO 390
IF S=4 GOTO 400
IF S=5 GOTO 410
IF S=6 GOTO 420
IF S=7 GOTO 430
IF S=8 GOTO 440
IF S=9 GOTO 450
IF S=10 GOTO 460
IF S=11 GOTO 470
IF S=12 GOTO 480
IF S=13 GOTO 490
IF S=14 GOTO 500
IF S=15 GOTO 510
IF S=16 GOTO 520
IF S=17 GOTO 530
IF S=18 GOTO 540
IF S=19 GOTO 550
IF S=20 GOTO 560
IF S=21 GOTO 570
IF S=22 GOTO 580
IF S=23 GOTO 590
IF S=24 GOTO 600
LET X=A+B
PRINT"A+B=";X:RETURN
LET X=A+C
PRINT"A+C=";X:RETURN
LET X=A+D
PRINT"A+D=";X:RETURN
LET X=B+C
PRINT"B+C=";X:RETURN
LET X=B+D
PRINT"B+D=";X:RETURN
LET X=C+D
PRINT"C+D=";X:RETURN
LET X=A*B*C*D*
PRINT"A X B X C X D =";X:RETURN
LET X=A*B
PRINT"A X B =";X:RETURN
LET X=A*C
PRINT"A X C =";X:RETURN
LET X=A*D
PRINT"A X D =";X:RETURN
LET X=B*C
PRINT"B X C =";X:RETURN
LET X=B*D
PRINT"B X D =";X:RETURN
LET X=C*D
PRINT"C X D =";X:RETURN
LET X=A+B/C
PRINT"A + B/C =";X:RETURN
LET X=B+C/D
PRINT"B + C/D =";X:RETURN
LET X=C+D/A
PRINT"C + D/A =";X:RETURN
LET X=(A+B)*(C-D)
PRINT"(A+B)(C-D) =";X:RETURN
LET X=(B-A)*(C+D)
PRINT"(B-A)(C+D) =";X:RETURN
LET X=A*B-C
PRINT"A X B - C =";X:RETURN
LET X=A*(B-C)
PRINT"A (B-C) =";X:RETURN
LET X=A*A-B
PRINT"A* A - B =";X:RETURN
LET X=A*A-C
PRINT"A* A - C =";X:RETURN
LET X=B*B-D
PRINT"B* B - D =";X:RETURN
LET X=D*D-A
PRINT"D* D - A =";X:RETURN
LET X=C*C-(A/(B*B))+D
PRINT"C* C - (A/ B* B) + D =";X
RETURN

**TRS-80 BASIC**

10 CLS:P.P."GUESS THE VARIABLES";E=10:M=20:H=40
15 Q=1:IN."EASY, MEDIUM OR HARD ";V
20 A=RND(V);B=RND(V);C=RND(V);D=RND(V);X=A+B+C+D
30 IN."ENTER 1 FOR CLUE OR 2 TO GUESS";W:IF W=1 GOS.225
35 IFW=2 GOS.75
40 IFQ>19.5G.50
45 G.30
50 P."SORRY. YOU'VE USED 20 CLUES."
55 P."HERE'S YOUR LAST CHANCE TO GUESS THE
VARIABLES";GOS.75
60 P."HERE ARE THE CORRECT ANSWERS";P.P."A = ";
70 GOS.220: P.C:P. "D = "; GOS.220: P.D:END
75 T=0:IN. "A = "; E:IN. "B = "; F:IN. "C = "; G
80 IN. "D = "; H:IF E=A THEN T=T+1
85 IF F=B THEN T=T+1
90 IF G=C THEN T=T+1
95 IF H=D THEN T=T+1
100 F.Z=1TO444:N.Z:P. "YOU GOT "; T; " VARIABLES CORRECT."
105 IF T=4 G.120
110 Q=A+0.5:RET.
120 P. "YOU USED "; Q; " CLUES. ": IF Q<10 P. "FANTASTIC!"
125 IF Q<4 P. "DID YOU CHEAT?"
130 IF Q>16 P. "I'M NOT PARTICULARLY IMPRESSED."
135 END
220 F.Z=1TO333:N.Z:RET.
225 S=RND(25)
230 IF A(S)=1G.225
235 A(S)=1:Q=Q+1:IF S=1G.365
240 IF S=2G.370
245 IF S=3G.375
250 IF S=4G.380
255 IF S=5G.385
260 IF S=6G.390
265 IF S=7G.395
270 IF S=8G.400
275 IF S=9G.405
280 IF S=10G.410
285 IF S=11G.415
290 IF S=12G.420
295 IF S=13G.425
300 IF S=14G.430
305 IF S=15G.435
310 IF S=16G.440
315 IF S=17G.445
320 IF S=18G.450
325 IF S=19G.455
330 IF S=20G.460
335 IF S=21G.465
340 IF S=22G.470
345 IF S=23G.475
350 IF S=24G.480
355 X=A+B:P. "A+B= "; X:RET.
360 X=A+C:P. "A+C= "; X:RET.
370 X=A+D:P. "A+D= "; X:RET.
375 X=B+C:P. "B+C= "; X:RET.
380 X=B+D:P. "B+D= "; X:RET.
385 X=C+D:P. "C+D= "; X:RET.
390 X=A*B*C*D:P. "A X B X C X D = "; X:RET.
Sample Run

GUESS THE VARIABLES
EASY, MEDIUM, OR HARD? EASY
A+B+C+D=20
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
B+D=12
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
A X B – C =32
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
A SQUARED – B = 18
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
C X D =15
ENTER 1 FOR CLUE OR 2 TO GUESS  ?2
A  =  ?6
B  =  ?5
C  =  ?5
D  =  ?3
YOU GOT 0 VARIABLES CORRECT.
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
C SQUARED – A/B SQUARED + D =13.89796
ENTER 1 FOR CLUE OR 2 TO GUESS  ?1
B X D =35
ENTER 1 FOR CLUE OR 2 TO GUESS  ?2
A  =  ?4
B  =  ?7
C = ?3
D = ?5
YOU GOT 3 VARIABLES CORRECT.
ENTER 1 FOR CLUE OR 2 TO GUESS 1
A+D=10
ENTER 1 FOR CLUE OR 2 TO GUESS 2
A = ?5
B = ?7
C = ?3
D = ?5
YOU GOT 4 VARIABLES CORRECT.
YOU USED 8 CLUES.
FANTASTIC!
>READY

**Summary of Variables Used**

A  unknown variable #1
B  unknown variable #2
C  unknown variable #3
D  unknown variable #4
E  Easy — E=10 / Guess variable A
F  Guess variable B
G  Guess variable C
H  Hard — H=40 / Guess variable D
M  Medium — M=20
Q  Clue count
S  Clue selection
W  Clue or guess?
V  Game level
X  Result of clue
Z  Timing variable
Hangman

Hangman is a popular old pencil and paper game. In this version the computer selects a five letter word (out of 50 pre-programmed possibilities) and you have to guess what it is, letter by letter. If you correctly guess a letter it is printed in the proper position in the secret word. If it is used in the word more than once it will be printed wherever it occurs. An incorrect guess adds another letter to the word HANGMAN. If you spell HANGMAN before completing the secret word, you lose. Guessing the secret word, of course, is a win. You get a maximum of 11 letter guesses for each word, and 13 different letters are used in the various secret words.

On each play you’re reminded that the letters B, D, G, J, M, Q, U, V, X, Y, and Z are not to be used. These letters are used as variables to run the program. V, W, X, Y, and Z are especially to be avoided since these are the variables that contain the secret word. To preserve program simplicity you are left on your honor not to use these letters, since the computer cannot distinguish between them and a correct guess. See Fig. 1-3 for the flowchart.

If you lose, the computer will tell you what the secret word was.

Of course you can program in your own words. For example, if you want to add the word “HORSE”. Change line 30 to LET U=INT(RND(0)*51)+1. Then add the following steps:

121 IF U>50 THEN GOTO 1025
1025 LET V=15:LET W=19
1030 LET X=20:LET Y=21
1035 LET Z=13
1040 GOTO 140

OR you could substitute

1025 LET V=H:LET W=0
1030 LET X=R:LET Y=S
1035 LET Z=E

The numerical values of the letters are given in steps 07 to 14. Since this program is largely repetitive, only a portion of a sample run is given.

Standard BASIC

05 REM*SET LETTER VALUES*
07 LET A=11:LET C=12:LET E=13:LET F=14
10 LET H=15:LET I=16:LET K=17:LET L=18
12 LET N=23:LET O=19:LET R=20:LET S=21
14 LET T=22:LET D=0:LET G=0:LET J=0
16 LET M=0:LET Q=0
18 REM*CLEAR WRONG GUESS COUNTER*
20 FOR X=1TO20:LET A(X)=0:NEXT X
25 REM*RANDOM WORD SELECTION*
30 LET U=INT(RND(0)*50)+1
35 IF U<4 THEN GOTO 500
40 IF U<9 THEN GOTO 525
45 IF U<14 THEN GOTO 565
50 IF U<19 THEN GOTO 600
55 IF U<23 THEN GOTO 635
60 IF U<26 THEN GOTO 665
65 IF U<29 THEN GOTO 690
70 IF U<33 THEN GOTO 715
75 IF U<36 THEN GOTO 755
80 IF U<38 THEN GOTO 775
85 IF U=38 THEN GOTO 795
90 IF U<41 THEN GOTO 800
95 IF U=41 THEN GOTO 820
100 IF U=42 THEN GOTO 825
105 IF U<45 THEN GOTO 830
110 IF U=45 THEN GOTO 845
115 IF U=46 THEN GOTO 850
120 IF U<49 THEN GOTO 855
122 LET V=22
125 IF U=49 THEN GOTO 870
130 LET W=13:LET X=13
135 LET Y=22:LET Z=15
140 REM*THE PLAY*
145 CLS:PRINT"","HANGMAN"
147 PRINT"THESE LETTERS ARE NOT USED — B,D,G,J,"
150 PRINT"M,Q,U,V,W,X,Y, & Z."
152 LET B=A(15)
154 IF B=0 THEN GOTO 165
156 PRINT"LETTERS USED SO FAR —;"
158 FOR U=1TO B:LET A(U)=A(U)
160 GOSUB 880
162 NEXT U
165 PRINT:PRINT
170 IF A(17)=0 THEN PRINT“——”
175 IF A(17)=1 THEN PRINT“H——”
180 IF A(17)=2 THEN PRINT“HA——”
185 IF A(17)=3 THEN PRINT“HAN——”
190 IF A(17)=4 THEN PRINT“HANG——”
195 IF A(17) = 5 THEN PRINT "HANGM---"
200 IF A(17) = 6 THEN PRINT "HANGMA---"
205 IF A(17) = 7 THEN GOTO C 950
210 PRINT: PRINT: PRINT " " " ** " ;
212 LET A(18) = 0
215 LET A(19) = D: GOSUB 875
220 LET A(19) = G: GOSUB 875
225 LET A(19) = J: GOSUB 875
230 LET A(19) = M: GOSUB 875
235 LET A(19) = Q: GOSUB 875
237 REM * WIN TEST *
238 IF A (18) = 5 THEN GOTO 1000
240 PRINT " ** ": PRINT
242 PRINT "YOUR GUESS ";
245 INPUT U
LET A(18)=0
REM* CHECK FOR CORRECT GUESS *
IF U=V THEN GOSUB 975
IF U=W THEN GOSUB 980
IF U=X THEN GOSUB 985
IF U=Y THEN GOSUB 990
IF U=Z THEN GOSUB 995
IF A(18)=0 THEN GOTO 290
LET B=A(15)
LET B=B+1
LET A(15)=B
A(B)=U
GOTO 140
LET B=A(17)
LET B=B+1
LET A(17)=B
GOTO 280
LET X=11:LET Y=12
LET Z=17:LET V=21
IF U=1 THEN LET W=15
IF U=2 THEN LET W=22
IF U=3 THEN LET W=18
GOTO 140
LET W=11:LET X=17
LET Y=13:LET Z=21
IF U=4 THEN LET V=14
IF U=5 THEN LET V=20
IF U=6 THEN LET V=22
IF U=7 THEN LET V=18
IF U=8 THEN LET V=12
GOTO 140
LET W=11:LET X=12
LET Y=17:LET Z=21
IF U=9 THEN LET V=15
IF U=10 THEN LET V=18
IF U=11 THEN LET V=20
IF U=12 THEN LET V=21
IF U=13 THEN LET V=22
GOTO 140
LET W=13:LET Z=11
LET Y=20:LET Z=21
IF U=14 THEN LET V=14
IF U=15 THEN LET V=15
IF U=16 THEN LET V=20
IF U=17 THEN LET V=21
IF U=18 THEN LET V=22
GOTO 140

26
635 LET W=16:LET X=23
637 LET Y=13:LET Z=21
640 IF U=19 THEN LET V=23
645 IF U=20 THEN LET V=22
650 IF U=21 THEN LET V=18
655 IF U=22 THEN LET V=14
660 GOTO 140
665 LET W=16:LET X=12
670 LET Y=17:LET Z=21
672 IF U=23 THEN LET V=17
675 IF U=24 THEN LET V=18
680 IF U=25 THEN LET V=22
685 GOTO 140
690 LET W=19:LET X=19
695 LET Y=17:LET Z=21
700 IF U=26 THEN LET V=12
702 IF U=27 THEN LET V=15
705 IF U=28 THEN LET V=18
710 GOTO 140
715 LET X=16:LET Y=12:LET Z=17
720 IF U>30 THEN GOTO 740
725 LET V=21:LET W=22
730 IF U=30 THEN LET W=18
735 GOTO 140
740 LET V=12:LET W=20
745 IF U=32 THEN LET V=22
750 GOTO 140
755 LET W=20:LET X=11
760 LET Y=12:LET Z=17
762 IF U=34 THEN LET V=12
765 IF U=35 THEN LET V=22
770 GOTO 140
775 LET X=11:LET Y=20:LET Z=21
780 IF U=36 THEN GOTO 790
785 LET V=21:LET W=22
787 GOTO 140
790 LET V=22:LET W=21
792 GOTO 140
795 LET V=21:LET W=22:LET X=11
797 LET Y=20:LET Z=22:GOTO 140
800 LET V=21:LET W=15
802 LET X=11:LET Y=14:LET Z=22
805 IF U=40 THEN LET X=16
810 GOTO 140
820 LET V=12:LET W=11:LET X=20
822 LET Y=13:LET Z=21:GOTO 140
LET V=13:LET W=20:LET X=20
LET Y=14:LET Z=20:GOTO 140
LET V=14:LET Y=22
IF U=43 GOTO 840
LET W=11:LET X=12
LET Z=12:GOTO 140
LET W=16:LET X=14
LET Z=15:GOTO 140
LET V=17:LET W=23:LET X=13
LET Y=13:LET Z=18:GOTO 140
LET V=18:LET W=16:LET X=17
LET Y=13:LET Z=21:GOTO 140
LET V=21
IF U=47 GOTO 865
LET W=17:LET X=16:LET Y=18
LET Z=18:GOTO 140
LET W=15:LET X=13:LET Y=11
LET Z=14:GOTO 140
LET W=15:LET X=13:LET Y=13
LET Z=14:GOTO 140
REM*CONVERSION TO LETTERS*
IF A(19)=0 GOTO 1015
IF A(19)=11 THEN PRINT“A”;
IF A(19)=12 THEN PRINT“C”;
IF A(19)=13 THEN PRINT“E”;
IF A(19)=14 THEN PRINT“F”;
IF A(19)=15 THEN PRINT“H”;
IF A(19)=16 THEN PRINT“I”;
IF A(19)=17 THEN PRINT“K”;
IF A(19)=18 THEN PRINT“L”;
IF A(19)=19 THEN PRINT“O”;
IF A(19)=20 THEN PRINT“R”;
IF A(19)=21 THEN PRINT“S”;
IF A(19)=22 THEN PRINT“T”;
IF A(19)=23 THEN PRINT“N”;
LET A(18)=A(18)+1
RETURN
PRINT“HANGMAN”:PRINT
PRINT“”,“YOU LOSE”
PRINT:PRINT“THE WORD WAS”,
LET A(19)=V:GOSUB 875
LET A(19)=W:GOSUB 875
LET A(19)=X:GOSUB 875
LET A(19)=Y:GOSUB 875
LET A(19)=Z:GOSUB 875
970   END
975   LET D=V:LET A(18)=A(18)+1
977   RETURN
980   LET G=W:LET A(18)=A(18)+1
982   RETURN
985   LET J=X:LET A(18)=A(18)+1
987   RETURN
990   LET M=Y:LET A(18)=A(18)+1
992   RETURN
995   LET Q=Z:LET A(18)=A(18)+1
997   RETURN
1000  PRINT“;":PRINT:PRINT
1005  PRINT“YOU WIN!”
1010   END
1015  PRINT“?";
1020   RETURN

TRS-80 BASIC

20   G=0:J=0:M=0:Q=0
25   F,X=1TO20:A(X)=0:N,X
30   U=RND(50):IF U<4G.500
35   IF U<9G.525
40   IF U<14G.565
45   IF U<19G.600
50   IF U<23G.635
55   IF U<26G.665
60   IF U<29G.690
65   IF U<33G.715
70   IF U<36G.775
75   IF U=38 G.795
80   IF U<41G.800
85   IF U=41G.820
90   IF U=42G.825
95   IF U<45G.830
100  IF U=45G.845
105  IF U=46G.850
110  IF U<49G.855
115  IF U<49G.870
120  V=22:IF U<49G.870
130  CLS:P.""",""HANGMAN"
135  P."THESE LETTERS ARE NOT USED—B,D,G,J,M,Q,U,
140   V,W,X,Y,&Z"
150  B=A(15):IF B=0G.165
155  P."LETTERS USED SO FAR—";

29
F.U=1TOB:A(19)=A(U):GOS.880:N.U

P.:P.:IF A(17)=0P."
170 IF A(17)=1P."H"
175 IF A(17)=2P."HA"
180 IF A(17)=3P."HAN"
185 IF A(17)=4P."HANG"
190 IF A(17)=5P."HANGM"
195 IF A(17)=6P."HANGMA"
200 IFA(17)=7G.950
210 P.:P."","":A(18)=0
225 A(19)=Q:GOS.875:IFA(18)=5G.1000
240 P."
245 IN."YOUR GUESS";U:A(18)=0:IFU=VGOS.975
250 IF U=VGOS.980
255 IF U=XGOS.985
260 IF U=YGOS.990
265 IF U=ZGOS.995
270 IF A(18)=0G.290
290 A(17)=A(17)+1:G.275
500 X=11;Y=12;Z=17;V=21:IF U=1 THEN W=15
505 IF U=2 THEN W=22
510 IF U=3 THEN W=18
515 G.140
525 W=11;X=17;Y=13;Z=21:IF U=4 THEN V=14
530 IF U=5 THEN V=20
535 IF U=6 THEN V=22
540 IF U=7 THEN V=18
545 IF U=8 THEN V=12
550 G.140
565 W=11;X=12;Y=17;Z=21:IF U=9 THEN V=15
570 IF U=10 THEN V=18
575 IF U=11 THEN V=20
580 IF U=12 THEN V=21
585 IF U=13 THEN V=22
590 G.140
600 W=13;X=11;Y=20;Z=21:IF U=14 THEN V=14
605 IF U=15 THEN V=15
610 IF U=16 THEN V=20
615 IF U=17 THEN V=21
620 IF U=18 THEN V=22
625 G.140
635 W=16;X=23;Y=13;Z=21:IF U=19 THEN V=23
640 IF U=20 THEN V=22
645 IF U=21 THEN V=18
650 IF U=22 THEN V=14
655 G.140
665 W=16:X=12;Y=17;Z=21;V=22:IF U=23 THEN V=17
670 IF U=24 THEN V=18
680 G.140
690 V=12:W=19:X=19;Y=17;Z=21:IF U=27 THEN V=15
700 IF U=28 THEN V=18
710 G.140
715 X=16;Y=12;Z=17:IF U>30 G.740
720 V=21:W=22:IF U=30 THEN W=18
730 G.140
740 V=12:W=20:IF U=32 THEN V=22
750 G.140
755 V=12:W=20:X=11;Y=12;Z=17:IF U=35 THEN V=22
760 G.140
775 X=11;Y=20;Z=21:IF U=36 G.790
780 V=21:W=22:G.140
790 V=22:W=21:G.140
800 V=21:W=15:X=11;Y=14;Z=22:IF U=40 THEN X=16
810 G.140
820 V=12:W=11:X=20;Y=13;Z=21:G.140
825 V=13:W=20:X=20;Y=14;Z=20:G.140
830 V=14;Y=22:IF U=43 G.840
835 W=11:X=12;Z=21:G.140
840 W=16:X=14;Z=15:G.140
845 V=17:W=23:X=13;Y=13;Z=18:G.140
850 V=18:W=16:X=17;Y=13;Z=21:G.140
855 V=21:IF U=47 G.865
860 W=17:X=16;Y=18;Z=18:G.140
865 W=15:X=13;Y=11;Z=14:G.140
870 W=15:X=16;Y=13;Z=14:G.140
875 IF A(19)=0 G.1015
880 IF A(19)=11P."A";
885 IF A(19)=12 P."C";
890 IF A(19)=13 P."E";
895 IF A(19)=14 P."F";
900 IF A(19)=15 P."H";
905 IF A(19)=16 P."T";
910 IF A(19)=17 P."K";
915 IF A(19)=18 P."L";
920 IF A(19)=19 P."O";
925 IF A(19)=20 P."R";
930 IF A(19)=21 P."S";
935 IF A(19)=22 P."T";
940  IF A(19)=23P."N";
945  A(18)=A(18)+1:RET.
950  P."HANGMAN":P."P."YOU LOSE":P.
955  P."THE WORD WAS ":A(19)=V:GOS.875
965  A(19)=Y:GOS.875:A(19)=Z:GOS.875
970  END
975  D=W:A(18)=A(18)+1:RET.
980  G=W:A(18)=A(18)+1:RET.
985  J=X:A(18)=A(18)+1:RET.
990  M=Y:A(18)=A(18)+1:RET.
995  Q=Z:A(18)=A(18)+1:RET
1000  P." ":P."P."YOU WIN!:END
1015  P."?";:RET.

Summary Of Variables Used

A  11 * POSSIBLE LETTER
B  Letter count
C  12 * POSSIBLE LETTER
D  CORRECT GUESS * 1st POSITION
E  13 * POSSIBLE LETTER
F  14 * POSSIBLE LETTER
G  CORRECT GUESS * 2nd POSITION
H  15 * POSSIBLE LETTER
I  16 * POSSIBLE LETTER
J  CORRECT GUESS * 3rd POSITION
K  17 * POSSIBLE LETTER
L  18 * POSSIBLE LETTER
M  CORRECT GUESS * 4th POSITION
N  23 * POSSIBLE LETTER
O  19 * POSSIBLE LETTER
P  NOT USED
Q  CORRECT GUESS * 5th POSITION
R  20 * POSSIBLE LETTER
S  21 * POSSIBLE LETTER
T  22 * POSSIBLE LETTER
U  WORD SELECTION/CURRENT GUESS
V  SECRET WORD * 1st LETTER
W  SECRET WORD * 2nd LETTER
X  SECRET WORD * 3rd LETTER
Y  SECRET WORD * 4th LETTER
Z  SECRET WORD * 5th LETTER
A(1)–A(11) LETTERS USED SO FAR
A(15) LETTER COUNT
A(17)–A(19) VARIABLES
Sample Run (excerpt)

HANGMAN

THESE LETTERS ARE NOT USED—B, D, G, J, M, Q, U, V, W, X, Y, & Z

LETTERS USED SO FAR—E A I S T

HAN___

* ? A ? I ? *

YOUR GUESS? R

HANGMAN

THESE LETTERS ARE NOT USED—B, D, G, J, M, Q, U, V, W, X, Y, & Z

LETTERS USED SO FAR—E A I S T R

HAN___

* R A ? I ? *

YOUR GUESS? N

HANGMAN

THESE LETTERS ARE NOT USED—B, D, G, J, M, Q, U, V, W, X, Y, & Z

LETTERS USED SO FAR—E A I S T R N

HANG___

* R A ? I ? *

YOUR GUESS? O
Freebish!
The Game With Unknown Rules

Freebish! is probably the strangest game in this book, since part of the fun is the challenge of figuring out the rules. I recommend running the program a few times before reading the explanation (which is right after the program listings).

There are rules, even though it might not seem that way. Have fun, and if you get a little frustrated, try not to take it out on your computer. Just think of how much fun it will be when you get to watch someone else try to figure it out.

A sample run might give it away, so I’m not including one.

Standard BASIC

2   FOR X=1 TO 40:PRINT
4   NEXT X
6   LET A=INT (RND(0)*21)—10
8   LET B=INT(RND(0)*21)—10
10  LET C=INT(RND(0)*21)—10
12  LET D=INT(RND(0)*21)—10
14  LET E=INT(RND(0)*21)—10
16  LET F=INT(RND(0)*21)—10
18  LET G=INT(RND(0)*21)—10
20  LET H=INT(RND(0)*21)—10
22  LET I=INT(RND(0)*21)—10
24  LET J=INT(RND(0)*21)—10
26  LET K=INT(RND(0)*21)—10
28  LET L=INT(RND(0)*21)—10
30  LET M=INT(RND(0)*21)—10
32  LET N=INT(RND(0)*21)—10
34  LET Q=INT(RND(0)*21)—10
36  LET R=INT(RND(0)*21)—10
38  LET S=INT(RND(0)*21)—10
40  LET T=INT(RND(0)*21)—0
42  LET U=INT(RND(0)*21)—10
44  LET V=INT(RND(0)*21)—10
46  LET O=0:LET A(1)=0
48  LET W=0:LET A(2)=0
50  LET X=0:LET Z=0
52  LET A(3)=—50
54  REM* THE GAME BEGINS *
56  PRINT“FREEBISH!”
58  LET Y=F
60  LET A(2)=F
62  INPUT X
64  GOSUB 180
66  LET W=INT(RND(0)*20)+1
68  IF W=1 THEN GOTO 225
70  IF W=2 THEN GOTO 255
72  IF W=3 THEN GOTO 270
74  IF W=4 THEN GOTO 285
76  IF W=5 THEN GOTO 300
78  IF W=6 THEN GOTO 315
80  IF W=7 THEN GOTO 330
82  IF W=8 THEN GOTO 345
84  IF W=9 THEN GOTO 360
86  IF W=10 THEN GOTO C 375
88  IF W=11 THEN GOTO C 390
90  IF W=12 THEN GOTO C 405
92  IF W=13 THEN GOTO C 420
94  IF W=14 THEN GOTO C 435
96  IF W=15 THEN GOTO C 450
98  IF W=16 THEN GOTO C 465
100 IF W=17 THEN GOTO C 480
102 IF W=18 THEN GOTO C 495
104 IF W=19 THEN GOTO C 510
110 GOTO 525
112 LET A(2)=A(2)+Y
114 LET Z=0:LET W=0
116 LET A(1)=A(1)-(Y/2)
118 INPUT X
120 GOTO 64
122 IF X=A(3) THEN GOTO C 220
124 IF X=Y THEN GOTO C 220
126 LET A(1)=A(1)+X
128 LET A(3)=X
130 FOR Z=1 TO 470:NEXT Z
134 PRINT" "SCORE"
136 PRINT" "THE BRAIN",A(2)
138 PRINT" "THE CLOD",A(1)
140 IF A(1)>35 THEN GOTO C 550
142 IF A(2)>35 THEN GOTO C 540
144 PRINT:PRINT
146 FOR Z=1 TO 666:NEXT Z
148 LET Z=0
150 RETURN
152 LET A(1)=A(1)-10:FOR Z=1 TO 470:NEXT Z
154 GOTO 195
156 LET Z=A:GOSUB 240
158 IF Z=50 THEN GOTO C 86
160 PRINT"ALBOOKISH!"
232 LET Y=A
235 GOTO 160
240 IF Z=Y THEN LET Z=50
245 IF Z=X THEN LET Z=50
250 RETURN
255 LET Z=B:GOSUB 240
257 IF Z=50 THEN GOTO 66
260 PRINT“BREEP!”
262 LET Y=B
265 GOTO 160
270 LET Z=C:GOSUB 240
272 IF Z=50 THEN GOTO 66
275 PRINT“CRIPKLUTS!”
277 LET Y=C
280 GOTO 160
285 LET Z=D:GOSUB 240
287 IF Z=50 THEN GOTO 66
290 PRINT“DUFFLEEM!”
292 LET Y=D
295 GOTO 160
300 LET Z=E:GOSUB 240
302 IF Z=50 THEN GOTO 66
305 PRINT“EXQUIMBLE!”
307 LET Y=E
310 GOTO 160
315 LET Z=F:GOSUB 240
317 IF Z=50 THEN GOTO 66
320 PRINT“FLIBBINK!”
322 LET Y=F
325 GOTO 160
330 LET Z=G:GOSUB 240
332 IF Z=50 THEN GOTO 66
335 PRINT“GRUNKITT!”
337 LET Y=G
340 GOTO 160
345 LET Z=H:GOSUB 240
347 IF Z=50 THEN GOTO 66
350 PRINT“HEEJAMBOONKIE!”
352 LET Y=H
355 GOTO 160
360 LET Z=I:GOSUB 240
362 IF Z=50 THEN GOTO 66
365 PRINT“ISTHRIM!”
367 LET Y=I
370 GOTO 160
375 LET Z=J:GOSUB 240
377  IF Z=50 THEN GOTO 66
380  PRINT"JACQUELPHLOOM!"
382  LET Y=J
385  GOTO 160
390  LET Z=K:GOSUB 240
392  IF Z=50 THEN GOTO 66
395  PRINT"KREECKI!"
397  LET Y=K
400  GOTO 160
405  LET Z=L:GOSUB 240
407  IF Z=50 THEN GOTO 66
410  PRINT"LORKE!"
412  LET Y=L
415  GOTO 160
420  LET Z=M:GOSUB 240
422  IF Z=50 THEN GOTO 66
425  PRINT"MUCSTILE!"
427  LET Y=M
430  GOTO 160
435  LET Z=N:GOSUB 240
437  IF Z=50 THEN GOTO 66
440  PRINT"NEFLOMI!"
442  LET Y=N
445  GOTO 160
450  LET Z=Q:GOSUB 240
452  IF Z=50 THEN GOTO 66
455  PRINT"QUIGGGLESBY!"
457  LET Y=Q
460  GOTO 160
465  LET Z=R:GOSUB 240
467  IF Z=50 THEN GOTO 66
470  PRINT"RECKLEBOP!"
472  LET Y=R
475  GOTO 160
480  LET Z=S:GOSUB 240
482  IF Z=50 THEN GOTO 66
485  PRINT"SNORKI!"
487  LET Y=S
490  GOTO 160
495  LET Z=T:GOSUB 240
497  IF Z=50 THEN GOTO 66
500  PRINT"THUBBLE!"
502  LET Y=T
505  GOTO 160
510  LET Z=U:GOSUB 240
512  IF Z=50 THEN GOTO 66
PRINT "UBENZZERT!"
LET Y = U
GOTO 160
LET Z = V: GOSUB 240
IF Z = 50 THEN GOTO 66
PRINT "VELKI!"
LET Y = V
GOTO 160
PRINT "I WIN, "
GOSUB 570
PRINT "OF COURSE."
END
PRINT "HEY! ";
GOSUB 570
PRINT "YOU WON!"
GOSUB 570
PRINT "THAT WASN'T SUPPOSED TO HAPPEN!"
END
FOR Z = 1 TO 555
NEXT Z
RETURN Z

**TRS-80 BASIC**

5  CLS:P.P.:A=RND(21)-11:B=RND(21)-11:C=RND(21)-11
10  D=RND(21)-11:E=RND(21)-11:F=RND(21)-11:G=RND(21)-11
15  H=RND(21)-11:I=RND(21)-11:J=RND(21)-11:K=RND(21)-11
20  L=RND(21)-11:M=RND(21)-11:N=RND(21)-11:Q=RND(21)-11
25  R=RND(21)-11:S=RND(21)-11:T=RND(21)-11:T=RND(21)-11
30  U=RND(21)-11:V=RND(21)-11:O=0:W=0:X=0:Z=0
35  A(1)=0:A(2)=0:A(3)=-50
40  P."FREEBISH!":Y=F:A(2)=F
45  IN.X:GOS.180:W=RND(20):IF W=1 G.225
50  IF W = 2 G.255
55  IF W = 3 G.270
60  IF W = 4 G.285
65  IF W = 5 G.300
70  IF W = 6 G.315
72  IF W = 7 G.330
74  IF W = 8 G.345
76  IF W = 9 G.360
78  IF W = 10 G.375
80  IF W = 11 G.390
82  IF W = 12 G.405
84  IF W = 13 G.420
86  IF W = 14 G.435
88  IF W = 15 G.450

38
90 IF W=16 G.465
92 IF W=17 G.480
94 IF W=18 G.495
96 IF W=19 G.510
100 G.525
160 A(2)=A(2)+Y;Z=0;W=0;A(1)=A(1)-(Y/2)
165 IN.X;G.50
180 IF X=A(3) G.220
185 IF X=Y G.220
190 A(1)=A(1)+X;A(3)=X;F.Z=1TO470:N.Z
195 P."SCORE";P."THE BRAIN";A(2);P."THE CLOD";A(1)
200 IF A(1)>35 G.550
205 IF A(2)>35 G.540
210 P.;P.;F.Z=1TO666:N.Z;Z=0:RET.
220 A(1)=A(1)-10;F.Z=1TO470:N.Z;G.195
225 Z=A;GOS.240:IF Z=50 G.55
230 P."ALBOOKISH!";Y=A;G.160
240 IF Z=Y THEN Z=50
245 IF Z=X THEN Z=50
250 RET.
255 Z=B;IF Z=50 G.55
260 Y=B;P."BREEP!";G.160
270 Z=C;GOS.240:IE Z=50 G.55
275 P."CRIPKLUTS!";Y=C;G.160
285 Z=D;GOS.240:IF Z=50 G.55
290 P."DUFFLEEM!";Y=D;G.160
300 Z=E;GOS.240:IF Z=50 G.55
305 P."EXQUIMBLE!";Y=E;G.160
315 Z=F;GOS.240:IF Z=50 G.55
320 P."FLIBBBING!";Y=F;G.160
330 Z=G;GOS.240:IF Z=50 G.55
335 P."GRUNKITT!";Y=G;G.160
345 Z=H;GOS.240:IF Z=50 G.55
350 P."HEEJAMBOONKLE!";Y=H;G.160
360 Z=I;GOS.240:IF Z=50 G.55
365 P."ISTHRIMI!";Y=I;G.160
375 Z=J;GOS.240:IF Z=50 G.55
380 P."JACQUELPHELIM!";Y=J;G.160
390 Z=K;GOS.240:IF Z=50 G.55
400 P."KREECK!";Y=K;G.160
405 Z=L;GOS.240:IF Z=50 G.55
410 P."LORKEI!";Y=L;G.160
420 Z=M;GOS.240:IF Z=50 G.55
425 P."MUCSTILE!";Y=M;G.160
435 Z=N;GOS.240:IF Z=50 G.55
440 P."NEFLOMI!";Y=N;G.150
The Rules for Freebish!

Actually the rules for Freebish! are really quite simple. Various letters of the alphabet (except O, W, X and Z, which are used by the computer to keep track of things) are randomly assigned values from -10 to +10. The first letter of any entry determines the amount to be added to or subtracted from your score (any additional letters are ignored; they’re just for show). If you play the same letter twice in a row, or immediately after the computer has played that letter, you lose 10 points regardless of the ordinary point value of that letter. The computer chooses its plays randomly, but it won’t break the repetition rule mentioned above, and its first play is always “FREEBISH!” (the letter F). Whoever manages to rack up a score of more than 35 points wins the game. Even when you know the rules, it’s harder than it looks because the letters have different values each time you play. (NOTE: If two letters have the same point value, they are counted as the same letter for the repetition rule.)
Crops

In this game you are a farmer growing two crops—dreckmelons (which are delicious with rutabagas) and treephules, from which valuable treephule fibers are made. The object is to have a good harvest.

Dreckmelon plants will die if exposed to below 40° temperatures for too long. They can be kept warm by releasing strunkflies, which nest over dreckmelon plants in great droves, thereby keeping them warm. Unfortunately, strunkflies love to eat treephule bushes.

Nellum spiders eat strunkflies. Unfortunately, they also eat the frubees needed to pollenate the treephule bushes.

In case of drought you must open up irrigation ditches. But this will also bring in guntherbugs which destroy both crops (and bite people too). Guntherbugs serve no useful purpose.

To help you control the insect population, three different insecticides are available:

- DDS: 13% effective against insects; 2½% effective against plants
- RQL: 38% effective against insects; 27% effective against plants
- MPN: 86% effective against insects; 58% effective against plants

You must balance the populations of these various insects for an optimum harvest. There is no all-purpose solution to this problem, because day-to-day weather will always have a changing effect. This means the game can be played over and over again, rather than being a repeatable puzzle. See Fig. 1-4 for the flowchart.

**Standard BASIC**

```
5 PRINT:"", "CROPS":PRINT
7 LET A=0:LET B=0:LET C=0
10 REM* CROPS PLANTED *
12 LET D=500:LET T=500
14 REM* INITIAL INSECT POPULATION *
16 LET F=INT(RND(0)*500)+1:LET G=0
18 LET N=INT(RND(0)*500)+1:LET I=0
19 LET S=INT(RND(0)*500)+1:LET E=INT(RND(0)*100)−9
20 REM* DAY'S REPORT *
22 LET C=C+1
24 LET W=INT(RND(0)*10)+1
```
PRINT "YOU HAVE ",D;" DRECKMELON PLANTS, ";T;
PRINT "TREPHULE BUSHES",I;" IRRIGATION DITCHES"
PRINT:PRINT F;" FRUBEES",N;" NELLUM SPIDERS",
PRINT S;" STRUNKFLIES",G;" GUNtherBUGS"
PRINT "DAY ";C," TEMPERATURE ";E," DEGREES",
IF E<40 THEN GOSUB 235
IF A>5 THEN GOTO 200
IF W>4 THEN GOTO 205
LET A=A+1
PRINT "DRY DAY":PRINT
LET E=E+INT(RND(0)*25)-11
LET X=RND(0)*F/1000
LET T=T+INT(Y):LET D=D-INT(Y)
LET X=INT(RND(0)*S)+1
LET Y=INT(RND(0)*10)+5
IF B>Y THEN GOSUB 220
LET X=X/1500
LET T=INT(T-(T*X))
LET X=(RND(0)*N)/5
LET S=S-INT(X); LET F=F-INT(X)
G=G+(INT(RND(0)*100)+1)
IF G<5 THEN GOTO 85
REM* LINES 55 TO 95 ARE CROP & INSECT ADJUST*
LET X=(INT(RND(0)*G+1))/20
LET D=INT(X)
LET X=(INT(RND(0)*G)+1)/20
LET T=T-INT(X);LET X=A-I
IF X>5 THEN GOSUB 260
LET X=C/20
IF X=INT(X) THEN GOTO 275
LET X=D-T
IF X<50 THEN GOTO 350
IF X>4000 THEN GOTO 370
REM* THE PLAY *
PRINT "1 TO RELEASE INSECTS. 2 TO SPRAY INSECTICIDE,"
LET G=INT(G+(G*.1)):LET F=INT(F+(F*.11))
LET S=INT(S+(S*.12)):LET N=INT(N-(N*.15))
PRINT "3 TO DIG IRRIGATION DITCH 4 TO CLOSE OLD"
PRINT "OLD DITCH OR 0 TO PASS"
INPUT L
IF L=1 THEN GOTO 300
IF L=2 THEN GOTO 125
IF L=3 THEN LET I=I+1
IF L=4 THEN LET I=I-1
IF I<1 THEN LET I=0
GOTO 20
REM* INSECTICIDE *
127 PRINT"1 FOR DDS, 2 FOR RQL, OR 3 FOR MPN"
130 INPUT L
132 IF L=1 THEN GOTO 160
135 IF L=2 THEN GOTO 180
137 REM* MPN EFFECTS *
140 LET D=INT(D-(D*.58))
142 LET T=INT(T-(T*.58))
144 LET S=INT(S-(S*.86))
146 LET N=INT(N-(N*.86))
148 LET F=INT(F-(F*.86))
150 LET G=INT(G-(G*.86))
155 GOTO 20
160 REM DDS EFFECTS *
162 LET D=D-INT(D*.025)
164 LET T=T-INT(T*.025)
166 LET S=S-INT(S*.13)
168 LET N=N-INT(N*.13)
170 LET F=F-INT(F*.13)
172 LET G=G-INT(G*.13)
175 GOTO 20
180 REM RQL EFFECTS *
182 LET D=D-INT(D*.27)
184 LET T=T-INT(T*.27)
186 LET S=S-INT(S*.38)
188 LET N=N-INT(N*.38)
190 LET F=F-INT(F*.38)
192 LET G=G-INT(G*.38)
195 GOTO 20
200 REM RAIN SELECT *
202 IF W<7 THEN GOTO 50
205 PRINT "RAIN"
207 LET A=A-3
210 IF A<1 THEN LET A=0
215 GOTO 54
220 REM WEATHER EFFECTS *
222 LET Z=INT(X/200)
224 IF D>2 THEN GOTO 230
226 LET D=INT(D-(RND(0)*D/6))
228 RETURN
230 LET D=INT(RND(0)*Z+2*(Z/3))
232 RETURN
235 LET B=B+1
240 IF E<20 THEN LET B=B+.5
245 IF E<10 THEN LET B=B+.75
250 IF E<0 THEN LET B=B+1
255 RETURN
260 REM DROUGHT DAMAGE *
262 LET J=(INT(RND(0)*100)+1)/100
264 LET K=(INT(RND(0)*100)+1)/100
266 LET D=D-(J*D)
268 LET T=T-(T*K)
270 LET D=INT(D); LET T=INT(T)
272 RETURN
275 REM CROP GROWTH *
280 LET Y=D*.15
285 LET D=D+INT(RND(0)*Y+1)
290 LET Y=T*.15
292 LET T=T+INT(RND(0)*Y-1)
295 RETURN
300 PRINT"1 FOR STRUNKFLIES, 2 FOR NELLUM SPIDERS, 3"
305 PRINT"FOR FRUBEES, OR 4 FOR GUNTERBUGS"
307 INPUT X
310 PRINT"HOW MANY ";
312 INPUT Y
315 IF Y<0 THEN LET Y=0-Y
317 LET Y=INT(Y)
320 IF X=4 THEN GOTO 340
322 IF X=1 THEN LET S=S+Y
325 IF X=2 THEN LET N=N+Y
330 IF X=3 THEN LET F=F+Y
335 GOTO 20
340 PRINT"WHY WOULD YOU WANT ";Y;" MORE GUNTER BUGS!?"
342 LET G=G+Y
345 GOTO 20
350 REM* LOSE *
352 PRINT"YOU'VE SUCCEEDED IN KILLING OFF MOST OF YOUR"
355 PRINT"CROPS. YOU'RE DOWN TO ";D;"DRECKMELON PLANTS"
360 PRINT"AND ";T;" TREPHULE BUSHES"
362 PRINT
365 PRINT"WHAT A LOUSY FARMER!"
367 END
370 PRINT" WOW!"
375 PRINT"YOU HAVE ";D;" DRECKMELON PLANTS AND"
380 PRINT T;" TREPHULE BUSHES"
385 PRINT
390 REM * WIN*
395 PRINT"YOU DESERVE AN AWARD IN AGRICULTURE!"
400 END

TRSBASIC

5 CLS:P." ","CROPS";P.:A=0
10 B=0:C=0:D=500:F=RND(500):G=0
15 I=0:N=RND(500):S=RND(500):T=500:E=RND(100)-10
20 C=C+1:W=RND(10)
25 P."YOU HAVE ";D;" DRECKMELON PLANTS. ";T;
30 P."TREPHULE BUSHES";I;" IRRIGATION DITCHES";P.
32 P.F.;"FRUBEES ";N;"NELLUM SPIDERS";S;" STRUNKFLIES",
34 P.G.;"GUNTERBUGS";P."DAY #";C;"TEMPERATURE"
;E;"DEGREES",
36 IF E<40 GOS.235
40 IF A>5 G.200
45 IF W>4 G.205
A=A+1:P. "DRY DAY":P.
E=E+RND(25)-12: X=RND(F)/1000: Y=T*X: T=T+INT(Y)
:D=D- IN(Y)
X=RND(S): Y=RND(10)+4: IF B>Y GOS. 220
X=X/1500: T=INT(T- (T*X))
X=RND(N)/5: S=S-INT(X): G=G+(I*RND(100)): F=F-INT(X)
IF G<5 G.85
X=INT(RND(G)/20): D=D-X: X=INT(RND(G)/20): T=T-X
X=A-I: IF X>5 GOS. 260
X=C/20: IF X=INT(X) G.275
X=D+T: IF X<50 G.350
IF X>4000 G.370
P. "1 TO RELEASE INSECTS, 2 TO SPRAY INSECTICIDE, 3"
G=INT(G+(G*.1)): F=INT(F+(F*.11)): S=INT(S+(S*.12))
N=N+INT(X*.15)
P. "TO DIG IRRIGATION DITCH, 4 TO CLOSE OLD DITCH,"
IN."OR 0 TO PASS "; L
IF L=1 G.300
IF L=2 G.125
IF L=3 THEN I=I+1
IF L=4 THEN I=I-1
IF I<1 THEN I=0
G.20
IN."1 FOR DDS, 2 FOR RQL CR 3 FOR MPN "; L
IF L=1 G.160
IF L=2 G.180
D=INT(D- (D*.58)): T=T-INT(T*.58)
S=S- (INT(S*.86)): N=N-INT(N*.86)
F=F-INT(F*.86): G=INT(G- (G*.86)
G.20
D=D-INT(D*.025): T=T-INT(T*.025)
S=S-INT(S*.13): N=N-INT(N*.13)
F=F-INT(F*.13): G=G-INT(G*.13)
G.20
D=D-INT(D*.27): T=T-INT(T*.27)
S=S-INT(S*.38): N=INT(N- (N*.38))
F=F-INT(F*.38): G=G-INT(G*.38)
G.20
IF W<7 G.50
P."RAIN": A=A-3
IF A<1 THEN A=0
G.55
Z=INT(X/200): IF D<Z G.230
D=INT(D-RND(D/6)): RET.
D=INT(RND(Z/3)+2*(Z/3)): RET.
B=B+1
IF E<20 THEN B=B+.5
245 IF E<10 THEN B=B+.75
250 IF E<0 THEN B=B+1
255 RET.
260 J=RND(100)/100;K=RND(100)/100
265 D=INT(D-(J*D));T=INT(T-(T*K))
270 RET.
275 D=D+INT(D*1.5);T=T+INT(T*1.5)
280 RET.
300 P."1 FOR STRUNKFLIES, 2 FOR NELLUM SPIDERS, 3"
305 P."FOR FRUBEES, OR 4 FOR GUNHERBUGS"
307 IN.X
310 IN."HOW MANY";Y=INT(Y)
315 Y=ABS(Y);IF X=4 G.340
320 IF X=1 THEN S=S+Y
325 IF X=2 THEN N=N+Y
330 IF X=3 THEN P=F+Y
335 G.20
340 P."WHY WOULD YOU WANT";Y;"MORE GUNHERBUGS?!?"
345 G=G+Y;G.20
350 P."YOU'VE SUCCEEDED IN KILLING OFF MOST OF YOUR"
355 P."CROPS. YOU'RE DOWN TO";D;"DRECKMELON PLANTS"
360 P."AND";T;"TREPHULE BUSHES";P.
365 P."WHAT A LOUSY FARMER!";END
370 P."WOW!"
375 P."YOU HAVE";D;"DRECKMELON PLANTS AND";T
380 P."TREPHULE BUSHES"
385 P.;P."YOU DESERVE AN AWARD IN AGRICULTURE!"
390 END

Summary of Variables Used

A Number of dry days
B Number of cold days
C Day number
D Number of dreckmelon plants
E Temperature
F Number of frubees
G Number of guntherbugs
I Number of irrigation ditches
J Various calculations
K Various calculations
N Number of nellum spiders
S Number of strunkflies
T Number of trephule bushes
W Rain or dry
X Various calculations
Y Various calculations
Z Various calculations

H, M, O, P, Q, and R are not used in this program.
Sample Run (Excerpt)
YOU HAVE 500 DRECKMELON PLANTS, 500 TREPHULE BUSHES, 0 IRRIGATION DITCHES,
397 FRUBEES, 284 NELLUM SPIDERS, 152 STRUNKFLIES,
0 GUNTERBUGS
DAY #1 TEMPERATURE 70 DEGREES
RAIN
1 TO RELEASE INSECTS, 2 TO SPRAY INSECTICIDE, 3 TO DIG IRRIGATION DITCH, 4 TO CLOSE OLD DITCH,
OR 0 TO PASS
1 FOR DDS, 2 FOR RQL, OR 3 FOR MPN? 2
YOU HAVE 365 DRECKMELON PLANTS, 451 TREPHULE BUSHES, 0 IRRIGATION DITCHES,
273 FRUBEES, 203 NELLUM SPIDERS, 94 STRUNKFLIES,
0 GUNTERBUGS
DAY #2 TEMPERATURE 68 DEGREES
DRY DAY
1 TO RELEASE INSECTS, 2 TO SPRAY INSECTICIDE, 3 TO DIG IRRIGATION DITCH, 4 TO CLOSE OLD DITCH,
OR 0 TO PASS
1 FOR STRUNKFLIES, 2 FOR NELLUM SPIDERS, 3 FOR FRUBEES, OR 4 FOR GUNTERBUGS
?1 HOW MANY? 100
YOU HAVE 332 DRECKMELON PLANTS, 503 TREPHULE BUSHES, 0 IRRIGATION DITCHES,
303 FRUBEES, 233 NELLUM SPIDERS, 187 STRUNKFLIES
0 GUNTERBUGS
DAY #3 TEMPERATURE 77 DEGREES
DRY DAY
1 TO RELEASE INSECTS, 2 TO SPRAY INSECTICIDE, 3 TO DIG IRRIGATION DITCH, 4 TO CLOSE OLD DITCH,
OR 0 TO PASS
YOU HAVE 299 DRECKMELON PLANTS, 567 TREPHULE BUSHES, 1 IRRIGATION DITCHES,
296 FRUBEES, 267 NELLUM SPIDERS, 169 STRUNKFLIES
0 GUNTERBUGS
DAY #4 TEMPERATURE 69 DEGREES
RAIN
1 TO RELEASE INSECTS, 2 TO SPRAY INSECTICIDE, 3 TO DIG IRRIGATION DITCH, 4 TO CLOSE OLD DITCH,
OR 0 TO PASS
1 FOR DDS, 2 FOR RQL, OR 3 FOR MPN? 3
YOU HAVE 91 DRECKMELON PLANTS, 257 TREPHULE BUSHES, 1 IRRIGATION DITCHES,
36 FRUBEES, 38 NELLUM SPIDERS, 19 STRUNKFLIES,
14 GUNTERBUGS
DAY #5 TEMPERATURE 61 DEGREES
RAIN
48
There's Gold In Them There Skyscrapers

The directions for playing this game are included in the program listing, steps 450 to 520. You may omit these steps from the program along with steps 15, 20, and 525 to 575 if you want to save program space.

The building layout is included in the array. A(1) to A(100) are set to 0, 2, 3, or 4. Obviously each array position stands for a room. If a given array position is equal to 2, that's the room holding the gold. This can be any room from #2 to #100 (step 145). Room #1 is the room the game starts in, but it would be a very short game if the gold was found there.

If the array position is equal to 3 that room has an exit from the building. Three of the rooms from 1 to 10 have an exit. These are designated as the ground floor since an exit on the 8th floor wouldn't be too good an idea.

Any of the upper rooms (from 11 to 100) might have a trap door (designated by a 4 in the array position). If you enter one of these rooms, you will fall to the room immediately below it. For example, room 73 would drop you to room 63. Since each array position can hold only one number, the gold won't be in a room with a trap door.

A zero in the array position is just a space holder with no particular meaning.

If the room has the appropriate doors, you can move to the room on the immediate right, left, above or below the room you're in. The doors are set in array positions A(101) to A(500). A(101) to A(200) determine which rooms have doors to the right (room 38 would correspond to A(138). A(201) to A(300) are the doors to the left. A(301) to A(400) are the doors to the rooms above, and A(401) to A(500) are the doors to the rooms below. A 1 in any given array position indicates the presence of that particular door, while a 0 signifies its absence. (NOTE: you can't always get out of a room the way you came in).

In step 30 all the doors are set to 1, then the impossible doors are removed (steps 40 to 60). These are the doors along the perimeter of the building. There is no room to the left of room 41, for instance, so there shouldn't be a door there, either.

Finally up to 250 of the remaining 360 doors are randomly moved. It's theoretically possible for you to find yourself in a room with no doors at all. If this happens you have to hit the 'BREAK' key
to get out of the dead-ended program. I haven’t included any protection against this kind of thing because it would take a great deal of program space, and the odds are the problem will never come up anyway. It’s possible, but unlikely.

Your moves are limited to Right, Left, Up, Down, or Exit (you can use just the first letters or type out the entire word). Any other entry is an invalid move, but the number of moves will still be incremented by 1, worsening your score. If you try to use a door that isn’t there, you’ll receive the error message from step 355, and it will be treated as an invalid move.

The only way to end the game is to either BREAK the program, or leave the building via one of the exits either with the gold (you win) or empty-handed (you lose). After playing a few games you can determine for yourself what kind of score to consider “par.” I’ve seen scores of 150 add up in this game, and once I lucked out and left with the gold in a mere 5 moves.

You can alter the odds by changing step 75. This step begins with the command Y=RND(250). Y is the number of doors to be randomly removed (the number might be reduced if the computer decides to remove certain doors more than once). If you want an easier game you can change this command to Y=RND(100). Or you might try Y=RND(150)+150. There could be up to 300 doors removed (out of 360!), and at least 150 will be removed (except where the computer gets redundant and gives you a break). If you alter this command, be sure to re-enter the rest of step 75 as it is written in the original program. See Fig. 1-5 for the flowchart.

**Standard BASIC**

```basic
5 CLS:PRINT:FOR X=1 TO 100: LET A(X)=0:NEXT X
10 PRINT"GOLD IN THEM THERE SKYSCRAPERS"
15 INPUT"ENTER 1 FOR INSTRUCTIONS OR 2 FOR GAME ";X
20 IF X=1 GOTO 450
25 REM ** PUT DOORS IN ALL ROOMS
30 FOR X=101 TO 500:LET Z(X)=1:NEXT X
35 REM ** REMOVE IMPOSSIBLE DOORS
40 FOR X=391 TO 410: LET A(X)=0:NEXT X
45 LET Y=201:FOR X=1 TO 10
50 LET A(Y)=0:LET Y=Y+10:NEXT X
60 LET Y=110:FOR X=1 TO 10
65 LET A(Y)=0:LET Y=Y+10:NEXT X
70 REM ** REMOVE RANDOM DOORS
75 LET Y=INT(RND(1)*250)+1
80 FOR X=1 TO Y:LET Z=INT(RND(1)*400)+101
90 LET A(Z)=0:NEXT X
```

50
100 REM ** PLANT TRAP DOORS
105 LET Y=INT(RND(1)*20)+1
110 FOR X=1 TO Y:LET Z=INT(RND(1)*90)+1
120 LET A(Z)=4:NEXT X
125 REM ** PLANT EXITS & GOLD

Fig. 1-5. Flowchart for There's Gold in Them There Skyscrapers.
FOR X=1 TO 3: LET Y=INT(RND(1)*10)+1
LET A(Y)=3: NEXT X
LET X=INT(RND(1)*99)+2: LET A(X)=2
REM ** SET GAME VARIABLES
LET M=1: LET P=1: LET G=Ø
LET E=20: LETU=10: LET D=–10
LET R=1: LET L=–1
PRINT"MOVE #:”; M: LET M=M+1
PRINT"YOU ARE IN ROOM #:”; P
LET X=A(P)
IF X=2 GOSUB 400
IF X=3 PRINT"THERE IS AN EXIT.”
IF X=4 GOTO 420
PRINT"YOU CAN MOVE IN THE FOLLOWING DIRECTIONS —–”
LET Y=P+100: IF A(Y)=1 PRINT"RIGHT “;
LET Y=P+200: IF A(Y)=1 PRINT"LEFT “;
LET Y=P+300: IF A(Y)=1 PRINT"UP “;
LET Y=P+400: IF A(Y)=1 PRINT"DOWN “;
PRINT: PRINT
INPUT"YOUR MOVE”; Q
IF Q=E GOTO 300
IF Q=R GOTO 340
IF Q=L GOTO 370
IF Q=U GOTO 380
IF Q=D GOTO 390
PRINT "INVALID MOVE!”
GOTO 200
IF A(P)=E GOTO 310
GOTO 290
PRINT “YOU HAVE JUST LEFT THE BUILDING WITH”;
IF G=Ø PRINT“OUT”;
PRINT "THE GOLD.”
LET M=M–1
PRINT "IT TOOK YOU “; M; " MOVES."
END
REM ** MOVE = RIGHT
LET X=P+100
IF A(X)=1 GOTO 365
PRINT"YOU JUST RAN INTO A WALL, CLOD!”
GOTO 200
LET P=P+Q: GOTO 200
REM ** MOVE = LEFT
LET X=P+200: GOTO 350
REM ** MOVE = UP
LET X=P+300: GOTO 350
REM ** MOVE = DOWN
395 LET X=P+400: GOTO 350
400 PRINT "YOU JUST FOUND THE GOLD!"
405 LET A(P)=0: LET G=1
410 RETURN
420 PRINT "TRAP DOOR!"
425 LET P=P-10
430 FOR X=1 TO 333: NEXT X
440 GOTO 200

Secret Passageway Option (Standard BASIC)
122 LET Y=INT(RND(1)*40)+1: FOR X=1 TO Y
123 LET Z=INT(RND(1)*100)+1
124 LET A(Z)=5: NEXT X: LET S=5
227 IF X=S PRINT "THERE IS A SECRET PASSAGEWAY"
287 IF Q=S GOTO 600
600 IF A(P)=5 GOTO 620
610 GOTO 290
620 CLS: LET P=INT(RND(1)*100)+1
630 FOR X=1 TO 456: NEXT X
640 GOTO 200

TRS-80 BASIC
10 CLS: P. "", "GOLD IN THEM THERE SKYSCRAPERS"
15 F.X=101 TO 500: A(X)=1: N.X=F.X=1 TO 100: A(X)=0: N.X
20 F.X=391 TO 410: A(X)=0: N.X=Y=201: F.X=TO 10
25 A(Y)=0: Y=Y+10: N.X.Y=110: F.X=1 TO 10
30 A(Y)=0: Y=Y+10: N.X
40 Y=RND(250): F.X=1 TO 100: Z=RND(400)+100
45 A(Z)=0: N.X.M=1: P=1: G=0: E=20
50 Y=RND(20): F.X=1 TO 100: Z=RND(90)+10: A(Z)=4: N.X
55 U=110: D=-10: R=1: L=-1: F.X=1 TO 3: Y=RND(10)
60 A(Y)=3: N.X.X=RND(99)+1: A(X)=2
100 P. "MOVE "; M=M+1: P. "YOU ARE IN ROOM "; P
105 X=A(P): IF X=2 GOS. 250
110 IF X=3 P. "THERE IS AN EXIT."
115 IF X=4 G. 260
120 P. "YOU CAN MOVE IN THE FOLLOWING DIRECTIONS --"
125 Y=P+100: IF A(Y)=1 P. "RIGHT ";
130 Y=P+200: IF A(Y)=1 P. "LEFT ";
135 Y=P+300: IF A(Y)=1 P. "UP ";
140 Y=P+400: IF A(Y)=1 P. "DOWN ";
145 P. : P. : "YOUR MOVE"; Q: IF Q=E G. 180
150 IF Q=R G. 210
155 IF Q=L G. 230
160 IF Q=U G. 235
165 IF Q=D G.240
170 P:“INVALID MOVE!”:G.100
180 IF A(P)=E G.190
185 G.170
190 P:“YOU HAVE JUST LEFT THE BUILDING WITH”; G.100
195 IF G=0 P:“OUT”; G.100
200 P:“THE GOLD."M=M-1:P:“IT TOOK YOU ";M;" MOVES.” G.100
205 END
210 X=P+100
215 IF A(X)=1 G.225
220 P:“YOU JUST RAN INTO A WALL, CLOD!”:G.100
225 P=P+Q:G.100
230 X=P+200:G.215
235 X=P+300:G.215
240 X=P+400:G.215
250 P:“YOU FOUND THE GOLD!”:A(P)=0;G=1:RET.
260 P=P-10:P:“TRAP DOOR!”:F.X=1TO 333:N.X=G.100

Secret Passageway Option (TRS-80)
35 Y=RND(40):F.X=1TOY:Z=RND(100):A(Z)=5:N.X:S=5
117 IF X=S GOS.300
167 IF Q=S G.310
300 P:“THERE IS A SECRET PASSAGEWAY”;RET.
310 IF A(P)=5G,620
315 G.170
320 CLS:P=RND(100):F.X=1TO456:N.X
330 G.100

Summary Of Variables Used
D Move down. D= -10
E Exit. E=20
G Gold located?
L Move left. L = -1
M Move #
P Current room
Q Current move
R Move right.R = 1
U Move up. U = 10
X Set-up & timing variable
Y
Z

Sample Run (Excerpt)
GOLD IN THEM THERE SKYSCRAPERS

MOVE #1
YOU ARE IN ROOM #1

54
YOU CAN MOVE IN THE FOLLOWING DIRECTIONS ---
RIGHT UP
YOUR MOVE? RIGHT
MOVE #2
YOU ARE IN ROOM #2
THERE IS AN EXIT
YOU CAN MOVE IN THE FOLLOWING DIRECTIONS ---
LEFT UP
YOUR MOVE? UP
MOVE #3
YOU ARE IN ROOM #12
YOU CAN MOVE IN THE FOLLOWING DIRECTIONS ---
RIGHT LEFT UP DOWN
YOUR MOVE? RIGHT
MOVE #4
YOU ARE IN ROOM #13
YOU CAN MOVE IN THE FOLLOWING DIRECTIONS ---
RIGHT LEFT DOWN
YOUR MOVE? RIGHT
MOVE #5
YOU ARE IN ROOM #14
TRAP DOOR!
MOVE #6
YOU ARE IN ROOM #4
THERE IS AN EXIT
YOU CAN MOVE IN THE FOLLOWING DIRECTIONS ---
RIGHT LEFT UP
YOUR MOVE? EXIT
YOU HAVE JUST LEFT THE BUILDING WITHOUT THE GOLD
IT TOOK YOU 6 MOVES
Lost In The Jungle

This is an adventure game of the type increasingly popular among computer hobbyists. The player has an objective (getting out of the jungle alive) and the computer offers various obstacles to the goal (wolves, lions, black widow spiders, waterholes, quicksand, poisonous berries). The player is then offered a series of options to select from. The computer analyzes the results of each choice, usually with an element of weighted randomness. On each move the player moves one mile in any of the four basic directions (north, south, east, or west).

An added trick to this game is the main scoring variables (distance to the outside of the jungle, and the player’s remaining strength). If you’re not careful you may suddenly find yourself dropping from exhaustion. You can build up your level of strength by eating, but watch out! Some of the food you’ll come across might turn out to be tainted.

If you get close to the edge of the jungle you’ll be told you can see light through the trees ahead.

Unlike many adventure games, the obstacles are randomly placed and the solutions are randomly weighted to keep the game interesting even after you’ve played it a number of times. See Fig. 1-6 for the flowchart.

**Standard Basic**

```
2   LET A=11: LET B=12
4   LET C=13: LET D=14
6   LET E=25: LET M=20
8   LET H=12: LET K=100
10  LET F=INT(RND(0)*50)+21
18  PRINT: PRINT
20  PRINT“,”,”LOST IN THE JUNGLE”: PRINT
22  OGSUB 500
25  PRINT“YOU ARE LOST IN A JUNGLE. YOU HAVE A GUN WITH 6”
30  PRINT“BULLETS, A KNIFE, & A SLINGSHOT. THE TRICK IS TO”
35  PRINT“FIND YOUR WAY BACK TO CIVILIZATION WITHOUT GETTING”
40  PRINT“YOURSELF KILLED. EACH MOVE IS ONE MILE. THE JUNGLE”
```
PRINT "IS 100 MILES SQUARE. PRESS 'ENTER' TO START"
INPUT A$
PRINT "DO YOU WANT AN EASY, MEDIUM OR HARD GAME?"
INPUT J
LET H=INT(RND(0)*50)+21
LET G=100-F:LET I=100-H:LET M=6
REM* BEGIN GAME*
GOSUB 1000
LET Z=X:LET S=J-4
REM* EVENT SELECTION*
LET Y=INT(RND(0)*S)+1
GOSUB 500
IF Y=1 THEN GOTO 150
IF Y<4 THEN GOTO 225
IF Y=4 THEN GOTO 520
IF Y=6 THEN GOTO 520
IF Y=7 THEN GOTO 105
GOTO 70
PRINT "YOU COME TO A BUSH OF BERRIES"
LET Y=17:LET N=18
PRINT "DO YOU EAT THEM?"
INPUT Q
IF Q=17 THEN GOTO 122
REM* NOT EAT BERRIES*
GOTO 70
REM* EAT BERRIES*
LET K=K+(J/10)
LET L=INT(RND(0)*J)+1
IF L<(J*.75) THEN GOTO 140
PRINT "THEY MAKE YOU QUITE ILL"
LET K=K-INT(RND(0)*K)
GOTO 70
REM* BERRIES OK*
LET K=K+(J/10)
GOTO 70
PRINT "YOU STEP INTO QUICKSAND!"
GOSUB 500
PRINT "WHAT DO YOU DO?"
PRINT A — TRY TO CLAW YOUR WAY OUT"
PRINT "B — GIVE UP"
PRINT "C — GRAB ONTO A TREE BRANCH"
PRINT "D — START PRAYING"
INPUT X
IF X=C THEN GOTO 200
PRINT "SORRY    ";
Fig. 1-6. Flowchart for Lost in the Jungle.
Fig. 1-6. Flowchart for Lost in the Jungle.
GOSUB 500
PRINT "YOU'RE DECEASED."
END
REM* TREE BRANCH ATTEMPT*
LET I=100
LET Q=INT(RND(0)*I)+1
IF Q>100 THEN GOTO 215
PRINT "YOU DIDN'T MAKE IT"
GOSUB 500
GOTO 190
PRINT "YOU MADE IT!"
LET K=K-INT(RND(0)*K*.67)
GOTO 70
REM* ANIMAL ATTACK*
IF Y=2 THEN PRINT "WOLF";
IF Y=3 THEN PRINT "LION";
PRINT "AHEAD. WHAT DO YOU DO?"
PRINT "A — FLEE"
PRINT "B — SHOOT IT"
PRINT "C — USE YOUR SLINGSHOT"
PRINT "D — USE YOUR KNIFE"
PRINT "E — CLIMB A TREE"
INPUT X
GOSUB 500
IF X=A THEN GOTO 285
IF X=B THEN GOTO 330
IF X=C THEN GOTO 350
IF X=D THEN GOTO 355
IF X=E THEN GOTO 390
REM* NO VALID CHOICE*
LET K=K-1
PRINT "IT'S STILL THERE. NOW WHAT?"
GOTO 234
GOSUB 1000
REM* FLEE*
IF Z=X THEN GOTO 760
LET Q=INT(RND(0)*J)+1
LET K=K-INT(RND(0)*K/2)
IF Q<9 THEN GOTO 315
PRINT "WHHEW!"
GOSUB 500
PRINT "YOU MADE IT TO SAFETY!"
GOTO 70
PRINT "IT CATCHES YOU!"
LET K=K-INT(RND(0)*K)+1
IF K<10 THEN GOTO 185
LET J=J-1
PRINT"NOW WHAT DO YOU DO?":GOTO 234
IF M<1 THEN GOTO 615
GOSUB 500
PRINT:PRINT"","BANG!!!":PRINT
LET L=J*2.5:LET M=M-1
GOSUB 500
LET Q=INT(RND(0)*L)+1
IF Q>17 THEN GOTO 440
PRINT"YOU MISSED!"
GOTO 315
LET L=J*1.5
GOTO 334
LET L=J*1.7
IF Y=3 THEN LET L=L*2
LET Q=INT(RND(0)*L)+1
IF Q>18 THEN GOTO 440
PRINT"IT OVERPOWERS YOU!"
LET K=K-(2*Q)
IF K<15 THEN GOTO 185
GOTO 320
IF Y=3 THEN GOTO 430
LET Q=INT(RND(0)*40)+1
GOSUB 500
LET K=K-Q
PRINT"THE WOLF DOES NOT LEAVE FOR ",Q," HOURS"
IF K<7 THEN GOTO 420
PRINT"THEN YOU CAN CLIMB DOWN"
GOTO 70
PRINT"YOU DIE OF THIRST AND STARVATION"
END
PRINT"LIONS CAN CLIMB TREES BETTER THAN PEOPLE."
GOTO 185
PRINT"GOT 'EM!"
GOSUB 500
PRINT"DO YOU EAT IT?"
PRINT"A — YES"
PRINT"B — NO"
INPUT X
IF X=A THEN LET K=K+J
GOTO 70
PRINT"YOU DROP FROM EXHAUSTION"
GOTO 185
LET W=INT(RND(0)*888)+1
FOR V=1 TO W
NEXT V
RETURN
PRINT "A BLACK WIDOW SPIDER LANDS ON YOUR NECK!"
PRINT "WHAT DO YOU DO?"
PRINT "A — HOLD AS STILL AS POSSIBLE"
PRINT "B — TRY TO BRUSH IT OFF"
PRINT "C — SHOOT IT"
PRINT "D — CRY"
INPUT X
GOSUB 500
IF X=A THEN GOTO 580
IF X=B THEN GOTO 580
IF X=C THEN GOTO 570
GOTO 180
PRINT: PRINT ":", "BANG!": PRINT
GOSUB 500
GOTO 180
LET L=J^4
LET Q=RND(0)*L+1
IF Q<J^2 THEN GOTO 600
PRINT "IT BITES!"
GOSUB 500
GOTO 185
PRINT "IT CRAWLS OFF WITHOUT BITING"
GOTO 70
PRINT "YOU ARE OUT OF BULLETS"
GOTO 370
PRINT "YOU COME TO A FRESH WATER POND"
PRINT "WHAT DO YOU DO?"
PRINT "A — DRINK"
PRINT "B — SWIM"
PRINT "C — LEAVE"
INPUT X
GOSUB 500
IF X=A THEN GOTO 670
IF X=B THEN GOTO 690
IF X=C THEN GOTO 735
GOTO 640
LET Q=INT(RND(0)*Q)+1
IF Q<6 THEN GOTO 680
LET K=K+(RND(0)*K)-9
GOTO 70
PRINT "IT MAKES YOU QUITE ILL"
LET K=K-INT(RND(0)*K)
GOTO 70
LET Q=INT(RND(0)*4)+1
GOSUB 500
695 LET K=K-2
697 IF Q=1 THEN GOTO 710
700 IF Q=2 THEN GOTO 715
702 GOSUB 500
705 GOTO 70
710 PRINT"YOU DROWN!"
712 GOTO 185
715 PRINT"A PIRANHA STRIKES!"
717 GOSUB 500
720 LET Q=INT(RND(0)*J)+1
722 IF Q<20 THEN GOTO 185
725 PRINT"YOU MANAGE TO ESCAPE WITHOUT SERIOUS INJURY"
730 LET K=K-INT(RND(0)*K)
732 GOTO 70
735 GOSUB 1000
737 IF Z=X THEN GOTO 750
740 GOTO 70
750 PRINT:PRINT"","SPLASH!":PRINT
755 GOTO 690
760 PRINT"YOU JUST COLLIDED WITH THE";
765 IF Y=2 THEN PRINT"WOLF!"
770 IF Y=3 THEN PRINT"LION!"
775 GOSUB 500
780 GOTO 185
1000 LET K=K-.5
1002 PRINT"WHICH WAY DO YOU GO?"
1004 PRINT"A — EAST"
1006 PRINT"B — WEST"
1008 PRINT"C — NORTH"
1010 PRINT"D — SOUTH"
1012 INPUT X
1015 IF X=A THEN GOTO 1050
1017 IF X=B THEN GOTO 1055
1020 IF X=C THEN GOTO 1060
1025 IF X=D THEN GOTO 1065
1030 GOTO 1000
1050 LET F=F-1:LET G=G+1
1052 GOTO 1070
1055 LET F=F+1:LET G=G-1
1057 GOTO 1070
1060 LET H=H-1:LET I=I+1
1062 GOTO 1070
1065 LET H=H+1:LET I=I-1
1070 IF F=0 THEN GOTO 1120
1075 IF G=0 THEN GOTO 1120
1080 IF H=0 THEN GOTO 1120
1085 IF I=0 THEN GOTO 1120
1090 IF K<5 THEN GOTO 470
1095 IF F<10 THEN GOTO 1130
1100 IF G<10 THEN GOTO 1130
1105 IF H<10 THEN GOTO 1130
1110 IF I<10 THEN GOTO 1130
1115 RETURN
1120 PRINT"YOU MADE IT SAFELY BACK TO CIVILIZATION!"
1125 END
1130 PRINT"YOU CAN SEE SUNLIGHT THROUGH THE TREETOPS!"
1135 RETURN

TRS-80 BASIC
10 P."","LOST IN THE JUNGLE";P.:GOS.500
15 P."YOU ARE LOST IN A JUNGLE. YOU HAVE A GUN WITH 6"
20 P."BULLETS, A KNIFE, & A SLINGSHOT THE TRICK IS TO"
25 P."FIND YOUR WAY BACK TO CIVILIZATION WITHOUT GETTING"
30 P."YOURSELF KILLED. EACH MOVE IS ONE MILE. THE JUNGLE"
35 P."IS 100 MILES SQUARE. PRESS 'ENTER' TO START"
40 IN.A$:M=20:H=12
45 IN."DO YOU WANT AN EASY, MEDIUM OR HARD GAME";J
50 K=100:F=RND(50)+20:H=RND(50)+20:I=100−H;
   M=6:G=100−F
70 GOS.1000;Z=X:S=J−4
75 Y=RND(S):GOS.500:IF Y=1 G.150
80 IF Y<4 G.225
85 IF Y=4 G.520
90 IF Y=6 THEN GOTO 630
95 IF Y=7 G.105
100 G.70
105 P."YOU COME TO A BUSH OF BERRIES";Y=17:N=18
110 IN."DO YOU EAT THEM";Q:IF Q=17 G.120
115 B.70
120 K=K+(J/10):L=RND(J):IF L<(J*.75)G.140
130 P."THEY MAKE YOU QUITE ILL";K=K−RND(K)
135 G.70
140 K=K+(J/10):G.70
150 P."YOU STEP INTO QUICKSAND!";GOS.500
155 P."WHAT DO YOU DO?";P."A— TRY TO CLAW YOUR WAY OUT"
160 P."B— GIVE UP";P."C— GRAB ONTO A TREE BRANCH"
165 P."D— START PRAYING";IN.X

66
IF X=C G.200
P. "SORRY"
GOS.500
P. "YOU'RE DEAD." END
L=J*10:Q=RND(L):IF Q>100G.215
P. "YOU DIDN'T MAKE IT."
GOS.500:G.190
P. "YOU MADE IT!":K=K−INT(RND(K)*.67)
G.70
IFY=2P. "WOLF";
IFY=3P. "LION";
P. "AHEAD!":P. "WHAT DO YOU DO?"
P. "A— FLEE":P. "B— SHOOT IT":P. "C— USE YOUR SLINGSHOT"
P. "D— USE YOUR KNIFE":P. "E— CLIMB A TREE"
IN.X
GOS.500:IF X=A G.285
IFY=B G.330
IFY=C G.350
IFY=D G.355
IFY=E G.390
K=K−1:P. "IT'S STILL THERE. NOW WHAT?"
G.235
GOS.1000:IF Z=X G.760
Q=RND(J):K=K−INT(RND(K)/2)
IFY<9G.315
P. "WHEW!":GOS.500:P. "YOU MADE IT TO SAFETY!"
IFY=10 G.185
IFY+1 G.615
GOS.500:IFY="", "BANG!!!":IFY+1*2.5:IFY=IFY−1
GOS.500:Q=RND(L):IFY<17G.440
P. "YOU MISSED!"
G.315
L=J*1.5:G.335
L=J*1.7:IFY=3THEN L=L*2
Q=RND(L):IFY>18G.440
P. "IT OVERPOWERS YOU!!":K=K−(2*Q):IFY<15G.185
G.320
IFY=3G.430
Q=RND(4):GOS.500:IFY=Q
P. "THE WOLF DOES NOT LEAVE FOR":Q="HOURS."
IFY<7G.420
P. "THEN YOU CAN CLIMB DOWN":G.70
P. "YOU DIE OF THIRST AND STARVATION."
END
P. "LIONS CAN CLIMB TREES BETTER THAN PEOPLE."
G. 185
P. "GOT'EM!":GOS.500:P. "DO YOU EAT IT?"
P. "A — YES":P. "B — NO":IN.X
IF X=A THEN K=K+J
G. 70
P. "YOU DROP FROM EXHAUSTION":G. 185
W=RND(888)
F.¥=1TOW:N.V
RET.
P. "A BLACK WIDOW SPIDER LANDS ON YOUR NECK!
WHAT DO YOU DO?":P. "A — HOLD AS STILL AS POSSIBLE"
P. "B — TRY TO BRUSH IT OFF":P. "C — SHOOT IT"
P. "D — CRY":IN.X:GOS.500:IF X=A G.580
IF X=B G.580
IF X=C G.570
G. 180
P.:P.:« "BANG!":P.:GOS.500:G. 180
L=J*4:Q=RND(L):IF Q<J G.600
P. "IT BITES!":GOS.500
G. 180
P. "IT CRAWLS OFF WITHOUT BITING":G. 70
P. "YOU ARE OUT OF BULLETS!":G.370
P. "YOU COME TO A FRESH WATER POND":P. "WHAT DO YOU DO?"
P. "A — DRINK":P. "B — SWIM":P. "C — LEAVE"
IN.X
GOS.500:IF X=A G.670
IF X=B G.690
IF X=C G.735
G.640
Q=RND(J):IF Q<6 G.680
K=K+(RND(K)- 10):G. 70
P. "IT MAKES YOU QUITE ILL"
K=K—RND(K):G. 70
Q=RND(4):GOS.500:K=K—2:IF Q=1 G.710
IF Q=2 G.715
GOS.500:G. 70
P. "YOU DROWN!":GOS.500:G.190
P. "A PIRANHA STRIKES!!":GOS.500:Q=RND(J)
IF Q<20 G.185
P. "YOU MANAGE TO ESCAPE WITHOUT SERIOUS INJURY"
K=K—RND(K):G. 70
GOS. 1000: IF Z = X G. 750
740 G. 70
750 P.: P.""; ", "SPASH!": P. G. 690
760 P. "YOU JUST COLLIDED WITH THE ";
765 IF Y = 2 P. "WOLF!"
770 IF Y = 3 P. "LION!"
775 GOS. 500: G. 185
1000 K = K -.5: P. "WHICH WAY WILL YOU GO?"
1005 P. "A -- EAST": P. "B -- WEST": P. "C -- NORTH"
1010 P. "D -- SOUTH": IN. X: IF X = A G. 1050
1015 IF X = B G. 1055
1020 IF X = C G. 1060
1025 IF X = D G. 1065
1030 G. 1000
1050 F = F - 1: G = G + 1: G. 1070
1055 F = F + 1: G = G - 1: G. 1070
1060 H = H - 1: I = I + 1: G. 1070
1065 H = H + 1: I = I - 1
1070 IF F = 0 G. 1120
1075 IF G = 0 G. 1120
1080 IF H = 0 G. 1120
1085 IF I = 0 G. 1120
1090 IF K < 5 G. 470
1095 IF F < 10 G. 1130
1100 IF G < 10 G. 1130
1105 IF H < 10 G. 1130
1110 IF I < 10 G. 1130
1115 RET.
1120 P. "YOU MADE IT SAFELY BACK TO CIVILIZATION!"
1125 END
1130 P. "YOU CAN SEE SUNLIGHT THROUGH THE TREETOPS!"
1140 RET.

Summary Of Variables Used
A OPTION SELECTOR
B OPTION SELECTOR
C OPTION SELECTOR
D OPTION SELECTOR
E OPTION SELECTOR/EASY GAME
F DISTANCE EAST
G DISTANCE WEST
H DISTANCE NORTH/HARD GAME
I DISTANCE SOUTH
J GAME DIFFICULTY
K STRENGTH

69
Sample Run (Excerpt)

DO YOU WANT AN EASY, MEDIUM OR HARD GAME? EASY
WHICH WAY WILL YOU GO?
A — EAST
B — WEST
C — NORTH
D — SOUTH
? C
A BLACK WIDOW SPIDER LANDS ON YOUR NECK!
WHAT DO YOU DO?
A — HOLD AS STILL AS POSSIBLE
B — TRY TO BRUSH IT OFF
C — SHOOT IT
D — CRY
? A
IT CRAWLS OFF WITHOUT BITING
WHICH WAY WILL YOU GO?
A — EAST
B — WEST
C — NORTH
D — SOUTH
? A
LION AHEAD!
WHAT DO YOU DO?
A — FLEE
B — SHOOT IT
C — USE YOUR SLINGSHOT
D — USE YOUR KNIFE
E — CLIMB A TREE
? B
BANG!
YOU MISSED
IT CATCHES YOU
NOW WHAT DO YOU DO?
A — FLEE
B — SHOOT IT
C — USE YOUR SLINGSHOT
D — USE YOUR KNIFE
E — CLIMB A TREE
?A
WHICH WAY WILL YOU GO?
A — EAST
B — WEST
C — NORTH
D — SOUTH
?D
WHHEW!
YOU MADE IT TO SAFETY!
WHICH WAY WILL YOU GO?
A — EAST
B — WEST
C — NORTH
D — SOUTH
? A
Galactic Search

Galactic Search is another adventure game. While random chance plays a part, there's more opportunity for planning strategy in this game. The instructions are given within the program. See Fig. 1-7 for the flowchart.

**Standard BASIC**

```
5 FOR X=1 TO 200: PRINT
10 LET Y=INT(RND(0)*26)+1
12 LET A(X)=Y: NEXT X
15 PRINT"YOU ARE ";
17 LET A=INT(RND(0)*5)+1
18 FOR X=501 TO 600: LETY=INT(RND(0)*1000)+1
20 IF A=1 THEN LET A$="AKRANAID"
22 LET A(X)=Y: NEXT X
25 IF A=2 THEN LET A$="OLK"
30 IF A=3 THEN LET A$="ZOLAR ZINNK"
35 IF A=4 THEN LET A$="GUAMBNA"
40 IF A=5 THEN LET A$="JOHN DOE"
45 PRINT A$:"—CAPTAIN OF THE SPACESHIP"
50 PRINT"EVENING STAR' FROM THE PLANET RAMSNEID"
55 LET J=0: PRINT"RAMSNEID CIRCLES THE STAR KNOWN AS FR-972"
60 PRINT"AND IS IN DIRE NEED OF THE RARE SUBSTANCE, BRETCHENKOEL"
65 PRINT"THERE IS NO BRETCHENKOEL LEFT IN THE SOLAR SYSTEM"
70 PRINT"AND WITHOUT THIS SUBSTANCE TO FUEL THE PLANET'S"
75 PRINT"POWER STATIONS, YOUR PEOPLE WILL DIE OUT."
80 PRINT"THIS IS WHY THE RAMSNEIDIANS HAVE TAKEN UP SPACE"
85 PRINT"TRAVEL, DESPITE ITS STRANGE & UNPREDICTABLE DANGERS"
87 FOR X=201 TO 300
90 LET Y=INT(RND(0)*999)+1
92 LET A(X)=Y: NEXT X
94 PRINT"YOUR MISSION, CAPTAIN "A$":, IS TO SEARCH THE"
96 PRINT"GALAXY FOR MORE BRETCHENKOEL. YOU WILL BE"
100 PRINT"FLYING BY GUESS WORK MOST OF THE TIME"
102 FOR X=301 TO 400
```
Fig. 1-7. Galactic Search flowchart.
LET Y=INT(RND(0)*17)+1
IF Y=17 THEN Y=0
IF Y=1 THEN Y=0
LET A(X)=Y:NEXT X
GOSUB 1230
PRINT"BUT WATCH OUT FOR METEORS, AND THE
GREATLY FEARED"
PRINT"WAR-LOVING THYLTHRENS!"
FOR X=401TO500
LET Y=INT(RND(0)*10)+1
LET A(X)=Y:NEXT X
LET N=15
PRINT"ARE YOU PREPARED TO UNDERTAKE THIS
MISSION";
INPUT X
IF X=Y GOTO 180
IF X=N GOTO 160
PRINT"YOU MUST ANSWER YES OR NO,";A$
GOTO 130
PRINT"YOU ARE A GREAT Shame TO YOUR RACE,";A$;"I"
GOTO 130
PRINT"GOOD-BYE!"
END
PRINT:PRINT
LET Z=1:LET T=1
LET G=30000:LET J=0
REM* THE PLAY *
PRINT"WARP DRIVE";
INPUT X
LET T=T+1
IF X>50 THEN GOTO 1000
LET F=100:LET A=200
PRINT"FORE OR AFT";
INPUT Y
IF Y=F THEN GOTO 240
IF Y=A THEN GOTO 240
LET T=T+3
GOSUB 2100
GOTO 200
LET B=X*10:LET C=B/2
GOSUB 1130
GOSUB 2100
FOR L=1 TO C:PRINT" * ";
FOR M=1TO234:NEXT M
NEXT L
LET G=G-B
IF G< 1 THEN GOTO 1150
IF Y=A THEN GOTO 1200
LET Z=Z+X
IF Z>100 THEN GOTO 1220
IF Z<1 THEN GOTO 1220
IF Z=1 THEN GOTO 1300
LET S=Z-1
PRINT"YOU ARE ",S," SECTORS FROM HOME"
GOSUB 1500
LET A=Z+100:LET B=Z+200
LET C=Z+300:LET D=Z+400
LET E=Z+500
PRINT"THE NEAREST STAR IS ";
LET K=A(Z)
GOSUB 1240
LET K=A(A)
GOSUB 1240
PRINT"*";
LET K=A(B):PRINT K
PRINT"DISTANCE IS ";
LET K=A(E)
PRINT K," LIGHT YEARS"
IF A(Z)=6 THEN GOTO 1320
LET P=A(C)
PRINT"THERE ARE ",P," PLANETS"
LET H=A(D)
PRINT H," THYLTHRENS IN SOLAR SYSTEM"
LET N=601
FOR M=1 TO P
LET A(N)=INT(RND(0)*40)+1
LET N=N+1:NEXT M
IF H>0 THEN GOTO 830
PRINT"1 FOR SCAN—2 FOR SOLAR APPROACH—3 FOR WARP"
INPUT S
IF S=3 THEN GOTO 200
IF S=2 THEN GOTO 800
IF S=1 THEN GOTO 430
PRINT"BAD INPUT!!!"
GOSUB 2000
PRINT"COMPUTER JAMMED!"
GOSUB 2000
PRINT:LET S=ABS(S)
LET T=T+S+1
GOSUB 2000
GOSUB 2100
402 LET S=INT(RND(0)*5)+1
405 IF S=4 THEN GOTO 365
410 IF S=5 THEN GOTO 365
415 GOTO 370
430 REM* SCAN MODE*
432 IF K>5000 THEN GOTO 635
435 PRINT"",""SCANNING -------":PRINT
437 LET N=601:FOR Q=1 TO P
440 LET O=A(N)
442 GOSUB 2000
444 PRINT"PLANET #";Q,
446 GOSUB 2000
448 LET N=N+1
450 PRINT O
455 NEXT Q
457 GOSUB 2000
460 LET T=T+.67
462 GOSUB 2100
465 PRINT"3 FOR WARP,4 FOR PLANETARY APPROACH";
467 INPUT S
470 IF S=4 THEN GOTO 500
475 IF S=3 THEN GOTO 200
480 GOTO 385
500 PRINT:PRINT"",""PLANETARY APPROACH":PRINT
502 LET T=T+1.3
504 GOSUB 2100
506 PRINT"TARGET—PLANET#"
508 INPUT S
510 IF S>P THEN GOTO 1370
515 IF S<1 THEN GOTO 385
520 LET W=(K/P)*S
525 LET X=INT(RND(0)*100)+1
527 LET Y=INT(RND(0)*4)+1
530 IF Y>2 THEN LET X=0-X
535 LET W=W+X
540 PRINT"DISTANCE TO PLANET #";S;"---":W
542 IF W<100 THEN GOTO 650
545 PRINT"APPROACH DRIVE POWER";
547 INPUT V
550 LET T=T+V:LET G=G-V
552 GOSUB 1500
555 IF V>12 THEN GOTO 1020
557 IF V<2.2 THEN GOTO 385
560 LET U=INT(RND(0)*13)+1
562 LET V=V*U^3
565 GOSUB 2100
LET W=W-V
IF W<7 THEN GOTO 580
GOTO 540
IF W<-10 THEN GOTO 600
IF W<-6 THEN GOTO 650
PRINT"YOU COLLIDED WITH THE PLANET!"
GOSUB 2000
PRINT"YOU CLUMSY CLOD!"
GOSUB 2000
GOTO 1050
PRINT"OVER-SHOOT!"
GOSUB 2000
PRINT"EXCESS VELOCITY PROPELS YOU AWAY FROM TARGET"
LET T=T+10
LET K=K+INT(RND(0)*8000)+(2*V)-(W+INT(RND(0)*1000)
PRINT"SOLAR DISTANCE IS ",K," LIGHT YEARS"
GOSUB 2000
GOTO 365
PRINT"DISTANCE TOO GREAT FOR SCAN OR PLANETARY APPROACH"
LET T=T+6.73
GOTO 365
PRINT"TARGET ACHIEVED!"
GOSUB 2000
PRINT"CLOSE RANGE SCAN--"
GOSUB 2000
LET T=T-2.3
LET F=S+600
LET P=A(F)
LET P=(P/4)*(INT(RND(0)*25)+2)
IF P>100 THEN P=0
PRINT"ATMOSPHERIC% OF BRETCHENKOEL--PLANET #"
GOSUB 2000
PRINT"",",","",P,"%":PRINT
IF P=0 THEN GOTO 790
IF P<25 THEN GOTO 780
IF P>87 THEN GOTO 750
PRINT"LOADING--"
GOSUB 2000
GOSUB 2000
LET B=INT(RND(0)*17)+4
LET P=P*B
PRINT:PRINT
PRINT P;"UNITS OF BRETCHENKOEL COLLECTED"
LET G=G+P-20
LET J=J+P
GOSUB 2000
PRINT"TOTAL BRETCHENKOEL NOW ON BOARD--";
GOSUB 2000
PRINT J:PRINT:PRINT
LET T=T-4
IF J<5020 THEN GOTO 365
PRINT"MISSION ACCOMPLISHED!"
GOSUB 2000
PRINT"GOOD WORK, ";A$
GOSUB 2000
PRINT"YOUR PEOPLE ARE SAVED!"
END
LET T=T+2
PRINT"THAT'S SCARCELY WORTH BOTHERING WITH!"
GOSUB 2000
GOSUB 2100
LET J=J+P:GOTO 730
PRINT"THERE'S NO BRETCHENKOEL HERE, STUPID!"
LET T=T+13
GOSUB 2100
GOTO 365
LET K=K-INT(RND(0)*K)
LET T=T+1.5
IF K<200 THEN GOTO 1600
GOTO 320
PRINT"THYLTHEIRNS ATTACK!!"
LET Q=0:GOSUB 2000
LET N=INT(RND(0)*10)+601
FOR L=1 TO H
LET U=A(N)
PRINT U;"MEGABLORTS OF ENERGY FROM THYLTHEIRM #2":L
LET N=N+1:LET Q=Q+U-INT(RND(0)*10)
NEXT L:LET T=T+H
GOSUB 2100
IF Q>400 THEN GOTO 1400
PRINT"3 FOR WARP, 5 TO RETURN FIRE ";
INPUT S
IF S=3 THEN GOTO 200
IF S=5 THEN GOTO 880
PRINT"BAD INPUT"
GOTO 830
PRINT"MEGABLORTS";
INPUT M
884 LET T=T+F
886 LET F=INT(RND(0)*201)+1
888 IF M>1000 THEN GOTO 1040
890 IF M<F THEN GOTO 910
895 LET M=M-35-INT(RND(0)*100)
897 LET H=H-1:LET T=T+1.2
900 PRINT"1THYLTHERN DESTROYED!"
902 IF H=0 THEN GOTO 930
910 PRINT H;"THYLTHRENS LEFT"
915 LET Q=0
920 GOTO 835
930 PRINT"GOT 'EM ALL!"
932 GOSUB 2000
934 LET T=T+INT(RND(0)*10)+1
936 GOSUB 2100
940 GOTO 365
1000 FOR L=1 TO 500:NEXT L
1005 LET Y=INT(RND(0)*30)+1
1010 FOR M=1 TO Y
1015 PRINT" *";
1020 NEXT M
1025 PRINT"OVER-DRIVE!!"
1030 FOR M=1 TO Y
1035 PRINT" * ";
1040 NEXT M
1045 PRINT:FOR L=1 TO 470:NEXT L
1050 PRINT"YOU BLEW IT, ",A$;
1055 GOSUB 2000
1060 PRINT"YOU ARE DEAD ";
1065 GOSUB 2000
1070 PRINT"AND SO ARE ALL THE PEOPLE BACK ON RAMSNEIDI!"
1075 FOR L=1 TO 908:NEXT L
1080 GOTO 160
1100 PRINT"IT'S TOO LATE!"
1102 GOSUB 2000
1105 PRINT"EVERYONE BACK HOME IS DEAD!"
1110 GOSUB 2000
1115 GOTO 160
1130 IF C<80 THEN GOTO 1140
1135 LET C=C/2
1137 GOTO 1130
1140 RETURN
1150 PRINT"","OOPS!"
1152 GOSUB 2000
PRINT "YOU ARE OUT OF FUEL!"
GOSUB 2000
PRINT "WHAT SHODDY PLANNING!"
GOTO 1055
LET Z=Z-X
IF Z<1 THEN GOTO 1220
GOTO 285
PRINT "YOU JUST WARPED 'EVENING STAR' RIGHT OUT"
PRINT "OF THE GALAXY!"
GOTO 1160
LET A(1)=6
LET A(101)=18
LET A(201)=972
GOTO 1270
IF K=1 THEN PRINT "A"
IF K=2 THEN PRINT "B"
IF K=3 THEN PRINT "C"
IF K=4 THEN PRINT "D"
IF K=5 THEN PRINT "E"
IF K=6 THEN PRINT "F"
IF K=7 THEN PRINT "G"
IF K=8 THEN PRINT "H"
IF K=9 THEN PRINT "I"
IF K=10 THEN PRINT "J"
IF K=11 THEN PRINT "K"
IF K=12 THEN PRINT "L"
IF K=13 THEN PRINT "M"
IF K=14 THEN PRINT "N"
IF K=15 THEN PRINT "O"
IF K=16 THEN PRINT "P"
IF K=17 THEN PRINT "Q"
IF K=18 THEN PRINT "R"
IF K=19 THEN PRINT "S"
IF K=20 THEN PRINT "T"
IF K=21 THEN PRINT "U"
IF K=22 THEN PRINT "V"
IF K=23 THEN PRINT "W"
IF K=24 THEN PRINT "X"
IF K=25 THEN PRINT "Y"
IF K=26 THEN PRINT "Z"
RETURN
FOR X=401 TO 500
LET Y=INT(RND(0)*30)+1
IF Y>13 THEN LET Y=0
LET A(X)=Y
NEXT X
FOR X=501 TO 600
1290 LET Y=INT(RND(0)*8010)+1
1292 LET A(X)=Y:NEXT X
1295 RETURN
1300 PRINT"YOU CAME HOME WITHOUT ENOUGH BRETCHENKOEL?!?"
1305 GOSUB 2000
1310 PRINT"YOU ARE PROMPTLY LYNCHED!"
1315 GOTO 160
1320 IF A(A)=18 THEN GOTO 1330
1325 GOTO 340
1330 IF A(B)=972 THEN GOTO 1340
1335 GOTO 340
1340 PRINT"HEY"
1342 GOSUB 2000
1344 PRINT"YOU MUST'VE GONE THROUGH A BLACK HOLE OR"
1346 PRINT"... SOMETHING, BECAUSE SUDDENLY YOU'RE HOME!"
1348 GOSUB 2000
1350 PRINT"AND WHAT A GREETING YOU RECEIVE!"
1352 GOSUB 2000
1355 PRINT"THE PEOPLE ALL GATHER AROUND AND SAY—"
1357 GOSUB 2000
1360 GOTO 1300
1370 PRINT"NO SUCH PLANET"
1372 PRINT:PRINT
1375 LET F=INT(RND(0)*30)+1
1377 LET T=T+F
1380 IF F> 23 THEN GOTO 1390
1385 GOTO 390
1390 PRINT"YOU ARE HEREBY STRIPPED OF YOUR COMMAND!"
1392 GOSUB 2000
1395 GOTO 160
1400 PRINT"EVENING STAR IS DESTROYED!"
1405 GOSUB 2000
1410 GOTO 1045
1500 LET M=INT(RND(0)*101)+1
1505 IF M>97 THEN GOTO 1520
1510 RETURN
1520 PRINT"METEOR STRIKE!!!!"
1522 LET M=INT(RND(0)*34)+1
1525 LET T=T+M
1530 IF T>100 THEN GOTO 1100
1535 RETURN
2000 LET Y=INT(RND(0)*1000)+100
2005 FOR X=1 TO Y
2010 NEXT X
2015 RETURN
2100 LET U=RND(0)
2105 LET T=T+U
2110 IF T>100 THEN GOTO 1100
2115 RETURN

1600 PRINT"YOU'VE DIVED INTO THE SUN!"
1605 GOSUB 2000
1610 GOTO 1400

```
TR$-80 BASIC
10 CLS:P.;P." YOU ARE ":_A=RND(5)
20 IF A=1 A$="AKRANAID"
25 IF A=2 A$="OLK"
30 IF A=3 A$="ZOLAR ZINNK"
35 IF A=4 A$="GUAMBNA"
40 IF A=5 A$="JOHN DOE"
45 _A$;" — CAPTAIN OF THE SPACESHIP"
50 _A."EVENING STAR' FROM THE PLANET RAMSNEID"
55 J=0:F.X=1TO200:Y=RND(26):A(X)=Y:N.X
60 _A."RAMSNEID CIRCLES THE STAR KNOWN AS FR-972 AND"
65 _A."IS IN DIRE NEED OF THE RARE SUBSTANCE,"
70 _A."BRETCHENKOEL"
75 _A."THERE IS NO BRETCHENKOEL LEFT IN YOUR SOLAR"
80 _A."SYSTEM"
85 _A."AND WITHOUT THIS SUBSTANCE TO FUEL THE"
90 _A."PLANET'S"
95 _A."POWER STATIONS, YOUR PEOPLE WILL DIE OUT."
100 _A."THIS IS WHY THE RAMSNEIDIAS HAVE TAKEN UP"
105 _A."SPACE"
110 _A."TRAVEL, DESPITE ITS STRANGE & UNPREDICTABLE"
115 _A."DANGERS"
120 _A=201TO300:Y=RND(999):A(X)=Y:N.X
125 PRINT"YOUR MISSION, CAPTAIN";A$;", IS TO SEARCH"
130 PRINT"THE"
135 PRINT"GALAXY FOR MORE BRETCHENKOEL. YOU WILL"
140 PRINT"BE FLYING"
145 PRINT"BY GUESS WORK MOST OF THE TIME"
150 F.X=301TO400:Y=RND(17)
155 IF Y=17 THEN Y=0
160 IF Y=1 THEN Y=0
165 A(X)=Y:N.X:GOS.1230
170 PRINT"BUT WATCH OUT FOR METEORS, AND THE"
175 PRINT"GREATLY FEARED,"
180 _A="WAR-LOVING THYLTHRENS!"
185 F.X=401TO500:Y=RND(10):A(X)=Y:N.X:N=15
```
F.X=501TO600;Y=RND(1050):A(X)=Y:N.X
IN."ARE YOU PREPARED TO UNDERTAKE THIS MISSION";X
IF X=Y G.180
IF X=N G.160
P."YOU MUST ANSWER YES OR NO,";A$:G.130
P."YOU ARE A GREAT SHAME TO YOUR RACE,";A$;"!
P.:GOS.2000:P."","GOOD-BYE!"
END
P.:P.:Z=1:T=1
G=30000;I=0
IN."WARP DRIVE";X:T=T+1
IF X> 50 G.1000
F=100:A=200:IN."FORE OR AFT";Y
IF Y=F G.240
IF Y=A G.240
T=T+3:GOS.2100:G.200
B=X*10:C=B/2:GOS.1130:GOS.2100
F.L=1TOC.P."**";F.M=1TO134:N.M:N.L
G=G-B:IF G> G.1150
IF Y=A G.1200
Z=Z+X
IF Z>100 G.1220
IF Z> 1 G.1220
IF Z=1 G.1300
S=Z-1:P."YOU ARE";S;"SECTORS FROM HOME"
GOS.1500:A=Z+100:B=Z+200:C=Z+300:D=Z+400:E+500
P."THE NEAREST STAR IS";K=A(Z):GOS.1240
K=A(A):GOS.1240:P."**";K=A(B):P.K
P."DISTANCE IS ";
K=A(E):P.K;" LIGHT YEARS"
IF A(Z)=6 G.1320
P=A(C):H=A(D):P."THERE ARE ";P;" PLANETS"
P."THERE ARE ";H;" THYLTHRENS IN SOLAR SYSTEM"
N=601:F.M=1TOP:A(N)=RND(40):N=N+1:N.M
IF H>0 G.830
IN."1 FOR SCAN — 2 FOR SOLAR APPROACH— 3 FOR WARP";S
IF S=3 G.200
IF S=2 G.800
IF S=1 G.430
P." BAD INPUT!!";GOS.2000
P."COMPUTER JAMMED!!";GOS.2000:P.
S=ABS(S):T=T+S+1:GOS.2000:GOS.2100
S=RND(5):IF S=4 G.365
IF S=5 G.365
410 G.370
430 IF K>5000 G.635
435 P."","SCANNING ------":P:N=601
440 F.Q=1TOP:O=A(N):GOS.2000:P."PLANET #":Q,
445 GOS.2000:N=N+1:P.O:N.Q
460 GOS.2000:T=T+.67:GOS.2100
465 IN."3 FOR WARP,4 FOR PLANETARY APPROACH":S
470 IF S=4 G.500
475 IF S=3 G.200
480 G.385
500 P."","PLANETARY APPROACH":P.
502 T=T+1.3:GOS.2100
505 IN."TARGET --- PLANET #":S
510 IF S>P G.1370
515 IF S<1 G.385
520 W=(K/P)*S
525 X=RND(100):Y=RND(4)
530 IF Y>2 THEN X=0-X
535 W=W+X
540 P."DISTANCE TO PLANET #":S;--- ";W
542 IF W<100 G.650
545 IN."APPROACH DRIVE POWER ":V
547 T=T+V:G=G-V:GOS.1500
550 IF V>12 G.1020
555 IF V<2.2 G.385
560 U=RND(13):V=U*V*3:GOS.2100
565 W=w-V
570 IF W<7 G.580
575 G.540
580 IF W<-10 G.600
582 IF W<-6 G.650
585 P."YOU COLLIDED WITH THE PLANET!":GOS.2000
590 P." YOU CLUMSY CLOD!"
595 GOS.2000:G.1050
600 PRINT"OVER-SHOOT!":GOS.2000
605 PRINT"EXCESS VELOCITY PROPELS YOU AWAY FROM
TARGET"
610 T=T+10:K=K+RND(8000)+2*V-(W+RND(1000))
615 PRINT "SOLAR DISTANCE IS ";K;"LIGHT YEARS"
620 GOS.2000:G.365
635 PRINT"DISTANCE TOO GREAT FOR SCAN OR PLANETARY
APPROACH"
640 T=T+6.73:G.365
650 PRINT"TARGET ACHIEVED!":GOS.2000
660 PRINT"CLOSE RANGE SCAN --- ";
665 GOS.2000:T=T+2.3:F=S+600
P=A(F)
P=(P/4)*(RND(25)+2)
IF P> 100 THEN P=0
PRINT "ATMOSPHERIC% OF BRETFENKOEL — PLANET #";S
GOS.2000
P: " " ; " ; P: " %" ; P.
IF P=0 G.790
IF P<25 G.780
IF P> 87 G.750
P: "LOADING ---"; GOS.2000: GOS.2000
B=RND(17)+3: P=P*B
P; " UNITS OF BRETFENKOEL COLLECTED"
G=G+P-20: J=J+P
GOS.2000: P. "TOTAL BRETFENKOEL NOW ON BOARD ---";
GOS.2000: P; P: P: T=T-4
IF J<5020 G.365
P: "MISSION ACCOMPLISHED!"; GOS.2000
P: "GOOD WORK, "; A$: GOS.2000
P: "YOUR PEOPLE ARE SAVED!"
END
T=T+2: P: "THAT'S SCARECelly WORTH BOTHERING WITH!"
GOS.2000: GOS.2100; J=J+P; G.730
P: "THERE'S NO BRETFENKOEL HERE, STUPID!"
T=T+13: GOS.2100
G.365
K=K-RND(K): T=T+1.5
IF K<200 G.1600
G.315
P: "THYLTERNs ATTACK!!" Q=0: GOS.2000
N=RND(10)+600: F.L=1T0H
U=A(N)
PRINT U: " MEGABLORTS OF ENERGY FROM THYLTERN #"; L
N=N+1: Q=Q+U-RND(10): N.L: T=T+H: GOS.2100
IF Q>400 G.1400
IN. "3 FOR WARP, 5 TO RETURN TO FIRE"; S
IF S=3 G.200
IF S=5 G.880
P:. "BAD INPUT!"; G.830
IN. "MEGABLORTS"; M:T=T+M; F=RND(201)
IF M>1000 G. 1040
IF M<F G.910
M=M-35-RND(100): H=H-. T=T+1.2
P: "1 THYLTERN DESTROYED!"
902  IF H=0 G.930
910  P.H;" THYLTHREN'S LEFT":Q=0
915  G.835
930  P."GOT 'EM ALL!":GOS.2000
935  T=T+RND(10):GOS. 2100
940  G.365
1000 F.L=1TO500:N.L:Y=RND(30)
1005 F.M=1TOY:P." * ":;N.M
1010 P."OVER-DRIVE!!!"
1015 F.M=1TOY:P." * ":;N.M
1045 P.:F.L=1TO470:N.L
1050 P."YOU BLEW IT, ";A$:GOS.2000
1060 P."YOU ARE DEAD ":;GOS.2000
1070 P."AND SO ARE ALL THE PEOPLE BACK ON REMSNEID!"
1080 F.L=1TO908:N.L:G.160
1100 P."IT'S TOO LATE!":GOS.2000
1105 P."EVERYONE BACK HOME IS DEAD!":GOS.2000
1110 G.160
1130 IF C<20 THEN G.1140
1135 C=C/2;G.1130
1140 RET.
1150 P." " ;"OOPS!":GOS.2000
1160 P."YOU ARE OUT OF FUEL!":GOS.2000
1165 P."WHAT SHODDY PLANNING!":G.1060
1200 Z=Z-X:IF Z<1G1220
1210 G.285
1220 P."YOU JUST WARPED 'EVENING STAR' RIGHT OUT OF"
1225 P."THE GALAXY!":G.1165
1230 A(1)=6:A(101)=18:A(201)=972
1235 G.1270
1240 IF K=1P."A";
1241 IF K=2P."B";
1242 IF K=3P."C";
1243 IF K=4P."D";
1244 IF K=5P."E";
1245 IF K=6P."F";
1246 IF K=7P."G";
1247 IF K=8P."H";
1248 IF K=9P."I";
1249 IF K=10P."J";
1250 IF K=11P."K";
1251 IF K=12P."L";
1252 IF K=13P."M";
1253 IF K=14P."N";
1254 IF K=15P."O";
1255 IF K=16P."P";'
1256 IF K=17P."Q";
1257 IF K=18P."R";
1258 IF K=19P."S";
1259 IF K=20P."T";
1260 IF K=21P."U";
1261 IF K=22P."V";
1262 IF K=23P."W";
1263 IF K=24P."X";
1264 IF K=25P."Y";
1265 IF K=26P."Z";
1266 RET.
1270 F.X=401TO500:Y=RND(30)
1275 IF Y>13 THEN Y=0
1280 A(X)=Y:N.X
1285 F.X=501TO600:Y=RND(8010)
1290 A(X)=Y:N.X:RET.
1300 P."YOU CAME HOME WITHOUT ENOUGH BRETCHENKOEL?!!"
1305 GOS.2000
1310 P."YOU ARE PROMPTLY LYNCHED!":G.160
1320 IF A(A)=18 G.1330
1325 G.340
1330 IF A(B)=972 G.1340
1335 G.340
1340 P."HEY! "1:GOS.2000
1345 P."YOU MUST'VE GONE THROUGH A BLACK HOLE OR"
1347 P."SOMETHING, BECAUSE SUDDENLY YOU'RE HOME!"
1350 GOS.2000: P."AND WHAT A GREETING YOU RECEIVE!"
1352 GOS.2000
1355 P."THE PEOPLE ALL GATHER AROUND AND SAY — "
1360 GOS.2000:G.1300
1370 P."NO SUCH PLANET!":P.:P.:F=RND(30):T=T+F
1375 IF F>23 THEN G.1390
1380 G.390
1390 P."YOU ARE HEREBY STRIPPED OF YOUR COMMAND!"
1395 GOS.2000:G.160
1400 P."'EVENING STAR' IS DESTROYED!":GOS.2000
1410 G.1050
1500 M=RND(101)
1505 IF M>97 THEN G.1520
1510 RET
1520 P."METEOR STRIKE!!!":M=RND(34):T=T+M
1525 IF T>100 G.1100
1530 RET.
1600 P."YOU'VE DIVED INTO THE SUN!":GOS.2000
1610 G.1400
2000   Y=RND(1000)+100
2005   F.X= 1 TOY:N.X
2010   RET.
2100   U=RND(0);T=T+U
2110   IF T>100 G.1100
2120   RET.

Summary of Variables Used
A  Name selection/AFT/various
B  various
C  various
D  various
E  various
F  FORE/various
G  various
H  # of Thytherns
I  Not used
J  Bretchenkoel on board
K  Star name/distance
L  Timing
M  Timing
N  various
O  Planetary scan
P  # of planets/% of Bretchenkoel
Q  Planet #
R  Not used
S  various
T  energy used
U  various
V  Approach drive power
W  Planetary approach
X  Timing/various
Y  various
Z  Location/various

Sample Run (excerpt)
WARP DRIVE? 10
FORE OR AFT? FORE
*******
YOU ARE 18 SECTORS FROM HOME
THE NEAREST STAR IS QB*19
DISTANCE IS 170 LIGHT YEARS
THERE ARE 5 PLANETS
THERE ARE 3 THYLTHENRS IN SOLAR SYSTEM
1 FOR SCAN — 2 FOR SOLAR APPROACH — 3 FOR WARP ? 1
SCANNING—-

PLANET #1 21
PLANET #2  13
PLANET #3  37
PLANET #4  8
PLANET #5  25

3 FOR WARP, 4 FOR PLANETARY APPROACH? 3
PLANETARY APPROACH

TARGET PLANET #? 3
DISTANCE TO PLANET #3 — 64
APPROACH DRIVE POWER? 2
DISTANCE TO PLANET #3 — 34
APPROACH DRIVE POWER? 2
TARGET ACHIEVED
CLOSE RANGE SCAN
ATMOSPHERE % OF BRETCHENKOEL — PLANET #3
85%

LOADING---
1275 UNITS OF BRETCHENKOEL COLLECTED
TOTAL BRETENKOEL COLLECTED -- 2010
WARP DRIVE? 8
High Bid

This is a simple game. The instructions are included in the program and are self-explanatory.

At first glance it would seem that whoever went first would inevitably lose that round, but as you get in some practice you will learn how to use strategy to break up the tie games.

The sample run included is an early game without too much strategy being used. See Fig. 1-8 for the flowchart.

Standard BASIC

5 PRINT "", "HIGH BID":PRINT
10 PRINT "WE EACH GET THE NUMBERS FROM 1 TO 10."
15 PRINT "EACH # MAY BE PLAYED ONLY ONCE. ON EACH"
20 PRINT "ROUND WE BOTH BID A # AND THE HIGH BID"
25 PRINT "WINS THE ROUND. WHOEVER WON THE LAST"
30 PRINT "ROUND GOES FIRST. THE FIRST ROUND WILL"
32 PRINT "BE SELECTED RANDOMLY."
35 REM* SET CHOICE ARRAYS & SCORE
37 FOR X=1 TO 20
40 LET A(X)=1
42 NEXT X
44 LET A=0:LET B=0
46 REM* PLAYER SELECT
48 FOR X=1 TO 470
50 LET P=INT(RND(0)*2)+1
52 NEXT X
54 REM* SET COUNTER
56 FOR T=1 TO 10
58 IF P=1 THEN GOTO 180
60 PRINT "I GO FIRST"
62 GOSUB 120
64 GOSUB 150
66 GOSUB 170
70 LET A(X)=0
72 LET A(Y+10)=0
75 IF X=Y THEN GOTO 205
80 IF X>Y THEN GOTO 220
85 PRINT "I WIN THIS ROUND"
90 LET B=B+1
92 LET P=2
95 NEXT T
100 PRINT:PRINT "THE GAME IS OVER --- FINAL SCORE"
105 PRINT:PRINT "YOU", "ME"
Fig. 1-8. High Bid flowchart.
110 PRINT A,B
115 END
120 PRINT "I PLAY --- ";
125 LET Y=INT(RND(0)*10)+1
130 IF A(Y+10)=0 THEN GOTO 125
135 FOR Z=1 TO 333: NEXT Z
137 PRINT Y
140 RETURN
150 PRINT"YOUR PLAY";
155 INPUT X
160 IF A(X)=0 THEN GOTO 155
165 RETURN
170 FOR Z=1 TO 400:NEXT Z
175 RETURN
180 PRINT"YOU GO FIRST"
185 GOSUB 150
190 GOSUB 120
195 GOSUB 170
200 GOTO 70
205 PRINT"TIE"
210 LET P=INT(RND(0)*2)+1
215 GOTO 95
220 PRINT"YOU WIN THIS ROUND"
225 LET A=A+1
230 LET P=1
235 GOTO 95

---

**TRS-80 BASIC**

5 CLS:P. " ", "HIGH BID":P.
10 P."WE EACH GET THE NUMBERS FROM 1 TO 10. EACH"
15 P."# MAY BE PLAYED ONLY ONCE. ON EACH ROUND"
20 P."WE BOTH BID A # AND THE HIGH BID WINS THE"
25 P."ROUND. WHOEVER WON THE LAST ROUND GOES"
30 P."FIRST. THE FIRST ROUND WILL BE SELECTED"
32 P."RANDOMLY"
35 F.X=1TO20:A(X)=1:N.X:A=0:B=0
40 F.X=1TO470:P=RND(2):N.X
45 F.T=1TO10
50 IF P=1 G.180
55 P."I GO FIRST":GOS.120
60 GOS.150
65 GOS.170
70 A(X)=0:A(Y+10)=0
75 IF X=Y G.205
80 IF X>Y G.220
P."I WIN THIS ROUND"
B=B+1:P=2
N.T
P.:P."GAME IS OVER -- FINAL SCORE":P.
P."YOU","ME"
P.A,B
END
P."I PLAY --- ";
Y=RND(10)
IF A(Y+10)=0 G.125
F.Z=1TO333:N.Z
P.Y:RET.
IN."YOUR PLAY";X
IF A(X)=0 G.150
RET.
F.Z=1TO400:N.Z:RET.
P."YOU GO FIRST"
GOS.150
GOS.120
GOS.170
G.70
P."TIE":P=RND(2)
G.95
P."YOU WIN THIS ROUND"
A=A+1:P=1
G.95

Sample Run

HIGH BID
WE EACH GET THE NUMBERS FROM 1 TO 10.
EACH # MAY BE PLAYED ONLY ONCE. ON EACH
ROUND WE BOTH BID A # AND THE HIGH BID
WINS THE ROUND. WHOEVER WON THE LAST
ROUND GOES FIRST. THE FIRST ROUND WILL
BE SELECTED RANDOMLY
I GO FIRST
I PLAY --- 7
YOUR PLAY?9
YOU WIN THIS ROUND
YOU GO FIRST
YOUR PLAY?3
I PLAY --- 4
I WIN THIS ROUND
I GO FIRST
I PLAY --- 2
YOUR PLAY?3
YOUR PLAY?2
TIE
I GO FIRST
I PLAY --- 5
YOUR PLAY?6
YOU WIN THIS ROUND
YOU GO FIRST
YOUR PLAY?1
I PLAY --- 3
I WIN THIS ROUND
I GO FIRST
I PLAY --- 10
YOUR PLAY?2
YOUR PLAY?4
I WIN THIS ROUND
I GO FIRST
I PLAY --- 8
YOUR PLAY?10
YOU WIN THIS ROUND
YOU GO FIRST
YOUR PLAY?8
I PLAY --- 9
I WIN THIS ROUND
I GO FIRST
I PLAY --- 6
YOUR PLAY?7
YOU WIN THIS ROUND
YOU GO FIRST
YOUR PLAY?5
I PLAY --- 1
YOU WIN THIS ROUND
GAME IS OVER --- FINAL SCORE
YOU     ME
  5     4

Summary of Variables Used

A  PLAYER'S SCORE
B  COMPUTER'S SCORE
P  PLAYER SELECT
T  TURN COUNTER
X  TIMING/PLAYER'S BID
Y  COMPUTER'S BID
High Bid II

This game is essentially similar to the original High Bid game, but there is a greater element of chance to sustain continued interest.

Both the player and the computer still get ten numbers to play, but instead of a fixed 1 to 10, each of the numbers is selected randomly. Each number may be played only once each time it appears in your hand. To make things a little trickier, you are not told what numbers the computer is holding (it only looks at your hand when making a validity check, so the game is fair).

Since this game is played the same way as the other version, no sample run is included.

Standard BASIC

5 PRINT:PRINT:PRINT
10 PRINT""",""HIGH BID II"
12 PRINT
14 FOR X=1 TO 20
16 LET A(X)=INT(RND(0)*10)+1
18 NEXT X
20 LET A=0:LET B=0:LET G=1
22 LET P=INT(RND(0)*2)+1
25 IF G>10 THEN GOTO 130
30 PRINT"YOUR HAND --- ";
32 FOR X=1 TO 10
34 LET Y=A(X)
36 IF Y=0 THEN GOTO 40
38 PRINT Y;" ";
40 NEXT X:PRINT
45 IF P=1 THEN GOTO 200
50 PRINT"I GO FIRST"
55 LET X=11
60 IF A(X)>0 THEN GOTO 70
62 LET X=X+1
65 GOTO 60
70 LET Y=A(X)
75 LET A(X)=0
80 PRINT "I'LL PLAY --- ";
85 GOSUB 330
90 PRINT Y
95 GOSUB 275
100 IF X=Y THEN GOTO 150
105 IF X>Y THEN GOTO 170

95
110 PRINT "I WIN THIS ROUND"
112 LET B=B+1
114 LET P=2
116 LET G=G+1
118 GOSUB 330
120 GOTO 25
130 PRINT:PRINT "GAME IS OVER — FINAL SCORE"
135 PRINT "YOU", "ME"
140 PRINT A,B
145 END
150 PRINT "TIE"
155 LET P=INT( RND(0)*2)+1
160 GOTO 116
170 PRINT "YOU WIN THIS ROUND"
175 LET A=A+1
180 LET P=1
185 GOTO 116
200 PRINT "YOU GO FIRST"
202 GOSUB 275
204 LET Y=X+1
206 LET C=0
208 PRINT "I'LL PLAY --- ”;
210 IF Y=11 THEN Y=1
215 FOR Z=11 TO 20
220 IF A(Z)=Y THEN C=Z
225 NEXT Z
230 IF C>0 THEN GOTO 250
235 LET Y=Y+1
240 GOTO 210
250 LET A(C)=0
255 PRINT Y
260 GOSUB 330
265 GOTO 100
275 PRINT "YOUR PLAY";
280 INPUT X
285 LET C=0
290 FOR Z=1 TO 10
295 IF A(Z)=X THEN LET C=Z
300 NEXT Z
305 IF C>0 THEN GOTO 320
310 PRINT "INVALID PLAY"
315 GOTO 275
320 LET A(C)=0
330 FOR Z=1 TO 333
335 NEXT Z
340 RETURN
CLS: P. " " "HIGH BID IT": P.
10 F. X = 1 TO 20: A(X) = RND(10): N. X.
15 P = RND(2): A = 0: B = 0: G = 1
20 IF G < 10 G. 130
25 "YOUR HAND --- ";
30 F. X = 1 TO 10: Y = A(X): IF Y = 0 G. 40
35 P. Y; " ";
40 N. X.: P.
50 IF P = 1 G. 200
55 P. " I GO FIRST": X = 11
60 IF A(X) > 0 G. 70
65 X = X + 1: G. 60
70 Y = A(X): A(X) = 0
75 P. " I'LL PLAY --- ";
80 GOS. 320
85 P. Y
90 GOS. 275
100 IF X = Y G. 150
105 IF X > Y G. 170
110 P. " I WIN THIS ROUND"
115 B = B + 1: P = 2
120 G = G + 1: GOS. 320
125 G. 20
130 P. : P. " GAME IS OVER --- FINAL SCORE"
135 P. " YOU", " ME"
140 P. A, B
145 END
150 P. " TIE"
155 P = RND(2)
160 G. 120
170 P. " YOU WIN THIS ROUND"
175 A = A + 1: P = 1: G. 120
200 P. " YOU GO FIRST"
205 GOSUB 275
210 Y = X + 1: C = 0: P. " I'LL PLAY --- ";
215 IF Y = 11 THEN Y = 1
220 F. Z = 11 TO 20
225 IF A(Z) = Y THEN C = Z
230 N. Z
235 IF C > 0 G. 250
240 Y = Y + 1: G. 215
250 A(C) = 0
255 P. Y
260 GOS. 320
265 G. 100
275  IN."YOUR PLAY";X
280  C=0:F.Z=1TO 10
285  IF A(Z)=X THEN C=Z
290  N.Z
295  IF C>=0 G. 310
300  P. "INVALID PLAY"
305  G.275
310  A(C)=0
320  F.Z=1TO333:N.Z
325  RET.
Balancing The Scales

This game is simple in concept, but playing it can be quite tricky. The computer gives you 25 weights of up to 10 grams each, and you have to place them all on a four-way scale arranged like this:

A

B

C

D

If two opposite plates (A and B or C and B) have more than a 5 gram difference, the scale assembly will topple over. Also, if the two crossbeams (A+B and C+D) have more than a 7.5 gram difference, the scale will topple.

If you manage to get all 25 weights on the scale without toppling it, you win. If the scale topples, you lose.

An additional note: once a weight has been placed on the scale, it can’t be moved. See Fig. 1-9 for the flowchart.

Standard BASIC

5 PRINT:PRINT
7 PRINT“”,“BALANCING THE SCALES”:PRINT
10 REM * SET WEIGHTS & CLEAR SCALE *
12 FOR X=1TO 25
15 LET Y=INT (RND(0)*100)+1
17 LET Y=Y/10:LET A(X)=Y
20 NEXT X
22 LET A=50:LET B=60
25 LET C=70:LET D=80
30 LET E=0:LET F=0
32 LET G=0:LET H=0
35 REM * THE PLAY *
37 FOR X=1TO 470:PRINT:NEXT X
40 PRINT“THE AVAILABLE WEIGHTS ARE”,
42 FOR X=1TO 25
45 PRINT X,””*:”;
47 NEXT X
50 PRINT:PRINT:PRINT“SCALE RANKING”
55 LET X=10
60 IF E=X THEN PRINT“A--”,X,
65 IF F=X THEN PRINT“B--”,X,
70 IF G=X THEN PRINT“C--”,X,
75 IF H=X THEN PRINT“D--”,X,
80 IF X=0 THEN GOTO 90
82 LET X=X-.1
85   GOTO 60
90   PRINT "WHICH WEIGHT?"
92   INPUT W
95   IF W>25 THEN GOTO 135
100  IF A(W)=0 THEN GOTO 135
105  PRINT "WHICH SCALE?"
107  INPUT S
110  FOR X=1 TO 390: NEXT X
115  IF S=A THEN GOTO 140
120  IF S=B THEN GOTO 145
125  IF S=C THEN GOTO 150
130  IF S=D THEN GOTO 155
135  REM * INVALID ENTRY *
137  PRINT "DON'T GET CUTE, PAL!"
138  GOTO 90
140  LET E=E+A(W)
142  GOTO 160
145  LET F=F+A(W)
147  GOTO 160
150  LET G=G+A(W)
152  GOTO 160
155  LET H=H+A(W)
160  LET A(W)=0
162  REM * TOPPLE CHECK *
165  IF E>(F+5) THEN GOTO 250
170  IF F>(E+5) THEN GOTO 250
175  IF G>(H+5) THEN GOTO 250
180  IF H>(G+5) THEN GOTO 250
185  LET I=E+F: LET J=G+H
190  IF I>(J+7.5) THEN GOTO 250
195  IF J>(I+7.5) THEN GOTO 250
200  REM * REMAINING WEIGHT CHECK *
202  LET Y=0
205  FOR X=1 TO 25
207  LET Y=Y+A(X)
210  NEXT X
212  IF Y=0 THEN GOTO 225
215  GOTO 35
225  PRINT "THAT WAS THE LAST WEIGHT": PRINT
230  FOR X=1 TO 333: NEXT X
235  PRINT "YOU WIN!"
240  END
250  PRINT "SCALE STRUCTURE TOPPLES!": PRINT
255  FOR X=1 TO 333: NEXT X
260  PRINT "YOU LOSE!"
265  END
**TRS-80 BASIC**

10  CLS:P:P: "",BALANCING THE SCALES":P.
15  F.X=1TO25
20  Y=RND (100)/10:A(X)=Y
25  N.X:A=50:B=60:C=70
30  D=80:E=0:F=0;G=0:H=0
35  F.X=1TO470:N.X
40  CLS:P."THE AVAILABLE WEIGHTS ARE",  
45  F.X=1TO 25:P.X;"*";A(X);"";
50  N.X:P:P:"SCALE RANKING  
55  X=10

*Fig. 1-9. Flowchart for Balancing the Scales.*
60 IF E=X P. “A—”; X,
65 IF F=X P. “B—”; X,
70 IF G=X P. “C—”; X,
75 IF H=X P. “D—”; X,
80 IF X=0 G.90
85 X=X-.1: G.60
90 IN. “WHICH WEIGHT”; W
95 IF W>25 G. 135
100 IF A(W)=0 G.135
105 IN. “WHICH SCALE”; S
110 F.X=1TO390:N.X
115 IF S=A G.140
120 IF S=B G.145
125 IF S=C G.150
130 IF S=D G.155
135 P. “DON’T GET CUTE, PAL!”: G.90
140 E=E+A(W): G.160
145 F=F+A(W): G.160
150 G=G+A(W): G.160
155 H=H+A(W)
160 A(W)=0
165 IF E>(F+5) G.250
170 IF F>(E+5) G.250
175 IF G>(H+5) G.250
180 IF H>(G+5) G.250
185 I=E+F; J=G+H
190 IF I>(J+7.5) G.250
195 IF J>(I+7.5) G.250
200 Y=0: F.X=1TO25
205 Y=Y+A(X): N.X
210 IF Y=0 G.225
215 G.35
225 P. “THAT WAS THE LAST WEIGHT”: P.
230 F.X=1TO333:N.X
235 P. “YOU WIN!”
240 END
250 PRINT “SCALE STRUCTURE TOPPLES!”
255 F.X=1TO333:N.X
260 P. “YOU LOSE!”
265 END

Summary Of Variables Used
A,B,C,D  Scale positions
E        Weight of scale A
F        Weight of scale B
G        Weight of scale C
Sample Run

BALANCING THE SCALES

THE AVAILABLE WEIGHTS ARE
1*3.3 2*73*2.9
4*5.5 5*86*7.1 7*7.78*9.69*6.2 10*1.7
11*8.1 12*1.9 13*4.1 4*3.8 15*6.5 16*8.8
17*9.4 18*2.6 19*7.2 20*4.2 21*7.9 22*5.3
23*1.2 4*0.7 25*6.2
SCALE RANKING
A--0  B--0  C--0  D--0
WHICH WEIGHT? 1—
WHICH SCALE? A—

THE AVAILABLE WEIGHTS ARE
1*0*7.3 2*9
4*5.5 5*86*7.1 7*7.78*9.69*6.2 10*1.7
11*8.1 12*1.9 13*4.1 4*3.8 15*6.5 16*8.8
17*9.4 18*2.6 19*7.2 20*4.2 21*7.9 22*5.3
23*1.2 4*0.7 25*6.2
SCALE RANKING
A--3.3  B--0  C--0  D--0
WHICH WEIGHT? 1—
DON'T GET CUTE, PAL!
WHICH WEIGHT? 3—
WHICH SCALE? C—

THE AVAILABLE WEIGHTS ARE...
(from here on I won't bother repeating the weights. When a weight is used it becomes 0.)

SCALE RANKING
A--3.3  C--2.9  B--0  D--0
WHICH WEIGHT? 4—
WHICH SCALE? B—

THE AVAILABLE WEIGHTS ARE
SCALE RANKING
B--5.5  A--3.3  C--2.9  D--0
WHICH WEIGHT? B
WHICH SCALE? D--

THE AVAILABLE WEIGHTS ARE ... SCALE RANKING
D--7  B--5.5  A--3.3  C--2.9
WHICH WEIGHT? 5
WHICH SCALE? A--
SCALE STRUCTURE TOPPLES!
YOU LOSE!
Memory Test

You have to keep alert to win this two-player game. There are 10 rounds. On each round three numbers are separately flashed on the screen for a brief period of time (which gets progressively shorter on each round). If you want to alter the flash time, change the value of C in line 35.

After displaying the three numbers, the computer asks one of the players (randomly selected) to repeat one of the numbers. Then the other player is asked for one of the remaining numbers. A correct entry by either player scores a point for that player.

After 10 rounds the total score for both players is displayed and the game ends.

In the easy level the numbers can be up to three digits. The medium level numbers go up to four digits, and the hard numbers have up to five digits.

Since this is a memory game, there would be no point in including a sample run. See Fig. 1-10 for the flowchart.

Standard BASIC

5 PRINT:PRINT:PRINT
10 PRINT„“„MEMORY TEST”„PRINT
12 PRINT„PLAYER #1“;
15 INPUT A$
17 PRINT„PLAYER #2“;
20 INPUT B$
25 LET A=0:LET B=0
30 LET E=10:LET M=100:LET H=1000
35 LET C=150
40 PRINT„EASY, MEDIUM OR HARD GAME “;
45 INPUT G
50 REM* BEGIN THE PLAY*
55 FOR K=1 TO 10
57 LET X=INT(RND(0)*100)*INT(RND(0)*G)
60 LET Y=INT(RND(0)*100)*INT(RND(0)*G)
62 LET Z=INT(RND(0)*100)*INT(RND(0)*G)
65 PRINT„ENTER 1 WHEN READY “
70 INPUT J
72 REM* FLASH NUMBERS*
75 LET M=INT(RND(0)*888)+1
77 FOR N=1 TO M:NEXT N
80 FOR N=1 TO 50:PRINT:NEXT N
PRINT X
FOR D=1 TO C:NEXT D
FOR N=1 TO 50:PRINT:NEXT N
PRINT Y
FOR D=1 TO C:NEXT D
FOR N=1 TO 50:PRINT:NEXT N
PRINT Z:M=M+100
FOR D=1 TO C:NEXT D
FOR N=1 TO M:PRINT:NEXT N
LET T=INT(RND(0)*2)
IF T=1 THEN GOTO 155
PRINT A$;" WHAT WAS THE "
LET F=0
LET H=INT(RND(0)*3)+1
IF H=1 THEN GOSUB 200
IF H=2 THEN GOSUB 220
IF H=3 THEN GOSUB 240
LET A=A+F
IF T=1 THEN GOTO 195
PRINT B$;" WHAT WAS THE "
LET F=0
LET I=INT(RND(0)*3)+1
IF I=H THEN GOTO 160
IF I=1 THEN GOSUB 200
IF I=2 THEN GOSUB 220
IF I=3 THEN GOSUB 240
LET B=B+F
IF T=1 THEN GOTO 120
NEXT K
GOTO 275
PRINT"FIRST NUMBER";
INPUT W
IF W=X THEN GOTO 260
PRINT"NO, IT WAS "
RETURN
PRINT"SECOND NUMBER";
INPUT W
IF W=Y THEN GOTO 260
PRINT"NO, IT WAS "
RETURN
PRINT"THIRD NUMBER";
INPUT W
IF W=Z THEN GOTO 260
PRINT"NO, IT WAS "
RETURN
PRINT"CORRECT"
LET F=1
RETURN
PRINT"GAME IS OVER"
PRINT A$;" GOT ";A;"RIGHT"
PRINT"AND ";B$;" GOT ";B
END

TRRS-80 BASIC

10 CLS:P:.P."","MEMORY TEST":.P.
15 IN."PLAYER #1";A$
20 IN."PLAYER #2";B$
25 E=10:M=100:H=1000
30 IN."EASY, MEDIUM OR HARD GAME";G
35 A=0:B=0:C=150
50 F.K=1TO10
55 X=RND(100)*RND(G)
60 Y=RND(100)*RND(G)
65 Z=RND(100)*RND(G)
70 IN."ENTER 1 WHEN READY";J
75 M=RND(888);F.N=1TO M.N.N
80 CLS:P.X
85 F.D=1TO C:N.D
90 CLS:P.Y
95 F.D=1TO C:N.D
100 CLS:P.Z
105 F.D=1TO C:N.D;C=C-10
110 CLS:T=RND(2);F.N=1TO M.N.N
115 IF T=1 G.155
120 P.A$;"WHAT WAS THE";
125 H=RND(3);F=0
130 IF H=1 GOS.200
135 IF H=2 GOS.220
140 IF H=3 GOS.240
145 A=A+F
150 IF T=1 G.195
155 P.B$;"WHAT WAS THE"
160 I=RND(3);F=0
165 IF I=H G.160
170 IF I=1 GOS.200
175 IF I=2 GOS.220
180 IF I=3 GOS.240
185 B=B+F
190 IF T=1 G.120
195 N.K.G.275
200 IN."FIRST NUMBER";W
205 IF W=X.G.260
P."NO, IT WAS";X
RET.
IN."SECOND NUMBER";W
IF W=Y G. 260
P."NO, IT WAS";Y
RET.
IN."THIRD NUMBER";W
IF W=Z G. 260
P."NO, IT WAS";Z
RET.
P."CORRECT";F=1
RET.
P."GAME IS OVER"
P.A$;" GOT";A;" RIGHT AND";B$;" GOT";B
END

Summary of Variables Used

A$  Player #1
B$  Player #2
A  A$ score
B  B$ score
C  Flash timing
D  Flash timing
E  Easy game
F  Correct guess?
G  Game level
H  Hard game/A$ number selection
I  B$ number selection
J  Round start
K  Round counter
M  Medium game/Timing
N  Timing
T  Player select
W  Guess
X  First number
Y  Second number
Z  Third number
What Comes Next

If you enjoy solving mathematical puzzles, this game is for you. The computer generates a sequence of numbers in the pattern of $A= ((A+B)*C) - D$. It gives you the first three numbers in the sequence and you have to figure out what the next number will be. If you guess wrong the computer will give you the correct number, and you must determine the next step in the sequence. Once you correctly identify a number, the game moves on to the next sequence. If you have no idea what the next number might be you can enter “E” to pass. An E counts as a half try.

The computer keeps track of how many tries it takes you to get through ten sequences. Obviously, the lower your score, the better. See Fig. 1-11 for the flowchart.

**Standard BASIC**

```basic
5 LET S=0
10 FOR X=1 TO 10
12 LET T=1
14 LET A=INT(RND(0)*10)+1
16 LET B=INT(RND(0)*100)+1
18 LET Z=INT(RND(0)*10)+1
20 IF Z>6 THEN LET B=0
22 LET C=INT(RND(0)*50)+1
24 LET Z=INT(RND(0)*10)+1
26 IF Z>4 THEN LET C=1
28 LET D=INT(RND(0)*25)+1
30 LET Z=INT(RND(0)*10)+1
35 IF Z>3 THEN LET D=1
40 REM* DISPLAY INITIAL SERIES*
45 FOR Y=1 TO 3
50 PRINT A,
55 LET A=((A+B)*C)-D
60 NEXT Y
65 PRINT
70 REM* PLAYER'S GUESS*
72 LET E=0.5
75 PRINT"WHAT COMES NEXT? (ENTER E TO PASS)";
77 INPUT F
80 IF F=E THEN GOTO 95
85 IF F=A THEN GOTO 110
90 PRINT "INCORRECT",
92 LET T=T+0.5
```
95 LET T=T+0.5
97 LET A=((A+B)*C)-D
100 PRINT A
105 GOTO 70
110 PRINT"CORRECT!",T;"TRIES"
115 LET S=S+T
120 PRINT"YOUR SCORE SO FAR IS";S
125 NEXT X
130 PRINT"GAME OVER"
135 IF S<13 THEN GOTO 160
140 IF S<20 THEN GOTO 170
145 IF S>30 THEN GOTO 180
150 END
160 PRINT"FANTASTIC!"
165 END
170 PRINT"VERY GOOD"
175 END
180 PRINT"FRANKLY, YOU DID LOUSY"
185 END

**TRS-80 BASIC**

10 S=0
15 F.X=1TO10:T=1
20 A=RND(10):B=RND(100):Z=RND(10)
25 IF Z>6 THEN B=0
30 C=RND(50):Z=RND(10)
35 IF Z>4 THEN C=1
40 D=RND(25):Z=RND(10)
45 IF Z>3 THEN D=1
50 F.Y=1TO3
55 P.A,
60 A=((A+B)*C)-D
65 N.Y
70 P.:E=0.5
75 IN."WHAT COMES NEXT? (ENTER E TO PASS)";F
80 IF F=E G.95
85 IF F=A G.110
90 P."INCORRECT",T=T+0.5
95 T=T+0.5:A=((A+B)*C)-D
100 P.A:G.70
110 P."CORRECT",T;"TRIES"
115 S=S+T:P."YOUR SCORE SO FAR IS";S
120 N.X
125 IF S<13 G.150
130 IF S<20 G.160
135 IF S>30 G.170
145 END
150 P."FANTASTIC!"
155 END
160 P."VERY GOOD"
165 END
170 P."FRANKLY, YOU DID LOUSY."
175 END

Fig. 1-11. Flowchart for What Comes Next.
Sample Run (excerpt)

7  99  111
WHAT COMES NEXT? (ENTER E TO PASS)? 222222
INCORRECT  11143
WHAT COMES NEXT? (ENTER E TO PASS)? 111595
CORRECT!  2 TRIES
YOUR SCORE SO FAR IS 2
3  2  1
WHAT COMES NEXT? (ENTER E TO PASS)? 0
CORRECT!  1 TRIES
YOUR SCORE SO FAR IS 3
9  17  33
WHAT COMES NEXT? (ENTER E TO PASS)? 66
INCORRECT  65
WHAT COMES NEXT? (ENTER E TO PASS)? E
129
WHAT COMES NEXT? (ENTER E TO PASS)? 357
CORRECT!  2.5 TRIES
YOUR SCORE SO FAR IS 5.5
10  968  10538
WHAT COMES NEXT? (ENTER E TO PASS)? 11428
INCORRECT  106238
WHAT COMES NEXT? (ENTER E TO PASS)? E
1063238
WHAT COMES NEXT? (ENTER E TO PASS)? 1063328
CORRECT!  2.5 TRIES
YOUR SCORE SO FAR IS 8

Summary of Variables Used

A-D    SEQUENCE VARIABLES
E      PASS
F      PLAYER'S GUESS
S      TOTAL SCORE
T      ROUND SCORE
X      ROUND COUNT
Y      TIMING
Z      VARIOUS
Go Fish

Here's a computerized version of a popular card game. The "deck" consists of up to four each of 16 different card types, identified by the letters A through P. The object is to make as many matches as possible.

On each play you are shown the cards in your hand and the number of cards in the computer's hand. You first make any matches you can (and the computer does likewise); then you request a card. If the computer has it, the card is exchanged. If not, you take the top card from the main deck. Then the computer takes a similar turn (it does not examine your hand until after it has made its request, so it doesn't cheat).

The game is over when either of the players has no cards in hand, or when the main deck runs out of cards. The winner is the player with the highest number of matches. All card values count the same. See Fig. 1-12 for the flowchart.

**Standard BASIC**

3  FOR X=1 TO 302
5  PRINT
7  LET A(X)=0
10  NEXT X
12  PRINT"","GO FISH":PRINT
15  FOR X=1 TO 4
17  FOR Y=1 TO 16
20  LET Z=INT(RND(0)*100)+201
22  IF A(Z)>0 THEN GOTO 20
25  LET A(Z)=Y
27  NEXT Y
30  NEXT X
31  LET Q=200
32  LET A=1:LET B=2
33  LET C=3:LET D=4
34  LET E=5:LET F=6
35  LET G=7:LET H=8
36  LET I=9:LET J=10
37  LET K=11:LET L=12
38  LET M=13:LET N=14
39  LET O=15:LET P=16
40  REM*OPENING DEAL*
42  FOR X=1 TO 7
45  LET Q=Q+1
46  IF A(Q)=0 THEN GOTO 45
47  LET A(X)=A(Q):LET A(Q)=0
48   NEXT X
50   FOR X = 101 TO 107
51   LET Q = Q + 1
52   IF A(Q) = 0 THEN GOTO 51
53   LET A(X) = A(Q): LET A(Q) = 0
54   NEXT X
55 REM*THE PLAY*
57   PRINT: PRINT "YOUR HAND----";
59   FOR X = 1 TO 100: LET Y = A(X)
62   IF Y > 0 THEN GOSUB 240
64   NEXT X
66   PRINT: PRINT: PRINT "MY HAND----";
68   FOR X = 101 TO 200
70   LET Y = A(X)
72   IF Y = 0 THEN GOTO 80
74   LET Z = X - 100
76   PRINT Z; "\(\_\_\)X";
78   NEXT X
80   PRINT: PRINT
82   GOTO 335
85   PRINT "WHAT DO YOU NEED";
87 INPUT S
90   FOR X = 101 TO 200
92   LET Y = A(X)
94   IF Y = S THEN LET T = X
96   NEXT X
98   IF T > 0 THEN GOTO 470
100  PRINT "GO FISH!!"
102  FOR Z = 1 TO 470: NEXT Z
104  PRINT: PRINT
106  LET Y = A(Q)
108  IF Y = 0 THEN GOSUB 530
110  LET A(Q) = 0: LET X = 1: LET Q = Q + 1
112  IF A(X) = 0 THEN GOTO 120
115  LET X = X + 1
117  GOTO 112
120  LET A(X) = Y
122  PRINT "YOU DREW A"
124  GOSUB 245
126  PRINT: PRINT
128  GOSUB 330
130  PRINT "I NEED A"
132  LET X = 200
135  IF A(X) > 0 THEN GOTO 145
140  LET X = X - 1
142  GOTO 135

114
Fig. 1-12. Flowchart for Go Fish.
145  LET Y=A(X)
146  GOSUB 245
148  PRINT
150  LET T=0
152  FOR X=1 TO 100
154  LET S=A(X)
156  IF S=Y THEN LET T=X
158  NEXT X
160  GOSUB 330
165  IF T>0 THEN GOTO 490
167  PRINT"I MUST GO FISH"
170  LET Y=A(Q):LET X=101
172  IF Y=0 THEN GOSUB 530
174  LET A(Q)=0:LET Q=Q+1
176  IF A(X)=0 THEN GOTO 185
178  LET X=X+1
180  GOTO 176
185  LET A(X)=Y
190  GOSUB 330
195  GOSUB 330
200  GOTO 55
240  PRINT X;".";
245  IF Y=1 THEN PRINT "A";
250  IF Y=2 THEN PRINT "B";
255  IF Y=3 THEN PRINT "C";
260  IF Y=4 THEN PRINT "D";
265  IF Y=5 THEN PRINT "E";
270  IF Y=6 THEN PRINT "F";
275  IF Y=7 THEN PRINT "G";
280  IF Y=8 THEN PRINT "H";
285  IF Y=9 THEN PRINT "I";
290  IF Y=10 THEN PRINT "J";
295  IF Y=11 THEN PRINT "K";
300  IF Y=12 THEN PRINT "L";
305  IF Y=13 THEN PRINT "M";
310  IF Y=14 THEN PRINT "N";
315  IF Y=15 THEN PRINT "O";
320  IF Y=16 THEN PRINT "P";
325  RETURN
330  FOR Z=1 TO 555:NEXT Z
333  RETURN
335  LET Y=50:LET N=14
337  PRINT"CAN YOU MATCH ANY PAIRS";
340  INPUT U
342  IF U=N THEN GOTO 380
344  PRINT "CARD#";
INPUT S
PRINT "AND CARD#";
INPUT T
IF A(S)= THEN GOTO 360
IF S=T THEN GOTO 360
IF A(S)=A(T) THEN GOTO 365
PRINT "INVALID MATCH"
GOTO 335
LET Y=A(S); LET A(S)=0
LET A(T)=0; LET T=A(301)
LET T=T+1; LET A(301)=T
PRINT "YOU'VE MATCHED A PAIR OF"
GOSUB 245
GOTO 335
FOR X=101 TO 200: LET R=A(X)
IF R=0 THEN GOTO 400
FOR Z=101 TO 200
IF Z=X THEN GOTO 395
LET S=A(Z)
IF R=S THEN GOSUB 430
NEXT Z
NEXT X
IF Q>275 THEN GOTO 465
LET W=0
FOR X=1 TO 100: LET W=W+A(X)
NEXT X
IF W=0 THEN GOTO 440
LET W=0
FOR X=101 TO 200: LET W=W+A(X)
NEXT X
IF W=0 THEN GOTO 460
LET T=0
GOTO 85
LET Y=R
PRINT "I'VE MATCHED A PAIR OF"
GOSUB 245
LET R=−5: LET A(X)=0: LET A(Z)=0
LET T=A(302): LET T=T+1: LET A(302)=T
RETURN
PRINT "YOU ARE OUT OF CARDS"
LET X=A(301): LET Y=A(302)
PRINT "YOU MATCHED";X; "PAIRS"
PRINT "AND I MATCHED";Y; "PAIRS"
END
PRINT "I AM OUT OF CARDS"
GOTO 442
PRINT "THE DECK IS OUT OF CARDS"
GOTO 442
LET A(T)=0
FOR X=1 TO 100
IF A(X)=0 THEN GOTO 485
NEXT X:PRINT:PRINT
GOSUB 330
GOTO 130
LET A(X)=S:LET S=0
GOTO 480
LET A(T)=0
FOR X=1 TO 100
IF A(X)=0 THEN GOTO 515
NEXT X
GOSUB 330
GOTO 70
LET A(X)=S
LET S=0
GOTO 505
LET Q=Q+1
LET Y=A(Q)
IF Y=0 THEN GOTO 530
RETURN

TRS-80 BASIC
CLS:P:P."";""GO FISH";F.X=1 TO 302
A(X)=0:N.X
F.X=1 TO 4:F.Y=1 TO 16
Z=RND(100)+200
IF A(Z)>0 G.25
A(Z)=Y:N.Y:N.X:Q=200
F.X=1 TO 7
Q=Q+1
IF A(Q)=0 G.42
A(X)=A(Q):A(Q)=0:N.X
F.X=1 TO 107
Q=Q+1
IF A(Q)=0 G.50
A(X)=A(Q):A(Q)=0:N.X
CLS:P."YOUR HAND---";F.X=1 TO 100;Y=A(X)
IF Y>0 GOS.240
N.X:P:P:P."MY HAND---";
F.X=1 TO 200;Y=A(X)
IF Y=0 G.80
Z=X-100:P.Z.".";X";
N.X:P:P:G.335
IN."WHAT DO YOU NEED";S
90 F.X=101 TO 200;Y=A(X)
92 IF Y=S THEN T=X
95 N.X: IF T>0 G.470
100 P."GO FISH!!";F.Z=1TO470:N.Z:P.:P.
102 Y=A(Q)
105 IF Y=0 GOS.530
107 A(Q)=0:X=1;Q=Q+1
110 IF A(X)=0 G.120
115 X=X+1;G.110
120 A(X)=Y:P."YOU DREW";GOS.245
125 P.:P.:GOS.330
130 P."I NEED A";X=200
135 IF A(X)>0 G.145
140 X=X-1;G.135
145 Y=A(X):GOS.245:P.:P.
150 T=0:F.X=1TO100:S=A(X)
155 IF S=Y THEN T=X
160 N.X:GOS.330
165 IF T>0 G.490
170 P."I MUST GO FISH";Y=A(Q)
172 IF Y=0 GOS.530
176 A(Q)=0:X=101;Q=Q+1
178 IF A(X)=0 G.185
180 X=X+1;G.178
185 A(X)=Y:GOS.330
190 G.55
240 P.X:".");
245 IF Y=1 P."A";
250 IF Y=2 P."B";
255 IF Y=3 P."C";
260 IF Y=4 P."D";
265 IF Y=5 P."E";
270 IF Y=6 P."F";
275 IF Y=7 P."G";
280 IF Y=8 P."H";
285 IF Y=9 P."I";
290 IF Y=10 P."J";
295 IF Y=11 P."K";
300 IF Y=12 P."L";
305 IF Y=13 P."M";
310 IF Y=14 P."N";
315 IF Y=15 P."O";
320 IF Y=16 P."P";
325 RET.
330 F.Z=1TO555:N.Z:RET.
Y=50:N=14:IN. "CAN YOU MAKE ANY PAIRS"; U
340 IF U=N G.380
345 IN. "CARD#"; S: IN. "AND CARD#"; T
350 IF A(S)=0 G.360
352 IF S=T G.360
355 IF A(S)=A(T) G.365
360 P. "INVALID MATCH"; G.335
365 Y=A(S); A(S)=0; A(T)=0; T=A(301); T+1; A(301)=T
370 P. "YOU'VE MATCHED A PAIR OF" ; GOS.245; G.335
380 F.X=101TO200: R=A(X); IF R=0 G.400
385 F.Z=101TO200: IF X=Z G.395
390 S=A(Z); IF R=S GOS.430
395 N.Z
400 N.X: IF Q > 275 G.465
405 W=0; F.X=101TO200: W=W+A(X); N.X: T=0
410 IF W=0 G. 460
415 W=0; F.X=1TO100: W=W+A(X); N.X
420 IF W=0 G.440
425 G.85
430 Y=R; P. "I'VE MATCHED A PAIR OF" ; GOS.245
435 R=-- 5; A(X)=0; A(Z)=0; T=A(302); T=T+1
437 A(302)=T; P.; RET.
440 P. "YOU ARE OUT OF CARDS"
445 X=A(301); Y=A(302); P; "YOU MATCHED" ; X; "PAIRS"
450 P. "AND I MATCHED" ; Y; "PAIRS"
455 END
460 P. "I AM OUT OF CARDS"; G.445
465 P. "THE DECK IS OUT OF CARDS"; G.445
470 A(T)=0; F.X=1TO100: IF A(X)=0 G. 485
485 A(X)=S; S=0; G.480
490 A(T)=0; F.X=1TO100: IF A(X)=0 G.510
500 N.X: GOS.330: G.55
510 A(X)=S; S=0; G.500
530 Q=Q+1; Y=A(Q)
535 IF Y=0 G.530
540 RET.

Sample Run

GO FISH
YOUR HAND --- 1.)0  2.)M  3.)J  4.)C  5.)K  6.)G  7.)A
MY HAND --- 1.)X  2.)X  3.)X  4.)X  5.)X  6.)X  7.)X
CAN YOU MAKE ANY PAIRS? NO
I'VE MATCHED A PAIR OF C
I'VE MATCHED A PAIR OF H
WHAT DO YOU NEED? O
GO FISH!
YOU JUST DREW A D
I NEED A K

YOUR HAND --- 1.)O 2.)M 3.)J 4.)C 6.)G 7.)A 8.)D
MY HAND --- 1.)X 2.)X 3.)X 4.)X 6.)X
CAN YOU MAKE ANY PAIRS? NO
I'VE MATCHED A PAIR OF K
WHAT DO YOU NEED? M
I NEED A B
I MUST GO FISH

YOUR HAND --- 1.)O 2.)M 3.)J 4.)C 5.)M 6.)G 7.)A 8.)D
MY HAND --- 1.)X 4.)X
CAN YOU MAKE ANY PAIRS? YES
CARD #? 2
ANY CARD #? 5
YOU'VE MATCHED A PAIR OF M
WHAT DO YOU NEED? J
I NEED A B
I MUST GO FISH

YOUR HAND --- 1.)O 2.)J 3.)J 4.)C 6.)G 7.)A 8.)D
MY HAND --- 1.)X 4.)X

Summary of Variables Used
A-P CARD VALUES
Q LOCATION IN DECK
R PAIR MATCHING
S PLAYER'S REQUEST/PAIR MATCHING
T OPPONENT'S HAND SEARCH/PAIR MATCHING
U MATCH ANY PAIRS?
V NOT USED
W CARD COUNT
X-Z VARIOUS
Quiz Whiz

Quiz Whiz is a simple game in concept. The computer gives you a number (X) and four larger numbers. You have to determine which one is the square of X (X times X). There are ten rounds to a game.

In the easy game X can be any whole number from 1 to 50. The medium game allows half numbers (such as 37.5), and the hard game allows any digit behind the decimal point (39.7, 42.3, 16.8, etc. . .). Of course you can change the over-all complexity of the game by altering the value of X in line 30. As written X = 50 times L. If you substituted “X=40*L”, the maximum number is 40 (the L factor is divided back out in a later step; it is used to provide the fractional quantities in the medium and hard games. In the easy game, L = 1).

If you can get a score of 10 without using a calculator or slide rule, you’re really a whiz kid. See Fig. 1-13 for the flowchart.

Standard BASIC

10 PRINT“”,“WHIZ QUIZ”
12 PRINT
14 LET E=1
16 LET M=2
18 LET H=10
20 LET S=0
22 PRINT“EASY, MEDIUM, OR HARD GAME”;
24 INPUT L
26 REM* THE GAME *
28 FOR T=1 TO 10
30 LET X=50*L
32 LET Y=INT(RND(0)*X)+1
34 LET X=Y/L
36 LET Y=X*X
38 REM* X IS THE ROOT AND Y IS THE CORRECT ANSWER*
40 FOR M=1 TO 333
42 NEXT M
44 PRINT“WHAT IS”;X;“ SQUARED?”
46 LET A=0
48 LET B=0
50 LET C=0
52 LET D=0
54 REM*PLANT CORRECT ANSWER *
57 LET E=INT(RND(0)*4)+1
60 IF E=1 THEN LET A=Y
Fig. 1-13. Flowchart for Whiz Quiz.
IF E=2 THEN LET B=Y
70 IF E=3 THEN LET C=Y
75 IF E=4 THEN LET D=Y
80 REM * WRONG ANSWERS *
82 IF A>0 THEN GOTO 95
85 GOSUB 220
90 LET A=H
95 IF B>0 THEN GOTO 110
100 GOSUB 220
105 LET B=H
110 IF C>0 THEN GOTO 125
115 GOSUB 220
120 LET C=H
125 IF D>0 THEN GOTO 140
130 GOSUB 220
135 LET D=H
137 REM * PLAYER'S CHOICE *
140 PRINT“ A --- ”;A
145 PRINT“ B --- ”;B
150 PRINT“ C --- ”;C
155 PRINT“ D --- ”;D
160 INPUT K
162 FOR M=1 TO 333
165 NEXT M
170 IF K=Y THEN GOTO 200
175 PRINT“WRONG. THE CORRECT ANSWER IS””;Y
180 NEXT T
185 PRINT“ THE WHIZ QUIZ IS OVER”
190 PRINT“ YOU GOT ””;S;“ RIGHT”
195 END
200 REM * CORRECT ANSWER *
205 PRINT“ RIGHT!”
210 LET S=S+1
215 GOTO 180
220 REM * WRONG ANSWER SELECTION *
225 LET F= INT(RND(0)*0.4*X)+1
230 LET G=INT(RND(0)*F)+1 + X + (F/2)
235 IF G=X THEN GOTO 230
240 LET H=G*G
245 IF L=1 THEN GOTO 260
250 LET G=INT(RND(0)*10)+1
255 LET H=H+(G/L)
260 RETURN

TR-80 BASIC
10 P.””;“WHIZ QUIZ””;P.
15 E=1:M=2:H=10:S=0
20 IN."EASY, MEDIUM, OR HARD GAME";L
25 F.T=1TO10
30 X=50*L:Y=RND(X)
35 X=Y/L:Y=X*X
40 F.M=1TO333:N.M
45 P."WHAT IS";X;"SQUARED?"
50 A=0:B=0:C=0:D=0
55 E=RND(4)
60 IF E=1 THEN A=Y
65 IF E=2 THEN B=Y
70 IF E=3 THEN C=Y
75 IF E=4 THEN D=Y
80 IF A>0.G.95
85 GOS.220
90 A=H
95 IF B>0.G.110
100 GOS.220
105 B=H
110 IF C>0.G.125
115 GOS.220
120 C=H
125 IF D>0.G.140
130 GOS.220
135 D=H
140 P."A --- ";A
145 P."B --- ";B
150 P."C -- ";C
155 P."D --- ";D
160 IN.K
165 F.M=1TO333:N.M
170 IF K=Y G.200
175 P."WRONG. THE CORRECT ANSWER IS ";Y
180 N.T
185 P."THE WHIZ QUIZ IS OVER."
190 P."YOU GOT";S;"RIGHT"
195 END
200 P."RIGHT!"
205 S=S+1
210 G.180
220 F=INT(.4*X)
225 G=RND(F)+(X-F/2)
230 IF G=X G.225
235 H=G*G
240 IF L=1 G.250
245 H=H+(RND(10)/L)
250 RET.
Variables Used
A  POSSIBLE ANSWER
B  POSSIBLE ANSWER
C  POSSIBLE ANSWER
D  POSSIBLE ANSWER
E  EASY GAME/CORRECT ANSWER SELECTION
F  FALSE ANSWER CALCULATIONS
G  FALSE ANSWER CALCULATIONS
H  FALSE ANSWER CALCULATIONS/HARD GAME
K  PLAYER'S ANSWER
L  GAME LEVEL
M  MEDIUM GAME/TIMING
S  SCORE
T  TURN COUNTER
X  ROOT SELECTION
Y  CORRECT ANSWER

Sample Run (Excerpt)

QUIZ WHIZ
WHAT IS 17 SQUARED?
   A --- 256
   B --- 289
   C --- 324
   D --- 196
?A
WRONG. THE CORRECT ANSWER IS 289
WHAT IS 32 SQUARED?
   A --- 941
   B --- 900
   C --- 1225
   D --- 1024
?D
RIGHT!
WHAT IS 50 SQUARED?
   A --- 3249
   B --- 2304
   C --- 2500
   D --- 2025
?C
RIGHT!
Tic Tac Toe

Here is a computerized version of that old favorite. The object, of course, is to get three in a row: across, down or diagonally.

It’s not easy to beat the computer, but anything’s possible. See Fig. 1-14 for the flowchart.

**Standard BASIC**

```
10  PRINT" LET'S PLAY TIC-TAC-TOE"
12  FOR X=1 TO 9
14  LET A(X)=0
16  NEXT X
18  REM ** THE BOARD IS NOW CLEARED **
20  GOSUB 280
25  PRINT"YOU TAKE THE 'O' AND I'LL TAKE THE 'X'"
27  PRINT:PRINT
30  LET N=INT (RND(0)*2)+1
32  LET M=3
35  GOTO 300
40  IF N=2 THEN GOTO 290
45  PRINT"I'LL GO FIRST THIS TIME"
50  GOSUB 280
55  PRINT"I'LL TAKE SPACE # ";
60  GOSUB 280
65  LET S=INT (RND(0)*9)+1
67  LET A(S)=--1: LET M=1
70  PRINT S
75  GOSUB 280
80  GOTO 300
85  PRINT "WHICH SPACE WILL YOU PLAY";
87  INPUT S
90  LET S=INT(S)
92  LET S=ABS(S): LET M=2
95  IF S>9 THEN GOTO 85
100 100 IF S<1 THEN GOTO 85
105  IF A(S)<0 THEN GOTO 85
110  LET A(S)==2
115  GOTO 300
120  PRINT "I'LL PAY SPACE # ";
125  LET S=0: LET M=1
127  REM ** BOARD CHECK FOR COMPUTER'S PLAY **
130  IF A(1)=0 THEN GOTO 147
132  IF A(1)=A(2) THEN LET S=3
```
135 IF A(1)=A(3) THEN LET S=2
137 IF A(1)=A(5) THEN LET S=9
140 IF A(1)=A(9) THEN LET S=5
142 IF (1)=A(4) THEN LET S=7
145 IF A(1)=A(7) THEN LET S=4
147 IF A(2)=0 THEN GOTO 157
150 IF A(2)=A(3) THEN LET S=1
152 IF A(2)=A(5) THEN LET S=8
155 IF A(2)=A(8) THEN LET S=5
157 IF A(3)=0 THEN GOTO 170
160 IF A(3)=A(5) THEN LET S=7
162 IF A(3)=A(7) THEN LET S=5
165 IF A(3)=A(6) THEN LET S=9
167 IF A(3)=A(9) THEN LET S=6
170 IF A(4)=0 THEN GOTO 180
172 IF A(4)=A(7) THEN LET S=1
175 IF A(4)=A(5) THEN LET S=6
177 IF A(4)=A(6) THEN LET S=5
180 IF A(5)=0 THEN GOTO 192
182 IF A(5)=A(6) THEN LET S=4
185 LET A(5)=A(9) THEN LET S=1
187 IF A(5)=A(8) THEN LET S=2
190 IF A(5)=A(7) THEN LET S=3
192 IF A(6)=0 THEN GOTO 197
195 IF A(6)=A(9) THEN LET S=3
197 IF A(7)=0 THEN GOTO 210
200 IF A(7)=A(8) THEN LET S=9
205 IF A(7)=A(9) THEN LET S=8
210 IF A(8)=0 THEN GOTO 220
215 IF A(8)=A(9) THEN LET S=7
220 IF S>0 THEN GOTO 230
225 LET S=INT (RND(0)*9)+1
230 IF A(S)<0 THEN GOTO 225
235 GOSUB 280
240 PRINT S
245 LET A(S)=-1
250 GOTO 75
280 REM ** PAUSE **
282 FOR X=1 TO 333
285 NEXT X
287 RETURN
290 PRINT "YOU GO FIRST"
295 GOTO 85
300 REM ** DRAW GRID **
302 PRINT:PRINT:PRINT
305 LET Z=1
307  FOX X=1 TO 3
310  PRINT " ",
312  FOR Y = 1 TO 3
315  LET V=A(Z)
320  IF V<0 THEN GOTO 475
325  PRINT Z;" ";
330  LET Z=Z+1

Fig. 1-14. Flowchart for Tic Tac Toe.
332  NEXT Y
335  PRINT
337  NEXT X
340  PRINT:PRINT
345  REM* WIN CHECK **
347  LET Y=0
350  FOR Z=1 TO 9
355  LET X=Z
360  IF A(X)<0 THEN X=0
365  LET Y=Y+X
370  NEXT Z
375  IF Y=0 THEN GOTO 490
380  IF A(1)=0 THEN GOTO 405
385  LET X=A(1)
390  IF X=A(2) THEN GOSUB 500
395  IF X=A(4) THEN GOSUB 510
400  IF X=A(5) THEN GOSUB 520
405  IF A(2)=0 THEN GOTO 420
410  LET X=A(2)
415  IF X=A(5) THEN GOSUB 530
420  IF A(3)=0 THEN GOTO 440
425  LET X=A(3)
430  IF X=A(6) THEN GOSUB 520
435  IF X=A(5) THEN GOSUB 510
440  IF A(4)=0 THEN GOTO 455
445  LET X=A(4)
450  IF X=A(5) THEN GOSUB 540
455  IF A(7)=0 THEN GOTO 470
460  LET X=A(7)
465  IF X=A(8) THEN GOSUB 520
470  IF M=1 THEN GOTO 85
471  IF M=2 THEN GOTO 120
472  IF M=3 THEN GOTO 40
475  IF V=-1 THEN PRINT "X";
480  IF V=-2 THEN PRINT"0 ";
485  GOTO 330
490  PRINT"TIE GAME — LET'S TRY AGAIN"
495  GOTO 12
500  IF X=A(3) THEN GOTO 550
505  RETURN
510  IF X=A(7) THEN GOTO 550
515  RETURN
520  IF X=A(9) THEN GOTO 550
525  RETURN
530  IF X=A(8) THEN GOTO 550
535  RETURN

130
540 IF X=A(6) THEN GOTO 550
545 RETURN
550 IF X=-1 THEN PRINT "I";
555 IF X=-2 THEN PRINT "YOU";
560 PRINT "WIN!"
565 END

TRIS-80 BASIC

10 P."LET'S PLAY TIC-TAC-TOE"
15 F.X=1 TO 9:A(X)=0:N.X.
20 GOS.280
25 P."YOU TAKE THE 'O' AND I'LL TAKE THE 'X' ";P:P.
30 N=RND(2):M=3
35 G.300
40 IF N=2 G. 290
45 P."I'LL GO FIRST THIS TIME"
50 GOS.280
55 P."I'LL TAKE SPACE ";
60 GOS.280
65 S=RND(9):A(S)=-1
70 P.S.:M=1
75 GOS. 280
80 G.300
85 IN. "WHICH SPACE WILL YOU PLAY";S
90 S=INT(S):S=ABS(S):M=2
95 IF S>9 G.85
100 IF S<1 G. 85
105 IF A(S)<0 G.85
110 A(S)=-2
115 G .300
120 P."I'LL PLAY SPACE ";
125 S=0:M=1
130 IF A(1)=0 G. 147
132 IF A(1)=A(2) THEN S=3
135 IF A(1)=A(3) THEN S=2
137 IF A(1)=A(5) THEN S=9
140 IF A(1)=A(9) THEN S=5
142 IF A(1)=A(4) THEN S=7
145 IF A(1)=A(7) THEN S=4
147 IF A(2)=0 G. 157
150 IF A(2)=A(3) THEN S=1
152 IF A(2)=A(5) THEN S=8
155 IF A(2)=A(8) THEN S=5
157 IF A(3)=0 G. 170
160 IF A(3)=A(5) THEN S=7
162 IF A(3)=A(7) THEN S=5
165 IF A(3)=A(6) THEN S=9
167 IF A(3)=A(9) THEN S=6
170 IF A(4)=0 G. 180
172 IF A(4)=A(7) THEN S=1
175 IF A(4)=A(5) THEN S=6
177 IF A(4)=A(6) THEN S=5
180 IF A(5)=0 G. 192
182 IF A(5)=A(6) THEN S=4
185 IF A(5)=A(9) THEN S=1
187 IF A(5)=A(8) THEN S=2
190 IF A(5)=A(7) THEN S=3
192 IF A(6)=0 G. 197
195 IF A(6)=A(9) THEN S=3
197 IF A(7)=0 G. 210
200 IF A(7)=A(8) THEN S=9
205 IF A(7)=A(9) THEN S=8
210 IF A(8)=0 G. 220
215 IF A(8)=A(9) THEN S=7
220 IF S>0 G. 230
225 S=RND (9)
230 IF A(S)<0 G.225
235 GOS. 280
240 P.S.
245 A(S)=-1
250 G.75
280 F.X.=1TO333:N.X.
285 RET.
290 P."YOU GO FIRST"
295 G. 85
300 P.:P.:P.:Z=1
305 F.X=1TO3:P." ",
310 F.Y=1TO3
315 V=A(Z)
320 IF V<0 G. 475
325 P.Z:" ";
330 Z=Z+1:N.Y
335 P.:N.X
340 P.:P.
345 Y=0
350 F.Z=1TO9
355 X=Z
360 IF A(X)<0 THEN X=0
365 Y=Y+X
370 N.Z
375 IF Y=0 G. 490

132
380 IF A(1)=0 G. 405
385 X=A(1)
390 IF X=A(2) GOS. 500
395 IF X=A(4) GOS. 510
400 IF X=A(5) GOS. 520
405 IF A(2) =0 G. 420
410 X=A(2)
415 IF X=A(5) GOS. 530
420 IF A(3)=0 G. 440
425 X=A(3)
430 IF X=A(6) GOS. 520
435 IF X=A(5) GOS. 510
440 IF A(4)=0 G. 455
445 X=A(4)
450 IF X=A(5) GOS. 540
455 IF A(7)=0 G. 470
460 X=A(7)
465 IF X=A(8) GOS. 520
470 IF M=1 G. 85
471 IF M=2 G. 120
472 IF M=3 G. 40
475 IF V=-1 P."X";
480 IF V=-2 P."O";
485 G. 330
490 P."TIE GAME --- LET'S TRY AGAIN"
495 G. 15
500 IF X=A(3) G. 550
505 RET.
510 IF X=A(7) G. 550
515 RET.
520 IF X=A(9) G. 550
525 RET.
530 IF X=A(8) G. 550
535 RET.
540 IF X=A(6) G. 550
545 RET.
550 IF X=-1 P."I";
555 IF X=-2 P."YOU";
560 P."WIN!!";
565 END

Summary Of Variables Used

N TURN SELECT
S SPACE PLAYED
V SPACE VALUES
X TIMING/VARIOUS
Sample Run
LET'S PLAY TIC-TAC-TOE
YOU TAKE THE 'O' AND I'LL TAKE THE 'X'
  1  2  3
  4  5  6
  7  8  9
YOU GO FIRST
WHICH SPACE WILL YOU PLAY? 5
  1  2  3
  4  0  6
  7  8  9
I'LL PLAY SPACE #3
  1  2  X
  4  0  6
  7  8  9
WHICH SPACE WILL YOU PLAY? 7
  1  2  X
  4  0  6
  0  8  9
I'LL PLAY SPACE #6
  1  2  X
  4  0  X
  0  8  9
WHAT SPACE WILL YOU PLAY? 9
  1  2  X
  4  0  X
  0  8  0
I'LL PLAY SPACE #8
  1  2  X
  4  0  X
  0  X  0
WHAT SPACE WILL YOU PLAY? 1
  0  2  X
  4  0  X
  0  X  0
YOU WIN!!
Chapter 2
Two-Player Games

With the three games in this chapter you can enjoy your computer with a friend. You play against each other and the computer keeps tabs on everything.

To And Fro and Passing Points are designed on a modified board game concept and Money Mad is a light-hearted approach to the stock market.
To And Fro

This is a fairly simple two-player game. The players move along an imaginary board of 100 spaces (the computer does not draw the board, but it continually prints out what spaces the players are on). On each move a player can move from 1 to 6 spaces: the object is to reach the 100th space. But here's the catch; each time you move to a space, the computer tells you its value from -6 to +6. If the value is zero, nothing happens. If the value is positive you are moved ahead that many spaces, and if it is negative you're moved back. The value of the second space you land on is ignored.

The space values are identical for both players, and remain constant throughout the game. See Fig. 2-1 for the flowchart.

```
Standard BASIC
5 FOR X=1 TO 25: PRINT: NEXT X
10 PRINT "", "TO AND FRO": PRINT
12 PRINT "PLAYER #1": PRINT
15 INPUT A$
17 PRINT "PLAYER #2": PRINT
20 INPUT B$
22 PRINT
25 PRINT "THE OBJECT IS TO MOVE FROM POSITION 1 TO"
30 PRINT "POSITION 100. IF YOU GO PAST 100 YOU WILL"
35 PRINT "LOOP BACK TO THE START. EACH MOVE MAY BE"
40 PRINT "FROM 1 TO 6 SPACES. SOME SPACES WILL SEND"
45 PRINT "YOU FORWARD, OTHERS BACKWARD. THE SPACE"
47 PRINT "VALUE IS THE SAME FOR BOTH PLAYERS. THE"
50 PRINT "FIRST TO LAND ON POSITION 100 WINS."
52 FOR X=1 TO 100
54 LET Y=INT(RND(0)*13)-6
56 LET A(X)=Y
58 NEXT X
60 FOR X=1 TO 20
62 LET Y=INT(RND(0)*100)
64 LET A(Y)=0: NEXT X
66 LET A(1)=0
68 LET A(100)=0
70 LET A=1: LET B=1
75 LET T=INT(RND(0)*2)+1
77 IF T=2 THEN GOTO 120
80 GOSUB 150
85 GOSUB 170
90 LET A=A+M
```
Fig. 2-1. Flowchart for To and Fro.
LET B=B+M
GOSUB 160
GOTO 85
PRINT A$;" IS AT SPACE ";A
GOTO 255
PRINT B$;" IS AT SPACE ";B
GOTO 255
PRINT"YOUR MOVE";
INPUT M
LET M=INT(M)
IF M<THEN GOTO 170
IF M>6 THEN GOTO 170
RETURN
FOR X=1 TO 470:NEXT X
LET M=A(C)
IF M=0 THEN GOTO 235
IF M<0 THEN GOTO 240
PRINT"MOVE AHEAD ";M;" SPACES"
FOR X=1TO470:NEXT X
PRINT
RETURN
PRINT"BLANK SPACE"
GOTO 225
LET N=−M
PRINT"MOVE BACK ";N;" SPACES"
GOTO 225
IF A>100 THEN LET A=A−100
IF A=100 THEN GOTO 285
IF A<1 THEN LET A=1
IF B>100 THEN LET B=B−100
IF B=100 THEN GOTO 290
IF B<1 THEN LET B=1
RETURN
PRINT A$;
GOTO 295
PRINT B$;
PRINT" WINS!"
END

TR-80 BASIC

CLS: P.: P." " , " TO AND FRO" : P.
IN. "PLAYER #1" : A$
IN. "PLAYER #2" : B$
P: P." THE OBJECT IS TO MOVE FROM POSITION 1 TO
POSITION 100"
30 P."IF YOU GO PAST 100 YOU WILL LOOP BACK TO THE
START."
35 P."EACH MOVE MAY BE FROM 1 TO 6 SPACES"
40 P."SOME SPACES WILL SEND YOU FORWARD, OTHERS"
45 P."BACKWARD. THE SPACE VALUE IS THE SAME FOR
BOTH"
50 P."PLAYERS. THE FIRST TO LAND ON POSITION 100 WINS."
55 F.X=1 TO 100; Y=RND(13)-7; A(X)=Y; N.X: A(1)=0
60 F.X=1 TO 20; Y=RND(130); A(Y)=0; N.X: A(100)=0
65 A=1; B=1
70 T=RND(2)
75 IF T=2 G.120
80 GOS. 150
85 GOS. 170
90 A=A+M
95 C=A
100 GOS. 150
105 GOS. 200
110 A=A+M
115 GOS. 150
120 GOS. 160
125 GOS. 170
130 B=B+M; C=B: GOS. 160
135 GOS. 200
140 B=B+M: GOS. 160: G.85
150 P.A$; "IS AT SPACE "; A
155 G.255
160 P.B$; "IS AT SPACE "; B
165 G.255
170 IN."YOUR MOVE"; M
175 M=INT(M): IF M<1 G.170
180 IF M>6 G.170
185 RET.
200 F.X=1 TO 470: N.X
205 M=A(C)
210 IF M=0 G.235
215 IF M<0 G.240
220 P."MOVE AHEAD "; M; " SPACES"
225 F.X=1 TO 470: N.X: P.
230 RET.
235 P."BLANK SPACE"; G.225
240 N=-M
245 P."MOVE BACK "; N; " SPACES"
250 G.225
255 IF A>100 THEN A=A-100
260 IF A=100 G.280
262  IF A<1 THEN A=1
265  IF B>100 THEN B=B-100
267  IF B=100 G-285
270  IF B<1 THEN B=1
275  RET.
280  P.A$; G.290
285  P.B$;
290  P."WINS!"
295  END

Summary Of Variables Used
A$  PLAYER #1
B$  PLAYER #2
A  PLAYER #1'S SPACE
B  PLAYER #2'S SPACE
C  INTERMEDIATE SPACE
M  MOVE
N  BACKWARD MOVE
T  TURN COUNTER
X  TIMING
Y  VALUE SETTING

Sample Run (Excerpt)
JOE IS AT SPACE #6
YOUR MOVE? 5
JOE IS AT SPACE #11
BLANK SPACE
JOE IS AT SPACE #11
BILL IS AT SPACE #8
YOUR MOVE? 4
BILL IS AT SPACE #12
MOVE AHEAD 6 SPACES
BILL IS AT SPACE #18
JOE IS AT SPACE #11
YOUR MOVE? 6
JOE IS AT SPACE #17
MOVE BACK 2 SPACES
JOE IS AT SPACE #15
BILL IS AT SPACE #18
YOUR MOVE? 4
BILL IS AT SPACE #22
MOVE AHEAD 2 SPACES
BILL IS AT SPACE #24
JOE IS AT SPACE #15
Passing Points

In this game the players are on a circular “board” of 25 spaces. Each move can be from 1 to 5 spaces. After passing space #25, the players loop back around to space #1 again. Each space has a point value from −10 to +10. Before the computer reveals the point value of the space, you have the option of either keeping the points yourself or passing them over to your opponent. Obviously, the way to win this game is to remember as many space values from previous laps that you can (taking notes is cheating). Whoever reaches 100 points first, wins. Conversely, if a player reaches −100 points, he or she loses.

The strategy in this game is in deciding whether to go for negative points to hurt your opponent, or positive points to help yourself. See Fig. 2-2 for the flowchart.

Standard BASIC

5 PRINT:PRINT
7 DIM A(25)
10 PRINT“, “PASSING POINTS”
15 PRINT“ENTER 1 FOR INSTRUCTIONS OR 0 TO PLAY”
17 INPUT X
20 IF X>0 THEN GOTO 350
25 REM* SET SPACE VALUES*
30 FOR X=1 TO 25
35 LET Y=INT(RND(0)*21)−10
40 LET A(X)=Y
45 NEXT X
50 LET A=1:LET B=1
55 LET C=0:LET D=0
60 PRINT“PLAYER #1”;;
62 INPUT A$;
65 PRINT“PLAYER #2”;;
67 INPUT B$;
70 REM* PLAYER #1’S TURN*
75 GOSUB 200
80 PRINT A$;
85 GOSUB 250
90 LET A=A+M
95 IF A>25 THEN LET A=A−25
100 PRINT“SPACE #”;A
105 LET J=A(A)
110 GOSUB 300
115 IF G=1 THEN LET D=D+J

141
120  IF G=2 THEN LET C=C+J
125  REM*PLAYER #2'S TURN*
130  GOSUB 200
135  PRINT B$;
140  GOSUB 250
145  LET B=B+M
150  IF B>25 THEN LET B=B-25
155  PRINT "SPACE "; B
160  LET J=A(B)
165  GOSUB 300
170  IF G=1 THEN LET C=C+J
175  IF G=2 THEN LET D=D+J
180  GOTO 70
200  FOR X=1 TO 30
205  PRINT: NEXT X
210  PRINT "PLAYER", A$, B$
215  PRINT "SPACE", A, B
220  PRINT "SCORE", C, D
225  PRINT
230  IF C<-99 THEN GOTO 405
235  IF D<-99 THEN GOTO 415
240  RETURN
250  PRINT "YOUR MOVE";
255  INPUT M
260  REM*VALIDITY CHECK*
265  LET M=INT(M)
270  IF M<1 THEN GOTO 250
275  IF M>5 THEN GOTO 250
280  FOR X=1 TO 333
285  NEXT X
290  RETURN
300  REM*THE CHOICE*
305  PRINT "ENTER 1 TO PASS THE POINTS."
310  PRINT "ENTER 2 TO KEEP THE POINTS."
315  INPUT G
320  IF G=1 THEN 335
325  IF G=2 THEN GOTO 335
330  GOTO 310
335  FOR X=1 TO 400: NEXT X
340  PRINT "VALUE "; J
345  RETURN
350  PRINT "", "INSTRUCTIONS"
355  PRINT "YOU ARE ON A CIRCULAR PATH OF 25 SPACES"
360  PRINT "EACH SPACE HAS A VALUE FROM -10 TO +10."
Fig. 2-2. Flowchart for Passing Points.
PRINT "YOU CAN CHOOSE TO KEEP THE POINTS OR PASS"
PRINT "THEM TO YOUR OPPONENT. THE GAME IS OVER"
PRINT "WHEN EITHER PLAYER REACHES 100 OR – 100."
PRINT "THE OBJECT IS TO REMEMBER AS MANY SPACE"
PRINT "VALUES AS POSSIBLE SO YOU CAN KNOW WHAT"
PRINT "TO CHOOSE. IT'S CHEATING TO KEEP NOTES"
PRINT "PRESS 'ENTER' TO PLAY."
INPUT A$
GOTO 25
PRINT B$
GOTO 420
PRINT A$
PRINT " WINS!"
END

TRI-80 BASIC

10 P.:P.:P." ","PASSING POINTS":P.
15 IN."ENTER 1 FOR INSTRUCTIONS OR 0 TO PLAY";X
20 IF X>0 G. 350
25 F.X=1TO25;Y=RND(21)-11
30 A(X)=Y:N.X
35 A=1:B=1:C=0:D=0
40 IN."PLAYER #1";A$
45 IN."PLAYER #2";B$
70 GOS.200
75 P.A$
80 GOS.250
85 A=A+M
90 IF A>25 THEN A=A-25
95 P."SPACE # \";A
100 J=A(A)
105 GOS.300
110 IF G=1 THEN D=D+J
115 IF G=2 THEN C=C+J
120 GOS.200
125 P.B$
130 GOS. 250
135 B=B+M
140 IF B>25 THEN B=B-25
145 P."SPACE # \";B
150 J=A(B)
155 GOS.300
160 IF G=1 THEN C=C+J
165 IF G=2 THEN D=D+J
170 G.70
200 CLS:P."PLAYER",A$,B$
205  P."SPACE",A,B
210  P."SCORE",C,D:P.
215  IF C<=-99 G.405
220  IF D<=-99 G.415
225  IF C>99 G.415
230  IF D> 99 G. 405
235  RET.
250  IN."YOUR MOVE";M
255  M=INT(M)
260  IF M<1 G.250
265  IF M>5 G. 250
270  F.X=1TO333:N.X.
275  RET.
300  P."ENTER 1 TO PASS THE POINTS."
305  IN. "ENTER 2 TO KEEP THE POINTS."; G
310  IF G=1 G.325
315  IF G=2 G.325
320  G.305
325  F.X=1TO400:N.X
330  P."VALUE =";J
335  RET.
350  P."","INSTRUCTIONS"
355  P."YOU ARE ON A CIRCULAR PATH OF 25 SPACES."
360  P."EACH SPACE HAS A VALUE FROM –10 TO +10."
365  P."YOU CAN CHOOSE TO KEEP THE POINTS OR PASS"
370  P."THEM TO YOUR OPPONENT. THE GAME IS OVER"
375  P."WHEN EITHER PLAYER REACHES 100 OR –100"
380  P."POINTS. THE OBJECT IS TO REMEMBER AS MANY"
385  P."SPACE VALUES AS POSSIBLE SO YOU CAN KNOW"
390  P."WHAT TO CHOOSE. IT'S CHEATING TO KEEP"
395  P."NOTES. PRESS 'ENTER' TO PLAY."
400  IN.A$:G.25
405  P.B$;
410  G.420
415  P.A$
420  P."WINS!"
425  END

Summary of Variables Used

A$  PLAYER #1
B$  PLAYER #2
A   PLAYER #1'S SPACE
B   PLAYER #2'S SPACE
C   PLAYER #1'S SCORE
D   PLAYER #2'S SCORE
G   PASS OPTION
J SPACE VALUE
K KEEP (=2)
M MOVE
P PASS (=1)
X TIMING
Y VALUE SETTING

Sample Run (Excerpt)

PASSING POINTS
ENTER 1 FOR INSTRUCTIONS OR 0 TO PLAY ?0
PLAYER #1? JOE
PLAYER #2? BILL
PLAYER JOE BILL
SPACE 1 1
SCORE 0 0
JOE YOUR MOVE? 5
SPACE #6
PASS IT OR KEEP IT? KEEP
VALUE =6
PLAYER JOE BILL
SPACE 6 1
SCORE 6 0
BILL YOUR MOVE? 4
SPACE #5
PASS IT OR KEEP IT? KEEP
VALUE =-10
PLAYER JOE BILL
SPACE 6 5
SCORE 6 -10
JOE YOUR MOVE? 5
SPACE #11
PASS IT OR KEEP IT? PASS
VALUE = 4
PLAYER JOE BILL
SPACE 11 5
SCORE 6 -6
Money Mad

The object in *Money Mad* is to make as much money off your "investments" as possible. Each player starts out with $10,000. The first player to double that amount wins. Conversely, the first player to squander down to a net value of $1000, or cash holdings of less than $500, loses.

On each turn you can buy any of six offered stocks. By watching the way their values fluctuate on each report, you can try to determine which stocks are the most valuable. Remember though, the stocks which gain the greatest amounts can also lose the greatest amounts. Sometimes a stock's value may go negative. A player could cheat by buying up a few hundred shares of a negative stock to increase cash holdings. If you want to prevent this you can add the following step:

242 IF Q<0 THEN GOTO 255
The TRS-80 version would read—
242 IF Q<0 G. 250

Rather than buying one of the established stocks, the players can choose to invest in an "independent venture". This is a one-shot deal that affects only the player's cash, not his stockholdings. The player can invest as much as he wants (provided, of course, he has the cash to pay for it). He can gain up to 100% of his investment, or he can lose up to 100%. For example, let's assume the player has $10,000, and invests $1000. If his investment gains 100% he'll end up with $11,000—if it loses 100% he'll only have $8000. Usually, of course, it will be somewhere between the extremes, but the loss or gain is entirely random.

All in all, this game is designed to be fairly unpredictable, but not pure chance. Strategy can be used to your advantage. At any rate, the result is a game that's almost as screwy as the "real" world of big finance.

**Standard BASIC**

```basic
5 PRINT:PRINT:PRINT
7 PRINT"",""MONEY MAD"
10 PRINT
12 LET A(70)=0
14 PRINT"TYCOON #1";
16 INPUT A$
18 PRINT"TYCOON #2";
```
20 INPUT B$
22 LET X=10000: LET U=0
24 LET Y=10000: LET V=0
26 FOR Z=1 TO 20
28 LET A(Z)=0: NEXT Z
30 LET A=INT(RND(0)*500)+1
32 LET B=INT(RND(0)*500)+1
34 LET C=INT(RND(0)*500)+1
36 LET D=INT(RND(0)*500)+1
38 LET E=INT(RND(0)*500)+1
40 LET F=INT(RND(0)*500)+1
42 PRINT“YOU EACH START OUT WITH $10,000”
44 PRINT“THE FOLLOWINGStocks ARE AVAILABLE”
46 GOSUB 370
48 LET G=INT(RND(0)*100)/100
50 LET H=INT(RND(0)*100)/100
52 LET I=INT(RND(0)*100)/100
54 LET J=INT(RND(0)*100)/100
56 LET K=INT(RND(0)*100)/100
58 LET L=INT(RND(0)*100)/100
60 FOR Z=1 to 666: NEXT Z
65 PRINT“NEXT REPORT”
70 GOSUB 300
75 PRINT“TYCOON”, “CASH, “STOCKHOLDINGS”
80 PRINTA$, X, U
82 PRINT B$, Y, V
85 GOSUB 260
90 PRINT A$: “WHAT WILL YOU INVEST IN?”
92 LET A(23)=1
95 GOSUB 195
100 IF T>X GOTO 410
105 LET R=A(M)
107 LET X=X-T
110 LET R=R+S
112 LET A(M)=R
115 PRINT B$: “WHAT WILL YOU INVEST IN?”
117 LET A(23)=2
120 GOSUB 195
122 IF T>Y THEN GOTO 410
125 LET M=M+10
127 LET R=A(M): LET Y=Y-T
130 LET R=R+S
132 LET A(M)=R
135 GOTO 60
140 PRINT “AMOUNT INVESTED”
142 INPUT T
144 LET S=0
146 LET M=0
148 LET N=INT(RND(0)*200)-99
150 FOR Z=1 TO 55: NEXT Z
152 IF A(23)=2 THEN GOTO 175
155 IF T>X THEN GOTO 410
160 PRINT"PAYOFF IS ";N;"%"
162 LET X=X-T
164 LET N=N/100: LET T=T+(T*N)
166 LET X=X+T
168 LET T=0
170 RETURN
175 IF T>Y THEN GOTO 410
180 PRINT"PAYOFF IS ";N;"%"
182 LET Y=Y-T
184 LET N=N/100
186 LET T=T+(T*N)
188 LET Y=Y+T
190 LET T=0
192 RETURN
195 PRINT"(ENTER 1-7) ";
197 INPUT M
200 LET M=INT(M)
202 IF M<1 THEN GOTO 195
205 IF M>7 THEN GOTO 195
210 IF M=1 THEN LET Q=A
215 IF M=2 THEN LET Q=B
220 IF M=3 THEN LET Q=C
225 IF M=4 THEN LET Q=D
230 IF M=5 THEN LET Q=E
235 IF M=6 THEN LET Q=F
237 REM* M=7 IS FOR INDEPENDENT VENTURES*
240 IF M=7 THEN GOTO 140
245 PRINT" # OF SHARES ";
247 INPUT S
250 LET T=S*Q
252 PRINT"TOTAL COST = ";T
255 RETURN
260 LET M=X+U: LET N=Y+V
262 IF X<500 THEN GOTO 505
263 IF Y<500 THEN GOTO 505
265 IF M<1000 THEN GOTO 290
270 IF N<1000 THEN GOTO 420
275 IF M>20000 THEN GOTO 445
280 IF N>20000 THEN GOTO 430
285 RETURN
PRINT A$;" IS BANKRUPT"
END
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET A=A+(A*S*(G+R/170))
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET B=B+(B*S*(H+R/174))
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET C=C+(C*S*(I+R/170))
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET D=D+(D*S*(J+R/171))
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET E=E+(E*S*(K+R/171))
LET S=1:LET R=INT(RND(0)*5)+1
IF R>3 THEN LET S=-1
LET F=F+(F*S*(L+R/171))
LET U=(A(1)*A)+(A(2)*B)+(A(3)*C)+(A(4)*D)
LET U=U+(A(5)*E)+(A(6)*F)
LET V=(A(11)*A)+(A(12)*B)+(A(13)*C)+(A(14)*D)
LET V=V+(A(15)*E)+(A(16)*F)
PRINT"#1 ALLWEED ACRES","$";A
PRINT"#2 BURNT BAKERIES","$";B
PRINT"#3 CRUMBLED COMMUNICATIONS","$";C
PRINT"#4 DENTED DESKS, INC.","$";D
PRINT"#5 ELONGATED ENTERPRISES","$";E
PRINT"#6 FIZZLED FINANCE","$";F
PRINT"#7 INDEPENDENT VENTURES","?"
RETURN
PRINT"YOU HAVE OVER-INVESTED! YOU CAN'T AFFORD"
PRINT"IT! YOU loose"
END
PRINTB$:" IS BANKRUPT"
END
PRINT B$:" HAS DOUBLED HIS FORTUNE!"
PRINT" A FINANCIAL WIZARD!"
END
IF N>20000 THEN GOTO 460
PRINT A$:" HAS DOUBLED HIS FORTUNE!"
GOTO 435
PRINT"YOU HAVE BOTH DOUBLED YOUR FORTUNES!"
IF N>M THEN GOTO 485
IF M>N THEN GOTO 495
150
475 PRINT "IN AN EXACT TIE?!"
480 END
485 PRINT "BUT"; B$; "IS RICHER THAN"; A$
490 END
495 PRINT "BUT"; A$; "IS RICHER THAN"; B$
500 END
505 PRINT "TYCOON", "CASH", "HOLDINGS", "TOTAL ASSETS"
510 PRINT A$, X, U, M
515 PRINT B$, Y, V, N
520 IF M=N THEN PRINT "TIE—NO ONE";
525 IF M>N THEN PRINT A$;
530 IF N>M THEN PRINT B$;
535 PRINT "WINS!"
540 END

**TRS-80 BASIC**

10 CLS:P:P:"","MONEY MAD";P:.X=10000;Y=10000
15 IN."TYCOON #1";A$:IN."TYCOON #2"B$:A(70)=0
20 F.Z=1TO20:A(Z)=0:N.Z:A=RND(500);B=RND(500):C=RND(500)
25 D=RND(500);E=RND(500);F=RND(500);G=RND(100)/100
30 P."YOU EACH START OUT WITH $10,000";H=RND(100)/100
35 P."THE FOLLOWING STOCKS ARE AVAILABLE:";GOS.370
40 I=RND(100)/100;J=RND(100)/100;K=RND(100)/100;
   L=RND(100)/100
60 F.Z=1TO666:N.Z:P."NEXT REPORT";GOS.300
65 P."TYCOON", "CASH", "STOCKHOLDINGS"
70 P.A$,X,U:P.B$,Y,V;GOS.260;A(23)=1
75 P.A$;"WHAT WILL YOU INVEST IN?";GOS.195
80 IF T>X.G.410
85 R=A(M):X=X-T;R=R+S;A(M)=R:A(23)=2
90 P.B$;"WHAT WILL YOU INVEST IN?";GOS.195
95 IF T>Y.G.410
100 M=M+10;R=A(M):Y=Y-T;R=R+S;A(M)=R;G.60
140 IN."AMOUNT INVESTED";T:M>2:N=RND(200)-100;S=Q
145 F.Z=1TO555:N.Z:IFA(23)=2G.175
150 IF T>X.G.410
155 P."PAYOFF IS";N;"%":X=X-T;N=N/100:T=T+(T*N)
160 X=X+T:T=0:RET.
175 IF T>Y.G.410
180 P."PAYOFF IS";N;"%":Y=Y-T;N=N/100:T=T+(T*N)
185 Y=Y+T:T=0:RET.
195 IN."(ENTER 1 - 7)";M:M=INT(M)
200 IF M<1 GOTO 195
205 IF M>7 GOTO 195
210 IF M=1 GOTO 195
215 IF M=2 THENQ=A
220 IF M=3 THENQ=B
225 IFM=4 THENQ=C

151
225 IFM=4THENQ=D
230 IFM=5THENQ=E
235 IFM=6THENQ=F
240 IFM=7G.140
245 IN."# OF SHARES";S:T=S*Q:P."TOTAL COST = $";T
250 RET.
260 M=X+U:N=Y+V:IF X<500 G.505
262 IF Y>500 G.505
265 IF M<1000 G.290
270 IF N<1000 G.290
275 IF M>20000 G.445
280 IF N>20000 G.430
285 RET.
290 P.A$;" IS BANKRUPT";END
300 S=1:R=RND(5):IF R>3 THEN S=-1
305 A=A+(A*S*(G+R/170)):S=1:R=RND(5): IF R>3 THEN S=-1
310 B=B+(B*S*(H+R/170)):S=1:R=RND(5):IF R>3 THEN S=-1
315 C=C+(C*S*(I+R/170)):S=1:R=RND(5):IF R>3 THEN S=-1
320 D=D+(D*S*(J+R/170)):S=1:R=RND(5):IF R>3 THEN S=-1
325 E=E+(E*S*(K+R/170)):S=1:R=RND(5):IF R>3 THEN S=-1
330 F=F+(F*S*(L+R/1.7))
360 U=(A(1)*A)+(A(2)*B)+(A(3)*C)+(A(4)*D)+(A(5)*E)+(A(6)*F)
365 V=(A(11)*A)+(A(12)*B)+(A(13)*C)+(A(14)*D)+(A(15)*E)+(A(16)*F)
370 P."#1 ALLWEED ACRES","$";A.P."#2 BURNT BAKERY";","$";B
375 P."#3 CRUMBLING COMMUNICATIONS","$";C.P."#4 DENTED DESKS, INC.";
380 P."$";D.P."#5 ELONGATED ENTERPRISES","$";E
385 P."#6 FIZZLED FINANCE","$";F.P."#7 INDEPENDENT VENTURES","?"
390 RET.
410 P."YOU HAVE OVER-INVESTED! YOU CAN'T AFFORD IT"
415 P."YOU LOSE!";END
420 P.B$;"IS BANKRUPT";END
430 P.B$;"HAS DOUBLED HIS FORTUNE!"
435 P."A FINANCIAL WIZARD!";END
445 IF N>20000 G.460
450 P.A$;"HAS DOUBLED HIS FORTUNE!":G.435
460 P."YOU HAVE BOTH DOUBLED YOUR FORTUNES!":IF N>M G.485
465 IF M>N G.495
470 P."IN AN EXACT TIE!";END
485 P."BUT";B$;"IS RICHER THAN";A$;END
495 P."BUT";A$;"IS RICHER THAN";B$;END
505 P."TYCOON", "CASH", "STOCKHOLDINGS", "TOTAL ASSETS"
IF M>N P.A$;
IF M<N P.B$;
P."WINS!":END

**Money Mad**

A$ TYCOON #1
B$ TYCOON #2
A ALLWEED ACRES * STOCK VALUE
B BURNT BAKERIES * STOCK VALUE
C CRUMBLED COMMUNICATIONS * STOCK VALUE
D DENTED DESKS, INC * STOCK VALUE
E ELONGATED ENTERPRISES * STOCK VALUE
F FIZZLED FINANCE * STOCK VALUE
G ALLWEED ACRES * GROWTH PERCENTAGE
H BURNT BAKERIES * GROWTH PERCENTAGE
I CRUMBLED COMMUNICATIONS * GROWTH PERCENTAGE
J DENTED DESKS, INC * GROWTH PERCENTAGE
K ELONGATED ENTERPRISES * GROWTH PERCENTAGE
L FIZZLED FINANCE * GROWTH PERCENTAGE
M INVESTMENT CHOICE/TYCOON #1's TOTAL WORTH
N TYCOON #2's TOTAL WORTH
Q VARIOUS CALCULATIONS
R VARIOUS CALCULATIONS
S VARIOUS CALCULATIONS
T AMOUNT INVESTED
U TYCOON #1'S STOCKHOLDINGS
V TYCOON #2'S STOCKHOLDINGS
X TYCOON #1'S MONEY
Y TYCOON #2'S MONEY

**Sample Run (Excerpt)**

MONEY MAD
TYCOON #1  ?JOE
TYCOON #2  ?BILL
YOU EACH START OUT WITH $10000
THE FOLLOWING STOCKS ARE AVAILABLE
#1 ALLWEED ACRES  $376
#2 BURNT BAKERIES  $452
#3 CRUMBLED COMMUNICATIONS  $165
#4 DENTED DESKS, INC.  $200
#5 ELONGATED ENTERPRISES  $419
#6 FIZZLED FINANCE  $68
#7 INDEPENDENT VENTURES  ?
NEXT REPORT
#1 ALLWEED ACRES  $454.5712
#2 BURNT BAKERIES $880.3152
#3 CRUMBLED COMMUNICATIONS $221.9725
#4 DENTED DESKS, INC. $98.94
#5 ELONGATED ENTERPRISES $145.4349
#6 FIZZLED FINANCE $110.6768
#7 INDEPENDENT VENTURES ?

TYCOON CASH STOCKHOLDINGS
JOE 10000 0
BILL 10000 0

JOE WHAT WILL YOU INVEST IN?
(ENTER 1-7) ?1
# OF SHARES? 10
TOTAL COST = $4544.712
BILL WHAT WILL YOU INVEST IN?
(ENTER 1-7) ?2
# OF SHARES? 5
TOTAL COST = $4401.576

NEXT REPORT
#2 BURNT BAKERIES $279.3634
# BURNT BAKERIES $1662.6513
#3 CRUMBLED COMMUNICATIONS $390.4039
#4 DENTED DESKS, INC. $137.3124
#5 ELONGATED ENTERPRISES $59.1164
#6 FIZZLED FINANCE $180.3404
#7 INDEPENDENT VENTURES ?

TYCOON CASH STOCKHOLDINGS
JOE 5455.288 2793.634
BILL 5598.424 8313.2565

JOE WHAT WILL YOU INVEST IN?
(ENTER 1-7) ?7
AMOUNT INVESTED? 2000
PAYOFF IS 58%
BILL WHAT WILL YOU INVEST IN?
(ENTER 1-7) ?7
AMOUNT INVESTED? 3000
PAYOFF IS -12%

NEXT REPORT

#***#

TYCOON CASH STOCKHOLDINGS
JOE 6615.288 2542.814
BILL 5598.424 -504.59

(NOTE — It looks like BILL's in trouble)
Gambling Boxes

In this game, each of the two players starts out with $10. The first player to gather more than $500 wins the game.

On each round the players are offered three mystery boxes labeled X, Y, and Z that can multiply their fortunes (the computer randomly selects one of the players to go first each round). The maximum values for each is explained in the program instructions. Notice that, while X can have the greatest multiplier value, it can also have the greatest tax rate. Box Z can thus conceivably be worth more than box X. This, of course, is the gambling aspect of the game.

On each round any given box may be selected only once. For example, if Player #1 takes box X, Player #2 is limited to choosing box Y or box Z. See Fig. 2-3 for the flowchart.

**Standard BASIC**

```
5  PRINT:PRINT:PRINT:PRINT
7  PRINT"","GAMBLING BOXES":PRINT
10 LET A=10:LET B=10
12 LET X=17:LET Y=19:LET Z=23
15 PRINT"PLAYER #1";
17 INPUT A$
20 PRINT"PLAYER #2";
22 INPUT B$
25 PRINT"EACH X BOX CAN MULTIPLY YOUR FORTUNE BY"
27 PRINT"UP TO 10, WITH UP TO 75% TAXES. EACH"
30 PRINT"Y BOX CAN MULTIPLY BY UP TO 5 WITH TAXES"
32 PRINT"UP TO 50%. Z CAN MULTIPLY UP TO 2 WITH"
35 PRINT"NO MORE THAN 25% TAXES."
45 LET P=INT(RND(0)*2)+1
47 LET M=INT(RND(0)*100)+1
50 LET N=INT(RND(0)*50)+1
52 LET Q=INT(RND(0)*20)+1
55 LET M=M/10:LET N=N/10:LET Q=Q/10
57 LET R=INT(RND(0)*75)+1
60 LET S=INT(RND(0)*50)+1
62 LET T=INT(RND(0)*25)+1
64 IF P=1 THEN GOTO 100
66 LET C=0:GOSUB 200
68 GOSUB 320
70 IF A>500 THEN GOTO 150
75 IF B>500 THEN GOTO 160
80 PRINT"NEXT ROUND"
```
85  GOTO 45
100  LET D = 0
105  GOSUB 320
110  GOSUB 200
115  GOTO 70
150  PRINT A$; " WINS! "
155  END
160  PRINT B$; " WINS! "
165  END
200  PRINT B$; " , WHAT BOX WILL YOU TAKE ";
205  INPUT D
210  IF D = C THEN GOTO 235
215  IF D = X THEN GOTO 245
220  IF D = Y THEN GOTO 265
225  IF D = Z THEN GOTO 275
230  GOTO 200
235  PRINT A$; " ALREADY TOOK THAT BOX "
240  GOTO 200
245  LET E = B * M: LET F = E + (R / 100)
247  LET H = R: LET B = E - F: LET L = B
250  PRINT " VALUE IS \$ "; E
255  PRINT " TAXES = "; H; "\%"
257  PRINT " YOU NOW HAVE \$ "; L
260  RETURN
265  LET E = B * N: LET F = E * (S / 100)
267  LET B = E - F: LET H = S: LET L = B
270  GOTO 250
275  LET E = B * Q: LET F = E * (T / 100)
277  LET B = E - F: LET H = T: LET L = B
280  GOTO 250
285  LET E = A * M: LET F = E * (R / 100)
287  LET A = E - F: LET H = R: LET L = A
290  GOTO 250
295  LET E = A * N: LET F = E * (S / 100)
297  LET A = E - F: LET H = S: LET L = A
300  GOTO 250
305  LET E = A * Q: LET F = E * (T / 100)
307  LET A = E - F: LET H = T: LET L = A
310  GOTO 250
320  PRINT A$; " WHAT BOX WILL YOU TAKE ";
325  INPUT C
330  IF C = D THEN GOTO 355
335  IF C = X THEN GOTO 285
340  IF C = Y THEN GOTO 295
345  IF C = Z THEN GOTO 305
350  GOTO 320

156
Fig. 2-3. Flowchart for Gambling Boxes.
CLS: P., "GAMBLING BOXES": P.
A=10:B=10:X=17:Y=19:Z=23
IN. "PLAYER #1": A$: IN. "PLAYER #2": B$
P., "EACH X BOX CAN MULTIPLY YOUR FORTUNE BY"
P., "UP TO 10, WITH UP TO 75% TAXES. EACH"
P., "Y BOX CAN MULTIPLY BY UP TO 5 WITH TAXES"
P., "UP TO 50%. Z CAN MULTIPLY UP TO 2 WITH"
P., "NO MORE THAN 25% TAXES."
P=RND(2): M=RND(100): 10: N=RND(50)/10
Q=RND(20)/10: R=RND(75): S=RND(50): T=RND(25)
IF P=1 G. 100
C=0: GOS. 200
GOS. 320
IF A>500 G. 150
IF B>500 G. 160
P., "NEXT ROUND": G. 45
D=0: GOS. 320
GOS. 200
G. 70
P. A$: "WINS!"
END
P. B$: "WINS!"
END
P. B$: ", WHAT BOX WILL YOU TAKE?"
IN. D
IF D=C G. 235
IF D=X G. 245
IF D=Y G. 265
IF D=Z G. 275
G. 200
P. A$: "ALREADY TOOK THAT BOX"
G. 200
E=B*M: F=E+(R/100): H=R: B=E-F: L=B
P., "VALUE IS $": E
P., "TAXES = ": H; "%"
P., "YOU NOW HAVE $": L
RET.
E=B*N: F=E*(S/100): H=S: B=E-F: L=B
G. 250
E=B*Q: F=E*(T/100): H=T: B=E-F: L=B
G. 250
290 G.250
300 G.250
305 E=A*Q:F=E*(T/100):A=E-F:H=T:L=A
310 G.250
320 P.A$: "WHAT BOX WILL YOU TAKE"
325 IN.C
330 IF C=D G.355
335 IF C=X G.285
340 IF C=Y G.295
345 IF C=Z G.305
350 G.320
355 P.B$: "ALREADY TOOK THAT BOX"
360 G.320

**Summary of Variables Used**

A$ PLAYER #1
B$ PLAYER #2
A A$ SCORE
B B$ SCORE
C A$ BOX CHOICE
D B$ BOX CHOICE
E BOX VALUE
F TAXES
H TAX PERCENTAGE
L CURRENT SCORE
M BOX 1 MULTIPLIER
N BOX 2 MULTIPLIER
P PLAYER SELECT
Q BOX 3 MULTIPLIER
R BOX 1 TAX
S BOX 2 TAX
T BOX 3 TAX
X BOX 1
Y BOX 2
Z BOX 3

**Sample Run (Excerpt)**

GAMBLING BOXES

PLAYER #1? HOMER
PLAYER #2? JETHRO
EACH X BOX CAN MULTIPLY YOUR FORTUNE BY UP TO 10, WITH UP TO 75% TAXES. EACH Y BOX CAN MULTIPLY BY UP TO 5 WITH TAXES
UP TO 50%. Z CAN MULTIPLY UP TO 2 WITH NO MORE THAN 25% TAXES.
HOMER, WHAT BOX WILL YOU TAKE? X
VALUE IS $73
TAXES = 38%
YOU NOW HAVE 45.26
JETHRO, WHAT BOX WILL YOU TAKE? X
HOMER ALREADY TOOK THAT BOX
JETHRO, WHAT BOX WILL YOU TAKE? Y
VALUE IS $21
TAXES = 42%
YOU NOW HAVE $12.18
NEXT ROUND
JETHRO, WHAT BOX WILL YOU TAKE? X
VALUE IS $101.094
TAXES = 50%
YOU NOW HAVE $50.547
HOMER, WHAT BOX WILL YOU TAKE? Z
VALUE IS $54.312
TAXES = 11%
YOU NOW HAVE $48.33768
NEXT ROUND
JETHRO, WHAT BOX WILL YOU TAKE? X
VALUE IS $121.3128
TAXES = 65%
YOU NOW HAVE $78.85332
HOMER, WHAT BOX WILL YOU TAKE? Y
VALUE IS $145.01304
TAXES = 7%
YOU NOW HAVE $134.8621272
NEXT ROUND
Stack Cut

In this game, the computer shuffles a deck of cards. The suits are ignored: only the numerical values are counted. Aces count as one, Jacks as 11, Queens as 12, and Kings as 13. There are also two jokers in the deck which each count as −35.

The players take turns cutting the stack of cards. A player may cut from one to ten cards; then the value of the top card is added to that player’s score. When the deck runs out of cards, the computer starts over at the beginning of the deck. The cards all retain the same positions throughout the game, and can be played more than once, so the position of certain cards can be memorized. For an even more difficult version of the game eliminate step 330, which displays the card’s positional number.

As the program is written, each player cuts the stack 35 times, then the game is ended and the winner is declared. You can vary the number of turns in a game by changing step 205. The more turns there are, the more times the players will go through the deck, turning Stack Cut into more of a game of memory and strategy than chance. The first few passes through the deck are inevitably played as pure chance. See Fig. 2-4 for the flowchart.

Standard BASIC

10 FOR X=1 TO 54
15 LET A(X)=0
20 PRINT
25 NEXT X
30 PRINT "", "STACK CUT"
35 LET X=INT (RND(0)*54)+1
40 LET A(X)=-35
45 LET X=INT (RND(0)*54)+1
50 IF A(X)<0 THEN GOTO 45
55 LET A(X)=-35
60 PRINT "NAME OF PLAYER #1";
65 INPUT A$
70 GOSUB 450
72 GOSUB 450
74 LET T=0.5
76 LET A=0
78 LET B=0
80 LET F=1
82 LET C=INT (RND(0)*2)+1
85 PRINT "NAME OF PLAYER #2";
90 INPUT B$
95 GOSUB 450
100 LET X=1
105 FOR Y=1TO13:FOR Z=1TO4
110 IF A(X)=0 THEN GOTO 125
115 LET X=INT(RND(0)*54)+1
120 GOTO 110
125 LET A(X)=Y
130 PRINT:NEXTZ
135 NEXT Y
140 IF C=2 THEN GOTO 180
150 GOSUB 200
155 PRINTA$;
160 GOSUB 300
165 LET A=A+Q
170 LET C=2
180 GOSUB 200
182 PRINT B$;
184 GOSUB 300
186 LET B=B+Q
188 LET C=1
190 GOTO 150
200 LET T=T+0.5
202 LET S=INT(T)
205 IF S>35 THEN GOTO 235
207 PRINT "TURN "; S
210 PRINT
215 PRINT "SCORE TO DATE"
220 PRINT " ";A$,B$
222 PRINT " ";A,B
225 PRINT
227 PRINT
230 RETURN
235 PRINT "GAME IS OVER"
237 PRINT
240 FOR X=1TO 555
242 NEXT X
245 PRINT "FINAL SCORE"
250 PRINT " ";A$,B$
255 PRINT " ";A,B
260 IF A=B THEN GOTO 280
265 IF A>B THEN PRINT A$;
270 IF A<B THEN PRINT B$;
275 PRINT " WINS!"
277 END
280 PRINT "HOW ABOUT THAT?! ** A TIE!"
285 END
300 PRINT ", YOUR CUT";
Fig. 2-4. Flowchart for Stack Cut.
302 INPUT D
305 LET D=INT(D)
310 IF D>10 THEN GOTO 420
315 IF D<1 THEN GOTO 420
320 LET F=F+D
322 FOR X=1 TO 470
324 NEXT X
326 IF F>54 THEN LET F=F-54
330 PRINT "CARD "; E
335 PRINT "YOU DREW --- ";
337 LET Q=A(F)
340 FOR X=1 TO 333
342 NEXT X
345 IF Q>10 THEN GOTO 400
350 IF Q<2 THEN GOTO 360
352 PRINT Q
355 RETURN
360 IF Q=-35 THEN GOTO 375
365 PRINT "ACE"
370 RETURN
375 PRINT "JOKER!"
377 FOR X=1 TO 370
380 NEXT X
382 LET G=INT(RND(0)*30)+4
385 FOR X=1 TO G
387 LET Z=INT(RND(0)*1047)+1
390 PRINT AT Z, " HA! ";
392 FOR Y=1 TO 75
394 NEXT Y
396 NEXT X
398 RETURN
400 IF Q=11 THEN PRINT "JACK"
405 IF Q=12 THEN PRINT "QUEEN"
410 IF Q=13 THEN PRINT "KING"
415 RETURN
420 PRINT "PLEASE DO NOT CHEAT, ";
425 IF C=1 THEN PRINT A$
430 IF C=2 THEN PRINT B$
435 GOTO 300
450 FOR X=1 TO 13
455 LET Y=INT(RND(0)*54)+1
460 IF A(Y)=0 THEN GOTO 470
465 GOTO 455
470 LET A(Y)=X
475 NEXT X
480 RETURN

164
CLS
F.X=1TO54:A(X)=0:N.X
P.:P."","STACK CUT";P.
X=RND(54)
A(X)=−35
X=RND(54)
IF A(X)<0 G.35
A(X)=−35
IN."NAME OF PLAYER #1";A$
GOS.450
GOS.450
T=0.5:F=1
A=0:B=0
C=RND(2)
IN."NAME OF PLAYER #2";B$
GOS.450
X=1
P.Y=1TO13:F.Z=1TO4
IF A(X)=0 G.115
X=RND(54)
G.100
A(X)+y:N.Z
N.Y
CLS
IF C=2 G.180
GOS.200
P.A$;
GOS.300
A=A+Q
C=2
GOS.200
P.B$; GOS.300
B=B+Q:C=1
G.150
T=T+0.5:S=INT(T)
IF S>35 G.235
P."TURN #";S:P.
P."SCORE TO DATE"
P."",A$,B$
P."",A,B:P:P.
RET.
P."GAME IS OVER";P.
F.X=1TO555:N.X
P."FINAL SCORE"
P."",A$,B$
P.""",A,B
260 IF A=B G.280
265 IF A>B P.A$;
270 IF A<B P.B$;
275 P."WINS!":END
280 P."HOW ABOUT THAT?! ** A TIE!"
285 END
300 IN."", YOUR CUT";D
305 D=INT(D)
310 IF D>10 G.420
315 IF D<1 G.420
320 F=F+D:F.X=1TO470:N.X
325 IF F>54 THEN F=F-54
330 P."CARD #";F
335 P."YOU DREW ---";
340 Q=A(F):F.X=1TO333:N.X
345 IF Q>10 G.400
350 IF Q<2 G.360
355 P.Q:RET.
360 IF Q=-35 G.375
365 P."ACE"
370 RET.
375 P."JOKER!"
380 F.X=1TO470:N.X;G=RND(30)+3
385 F.X=1TOG:Z=RND(1047)
390 P.ATZ,"HA! ";
395 F.Y=1TO75:N.Y:N.X:RET.
400 IF Q=11 P."JACK"
405 IF Q=12 P."QUEEN"
410 IF Q=13 P."KING"
415 RET.
420 P."PLEASE DO NOT CHEAT,";
425 IF C=1 P.A$
430 IF C=2 P.B$
435 G.300
450 F.X=1TO13
455 Y=RND(54)
460 IF A(Y)=0 G.470
465 G.455
470 A(Y)=X
475 N.X
480 RET.

Sample Run (Excerpt)

STACKCUT
NAME OF PLAYER #1? RALPH
NAME OF PLAYER #2? POTSIE

TURN #1
SCORE TO DATE
RALPH        POTSIE
0           0
RALPH, YOUR CUT? 5
CARD #6
YOU DREW --- QUEEN
TURN #1
SCORE TO DATE
RALPH        POTSIE
12           0
POTSIE, YOUR CUT? 10
CARD #16
YOU DREW --- 3
TURN #2
SCORE TO DATE
RALPH        POTSIE
12           3
RALPH, YOUR CUT? 3
CARD #19
YOU DREW --- 5
TURN #2
SCORE TO DATE
RALPH        POTSIE
17           3
POTSIE, YOUR CUT? 54
PLEASE DO NOT CHEAT, POTSIE
YOUR CUT? 8
CARD #27
YOU DREW --- 6
TURN #3
SCORE TO DATE
RALPH        POTSIE
17           9
RALPH, YOUR CUT? 5
CARD #32
YOU DREW --- JOKER!

HA!    HA!    HA!
HA!    HA!    HA!
HA!    HA!

TURN #3
SCORE TO DATE
RALPH        POTSIE
-18          9
POTSIE, YOUR CUT? 10
CARD #42
YOU DREW -- ACE
TURN #4
SCORE TO DATE
RALPH   POTSIE
- 18     10

*****

TURN #35
SCORE TO DATE
RALPH   POTSIE
212     203
POTSIE, YOUR CUT? 4
CARD #6
YOU DREW -- QUEEN
GAME IS OVER
FINAL SCORE
RALPH   POTSIE
212     215
POTSIE WINS!

Variables Used
A$   PLAYER #1
B$   PLAYER #2
A   A$'S SCORE
B   B$'S SCORE
C   TURN SELECT
D   CUT CHOICE
F   CARD #
G   "HA!" COUNT
Q   TOP CARD VALUE
S   TURN COUNT
T   TURN COUNT
X   TIMING & MISC.
Y   TIMING & MISC.
Z   "HA!" LOCATION
Chapter 3

Frustation

This game merits a chapter all to itself since it has four versions.

The object of Frustation is to move your marker through the hundred-space grid from the first space to the hundredth. Each space has a concealed value, usually from $-10$ to $+10$ points, but some are booby traps that send you back to the starting position (that’s the frustrating part). There is also one bomb, and if you hit it the game ends immediately.

Since you want to reach the end position with as high a score as possible, you might want to deliberately land on a booby trap to pick up more points. But the computer also keeps track of how many moves you take. Develop your own par for reaching the end, in as few moves possible, with the highest score.

The two-player version repeats the main game program (which is a solitaire version), so that you can match your skill and luck against your opponent. Player number 2 moves from the hundredth space to the first, otherwise the rules are the same as the one-player version—with one addition. If you land on a space already occupied by your opponent, he must return to his starting position.

The third version of Frustation has the computer taking the part of your opponent. It is programmed not to cheat: in deciding its moves it only knows what’s under a space if that space has already been played. But once it learns what’s at a space, you can be sure it doesn’t forget!

The fourth version is a sort of ultimate. Again a two-player game is played, but this time the computer plays both sides: you
just sit back and watch. If the other versions of the game get too frustrating, it can help to watch the computer have as much trouble with it as you do.

As frustrating as this game is, it appears to be addictive. I've tried it on several people, and once started they can't seem to leave it alone.

In all versions each move is from 1 to 6 spaces.

No sample run is given for the last two versions, because they'd look essentially like the two-player version, for which a sample run is given. See Fig. 3-1 for the flowchart.

Fig. 3-1. Frustration Flowchart.
Main Game Program

**Standard BASIC**

```basic
5 FOR X=1 TO 100
7 PRINT
10 LET A(X)=0
12 NEXT X
15 PRINT" ","FRUSTRATION!":PRINT:PRINT
17 REM * PLANT POINTS *
20 FOR X=1 TO 50
22 LET Y=INT(RND(0)*98)+2
24 LET Z=INT(RND(0)*21)-10
26 LET A(Y)=Z:NEXT X
28 REM * PLANT BOOBY TRAPS *
30 FOR X=1 TO 13
32 LET Y=INT(RND(0)*90)-4
34 LET A(Y)=-50:N.X
36 REM * PLANT BOMB *
38 LET Y=INT(RND(0)*80)+11
40 LET A(Y)=-100:LET A(1)=100
42 LET P=1:LET N=0
44 LET Q=0:LET S=0
45 GOSUB 200
47 REM * THE PLAY *
50 LET S=S+1
52 PRINT:PRINT"MOVE ";S,"YOUR SCORE IS ";Q
54 PRINT"YOUR MOVE ";
56 INPUT M
58 LET M=INT(M)
60 IF M<1 THEN GOTO 240
65 IF M>6 THEN GOTO 240
70 LET A(P)=N:LET R=P+M
72 LET N=A(R)
74 PRINT"YOU JUST FOUND ";
76 FOR X=1 TO 333
78 NEXT X
80 IF N=0 THEN GOTO 235
85 IF N<-10 THEN GOTO 245
90 PRINT N;" POINTS!"
95 REM * ADJUST SCORE & POSITION *
97 LET Q=Q+N
100 LET P=R
102 LET A(P)=100
105 FOR X=1 TO 555:NEXT X
107 REM * TEST FOR WIN *
```
110 IF P>99 THEN GOTO 120
115 GOTO 45
120 REM END GAME *
125 GOSUB 200
130 PRINT“YOU MADE IT IN”;S;“ MOVES!”
135 FOR X=1 TO 333:NEXT X
140 PRINT“ AND WITH A SCORE OF”;Q
145 IF Q<10 THEN PRINT“THAT STINKS!”
150 IF Q>50 THEN PRINT“FANTASTIC!”
155 END
200 REM DRAW GRID *
202 LET J=0
205 FOR X=1 TO 10
206 PRINT“"”,
208 FOR Y=1 TO 10
210 LET J=J+1
212 IF A(J)=100 THEN GOTO 230
215 PRINT“X”;:
220 NEXT Y
222 PRINT
224 NEXT X
226 PRINT:PRINT
228 RETURN
230 PRINT“O”;:
232 GOTO 220
235 PRINT“ABSOLUTELY NOTHING”
237 GOTO 100
240 PRINT“INVALID MOVE”
242 GOTO 54
245 IF N=-100 THEN GOTO 260
247 PRINT“A BOOBY TRAP!”
250 LET N=0
252 LET P=1
254 LET A(P)=100
256 GOTO 105
260 PRINT“THE BOMB”
265 FOR X=1 TO 470: NEXT X
270 FOR X=1 TO 4:PRINT:NEXT X
275 PRINT“**** BOOM!! ****”
280 FOR X=1 TO 4:PRINT:NEXT X
285 END

TRXS-80 BASIC
5 CLS:P:.P:.F.X=100:A(X)=0:N.X
15 P.“”,“FRUSTRATION!”:P:.P.
20 F.X=1TO50:Y=RND(98)+1:A(Y)=RND(21)-11:N.X
25  F.X=1TO13:Y=RND(90)+5:A(Y)=-50:N.X
30  Y=RND(80)+10:A(Y)=-100
40  A(1)=100:P=1:N=0:Q=0:S=0
45  GOS.200
50  S=S+1:P.:P. "MOVE #";S,"YOUR SCORE IS";Q
55  IN."YOUR MOVE";M:IF M<1 G.240
60  IF M>6 B.240
65  M=INT(M):A(P)=N:R=P+M:N=A(R)
70  P."YOU JUST FOUND";
75  F.X=1TO333:N.X:IF N=0 G.235
80  IF N<-10 G.245
90  P.N:"POINTS!"
95  Q=Q+N
100  P=R:A(P)=100
105  F.X=1TO555:N.X
110  IF P>99 G.120
115  G.45
120  GOS.200:P."YOU MADE IT IN";S;"MOVES!"
122  F.X=1TO333:N.X
125  P."AND WITH A SCORE OF";Q
130  IF Q<10 P."THAT STINKS!"
135  IF Q>50 P."FANTASTIC!"
140  END
200  J=0:F.X=1TO10:P."`
205  F.Y=1TO10:J=J+1
210  IF A(J)=100 G.230
215  P."X";
230  P."O";G.220
235  P."ABSOLUTELY NOTHING!";G.100
240  P."INVALID MOVE";G.55
245  IF N=-100 G.260
250  P."A BOOBY TRAP!"
255  N=0:P=1:A(P)=100:G.105
260  P."THE BOMB":F.X=1TO470:N.X
265  P.:P.:P.:P.""","**** BOOM!! ****"
270  P.:P.:P.:P.
275  END

Summary of Variables Used
J  GRID POSITION
M  MOVE
N  VALUE OF OCCUPIED SPACE
P  POSITION
Q  SCORE
R  NEW POSITION
Sample Run (Excerpt)

FRUSTRATION
O X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X
X X X X X X X X X X X X X X X X X X

MOVE #1 YOUR SCORE IS 0
YOUR MOVE? 6
YOU JUST FOUND – 10 POINTS!

X X X X X O X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X

MOVE #2 YOUR SCORE IS – 10
YOUR MOVE? 6
YOU JUST FOUND 2 POINTS!

X X X X X X X X X X
X X O X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X

MOVE #3 YOUR SCORE IS – 8
YOUR MOVE? 6
YOU JUST FOUND A BOOBY TRAP
MOVE #4
YOUR MOVE?

O XXXXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX
XXX XXXXXXXX

YOUR SCORE IS -8
Standard BASIC

ENTER THE MAIN GAME PROGRAM, THEN ADD
THE FOLLOWING STEPS:

16 PRINT "PLAYER #1";
18 INPUT A$  
27 PRINT "PLAYER #2";
29 INPUT B$  
35 GOSUB 500
52 PRINT:PRINT A$; "MOVE #"; S; "YOUR SCORE IS"; Q
82 IF N=200 THEN GOTO 290
110 IF P>99 THEN GOTO 400
115 GOTO 300
155 RETURN
213 IF A(J)=200 THEN GOTO 490
290 LET A(C)=B:LET A(100)=200
292 LET C=100:LET B=0
294 LET N=0
296 PRINT B$
298 GOTO 100
300 GOSUB 200
305 PRINT:PRINT B$; "MOVE #"; S; "YOUR SCORE IS"; A
310 PRINT "YOUR MOVE";
312 INPUT M
315 IF M<1 THEN GOTO 460
320 IF M>6 THEN GOTO 460
325 LET A(C)=B:LET R=C-M
330 LET B=A(R)
333 PRINT "YOU JUST FOUND";
335 FOR X=1 TO 333: NEXT X
340 IF B=0 THEN GOTO 440
345 IF B<=-10 THEN GOTO 445
350 IF B=100 THEN GOTO 465
355 PRINT B; " POINTS!"
360 LET A=A+B
365 LET C=R:LET A(C)=200
370 FOR X=1 TO 555: NEXT X
375 IF C<2 THEN GOTO 405
380 GOTO 45
400 PRINT A$
402 GOTO 410
405 PRINT B$
410 PRINT " MADE IT IN"; S; "MOVES"
412 GOSUB 200

176
PRINT:, "FINAL SCORE"
PRINT A$,Q
GOSUB 145
PRINT:Q=A
PRINT B$,Q
GOSUB 145
END
PRINT:"ABSOLUTELY NOTHING"
GOTO 365
IF B=-100 THEN GOTO 260
PRINT: "A BOOBY TRAP!"
LET B=0:LET C=100
LET A(C)=200
GOTO 370
PRINT:"INVALID MOVE"
GOTO 310
LET A(P)=N:LET A(1)=100
LET N=0:LET B=0
LET P=1
PRINT A$
GOTO 365
PRINT: "8"
GOTO 220
LET A=0:LET B=0
LET C=100
LET A(100)=200
PRINT
RETURN

STEPS 120 to 125 are not used in this
version and may be eliminated.

**TRS-80 BASIC**

ENTER THE MAIN GAME PROGRAM THEN ADD THE
FOLLOWING STEPS:

22 IN. "PLAYER #1 ";A$
27 IN. "PLAYER #2 ";B$
42 A=0:B=0:C=100;A(100)=200:P.
50 S=S+1:P.;P.A$;" MOVE ";S," YOUR SCORE IS " ;Q
85 IF N=200 G. 290
110 IF P>99 G. 400
115 G. 300
140 RET.
212 IF A(J)=200 G. 285
285 P."8 ";G.220
290 A(C)=B:A(100)=200:C=100:B=0:N=0

177
295  P.B$:G.100
300  GOS.200
305  P.:P.B$" MOVE #";S,"YOURSCORE IS";A
310  IN."YOUR MOVE";M
315  IF M<1 G.460
320  IF M>6 G.460
325  A(C)=B:R=C-M:B=A(R)
330  P."YOU JUST FOUND";
335  F.X=1TO333:N.X
340  IF B=0 G.440
345  IF B<10 G.445
350  IF B=100 G.465
355  P.G;"POINTS!"
360  A=A+B
365  C=R:A(C)=200
370  F.X=1TO555:N.X
375  IF C<2 G.405
380  G.45
400  P.A$;G.410
405  P.B$;
410  P."MADE IT IN";S;"MOVES";GOS.200
415  P.:P."";"FINAL SCORE"
420  P.A$,Q:GOS.130
425  P.:Q=A
430  P.B$,Q:GOS.130
435  END
440  P."ABSOLUTELY NOTHING";G.365
445  IF B=-100 G.260
450  P."A BOOBY TRAP!"
455  B=0:C=100:A(C)=200;G.370
460  P."INVALID MOVE";G.310
465  A(P)=N:A(1)=100:N=0:P=1:B=0
470  P.A$:G.365

Steps 120 & 125 of the Main Game Program are bypassed in this version, and may be eliminated.

Summary of Variables Used

A$  PLAYER #1
B$  PLAYER #2
A  B$'S SCORE
B  VALUE OF B$'S SPACE
C  B$'A POSITION
J  GRID POSITION
M  MOVE
N  VALUE OF A$'S SPACE
Two-Player Version Sample Run (Excerpt)

FRUSTRATION
PLAYER #1? HOMER
PLAYER #2? JETHRO

O X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
HOMER MOVE #1 YOUR SCORE IS 0
YOUR MOVE? 5
YOU JUST FOUND 3 POINTS!

X X X X X O X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X

JETHRO MOVE #1 YOUR SCORE IS 0
YOUR MOVE? 6
YOU JUST FOUND −5 POINTS!

X X X X X O X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
X X X X X X X X X X
HOMER MOVE #2     YOUR SCORE IS 3
YOUR MOVE? 4
YOU JUST FOUND ABSOLUTELY NOTHING
X X X X X X X X X O
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
JETHRO MOVE #2     YOUR SCORE IS – 5
YOUR MOVE? 6
YOU JUST FOUND 5 POINTS!
X X X X X X X X X O
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
X X X X X X X X X
HOMER MOVE #3     YOUR SCORE IS 3
YOUR MOVE?
TRYS-80 BASIC
ENTER MAIN PROGRAM, THEN ADD THE FOLLOWING:
35  A=0:B=0:C=100:A(100)=200
42  FOR X=101 TO 200:A(X)=0:N.X
85  IF N=200 G.290
110 IF P>99 G.405
115 G.300
   ELIMINATE STEPS 120 TO 140
212 IF A(j)=200 G.285
285 P."8";:G.220
290 A(C)=B:A(100)=100:B=0:N=0
295 P."ME":G.100
300 P."I'LL MOVE ";
305 E=C−6;F=0;G=E+100:D=C−1;U=E+100;V=D+100
310 FOR X=UTOV
312 IF A(X)> F GOS. 460
315 N.X;G=G−100;H=C−G;P.H
320 F.X=1TO555:N.X
330 P.;P."I JUST FOUND ";
335 A(C)=B:B=A(G):A(G+100)=B
340 IF B=100 G.390
345 IF B=0 G.385
350 IF B<−10 G.450
355 P.;B:" POINTS!"
360 A=A+B
365 C=G:A(C)=200
370 FOR X=1TO555:N.X
375 IF C<2 G.410
380 G.45
385 P."ABSOLUTELY NOTHING.":G.365
390 A(P)=N:A(1)=100:P=1:N=0:B=0:P."YOU":G.365
395 P."A BOOBY TRAP!":A(100)=200:B=0
400 C=100:G.370
405 P."YOU":G.415
410 P."I";
415 P."MADE IT IN ";S;"MOVES"
420 GOS.200
425 P.;P."","FINAL SCORE":P.
430 P."YOU",Q
435 P."ME",A
440 END
450 IF B=−100 G.260
Standard BASIC

ENTER THE MAIN GAME PROGRAM THEN ADD
THE FOLLOWING STEPS:
43 GOSUB 470
82 IF N=200 THEN GOTO 290
110 IF P>99 THEN GOTO 405
115 GOTO 300
      ELIMINATE STEPS 120 TO 155
213 IF A(J)=200 THEN GOTO 490
290 LET A(C)=B:LET A(100)=200
292 LET C=100:LET B=0:LET N=0
294 PRINT“ME”
296 GOTO 100
300 PRINT“TILL MOVE”;
302 LET E=C–6:LET F=0
304 LET G=E+100:LET D=C–1
306 LET U=E+100:LET V=D+100
308 FOR X=U TO V
310 IF A(X)>F THEN GOSUB 445
315 NEXT X
317 LET G=G–100:LET H=C–G
320 PRINT H
322 FOR X=1 TO 555:NEXT X
325 PRINT:PRINT“I JUST FOUND”;%
330 LET A(C)=B:LET B=A(G)
335 LET X=G+100:LET A(X)=B
340 IF B=100 THEN GOTO 390
345 IF B=0 THEN GOTO 385
350 IF B<-10 THEN GOTO 450
355 PRINT B;“ POINTS!”
360 LET A=A+B
365 LET C=G:LET A(C)=200
370 FOR X=1 TO555:NEXT X
375 IF C<0 THEN GOTO 410
380 GOTO 45
385 PRINT“ABSOLUTELY NOTHING.”
387 GOTO 365
390 LET A(P)=N:LET A(1)=100
392 LET P=1:LET N=0:LET B=0
394 PRINT “YOU”: GOTO 365
395 PRINT “A BOOBY TRAP!”
400 LET A(100)=200:LET B=0:LET C=100
402 GOTO 370
405 PRINT"YOU"
407 GOTO 415
410 PRINT"I"
415 PRINT"MADE IT IN";S;"MOVES"
420 GOSUB 200
425 PRINT:PRINT"","FINAL SCORE"
430 PRINT:PRINT"YOU";Q
435 PRINT"ME";A
440 END
450 IF B=−100 THEN GOTO 260
455 GOTO 395
460 LET F=A(X); LET G=X
465 RETURN
470 LET A=0;LET B=0
475 LET C=100;LET A(100)=200
480 FOR X=101 TO 200
482 LET A(X)=0
484 NEXT X
486 RETURN
490 PRINT"8"
495 GOTO 220
Standard BASIC

5 PRINT:PRINT"", "FRUSTRATION!"
7 REM* SET UP BOARD *
10 FOR X =1 TO 300
12 LET A(X)=0
14 NEXT X
16 FOR X=1 TO 50
18 LET Y=INT(RND(0)*98)+2
20 LET A(Y)=INT(RND(0)*21)−10
22 NEXT X
24 FOR X=1 TO 13
26 LET Y=INT(RND(0)*90)+6
28 LET A(Y)=−50
30 NEXT X
32 LET A(1)=100:LET P=1
34 LET N=0:LET Q=0:LET S=0
36 LET A=0:LET B=0
38 LET C=100:LET A(C)=200
40 REM* THE PLAY*
42 GOSUB 265
44 LET S=S+1
46 PRINT"MOVE # ";S,"PLAYER 1 MOVES";
50 LET E=P+6:LET F=0
52 LET G=E+100:LET D=P+1
54 LET U=D+100:LET V=G
56 FOR X=U TO V
58 IF A(X)>F THEN GOSUB 200
60 NEXT X
62 LET G=G−100:LET M=G−P
64 PRINT M
66 FOR X=1 TO 555:NEXT X
70 PRINT"I JUST FOUND ";
75 LET A(P)=N:LET N=A(G)
80 LET X=G+100:LET A(G)=N
85 IF N=200 THEN GOTO 205
90 IF N=−50 THEN GOTO 225
95 PRINT N; " POINTS!"
100 LET Q=Q+N
105 LET P=G:LET A(P)=100
110 FOR X=1 TO 470:NEXT X
115 IF P>99 THEN GOTO 235
120 GOSUB 265
122 PRINT"PLAYER 2 MOVES";
124 LET E=C-6:LET F=0
126 LET G=E+200:LET D=C-1
128 LET U=E+200:LET V=D+200
130 FOR X=U TO V
135 IF A(X)>F THEN GOSUB 200
140 NEXT X
142 LET G=G-200:LET M=C-G
144 PRINT M
146 FOR X=1 TO 555:NEXT X
148 PRINT "I JUST FOUND";
150 LET A(C)=B
155 LET B=A(G)
160 IF B=100 THEN GOTO 215
165 IF B=-50 THEN GOTO 230
170 PRINT B," POINTS!"
175 LET A=A+B
180 LET C=G
182 LET A(C)=200
185 FOR X=1 TO 470:NEXT X
190 IF C<2 THEN GOTO 240
195 GOTO 40
200 LET F=A(X):LET G=X
202 RETURN
205 PRINT"PLAYER 2! HA! HA!"
207 LET A(C)=B:LET B=0
210 LET C=100:LET N=0
212 LET A(C)=200:GOTO 105
215 PRINT"PLAYER 1! YUK! YUK!"
217 LET A(P)=N:LET N=0
220 LET B=0:LET P=1:LET A(P)=100
222 GOTO 180
225 LET P=LET A(P)=100:LET N=0
227 PRINT "A BOOBY TRAP!":GOTO 110
230 LET C=100:LET A(C)=200:LET B=0
232 PRINT "A BOOBY TRAP!":GOTO 185
235 PRINT "PLAYER 1";
237 GOTO 245
240 PRINT "PLAYER 2";
245 PRINT "MADE IT IN";S;" MOVES"
247 GOSUB 265
250 PRINT "FINAL SCORE","PLAYER 1","PLAYER 2"
255 PRINT ",Q,A
260 END
265 LET J=0
270 FOR X=1 TO 10
PRINT" ",
FOR Y=1 TO 10
LET J=J+1
IF A(J)=100 THEN PRINT"O";
IF A(J)=200 THEN PRINT"8";
IF A(J)<100 THEN PRINT"X";
NEXT Y: PRINT
NEXT X: PRINT
RETURN

TRS-80 BASIC

5 P.P." ","FRUSTRATION!"
10 F.X=TO300:A(X)=0:N.X
15 F.X.=1TO50,Y=RND(98)+1:A(Y)=RND(21)-11:N.X
20 F.X=1TO13:Y=RND(90)+5:A(Y)=-50:N.X
30 A(1)=100:P=1:N=0:Q=0:S=0:A=0: B=0:C=100:A(100)=200
40 GOS.265:S=S+1:P."MOVE #";S,"PLAYER 1 MOVES";
50 E=P+6:F=0:G=E+100:D=P+1:U=D+100:V=E+100:F.X=
UTOV
55 IF A(X)>F GOS.200
60 N.X:G=G-100:M=G- P:P.M
65 F.X=1TO555:N.X
70 P."I JUST FOUND ";
75 A(P)=N:N=A(G):A(G+100)=N
80 IF N=200 G.205
85 IF N=-50 G.225
90 P.N;" POINTS!"
100 Q=Q+N
105 P=G:A(P)=100
110 F.X=1TO470:N.X
115 IF P>99 G.235
120 GOS.265:P."PLAYER 2 MOVES";
125 E=C-6:F=0:G=E+200:D=C-1:U=E+200:V=D+200:F.X=
UTOV
130 IF A(X)>F GOS.200
140 N.X:G=G-200:M=C-G:P.M
145 F.X=1TO555:N.X:P."I JUST FOUND ";
150 A(C)=B:B=A(G)
160 IF B=100 GOTO 215
165 IF B=-50 G.230
170 P.B;" POINTS!":A=A+B
180 C=G:A(C)=200
185 F.X=1TO470:N.X
190 IF C< 2 G.240
195 G.40
200 F=A(X):G=X:RET.
205 P."PLAYER 2! HA! HA!":A(C)=B:B=0:N=0
210  C=100: A(C)=200: G.105
215  P: "PLAYER 1! YUK! YUK!":A(P)=N:N=0:B=0
220  P=I: A(P)=100: G.180
225  P=I: A(P)=100: N=0: P: "A BOOBY TRAP!": G.110
230  C=100: A(C)=200: B=0: P: "A BOOBY TRAP!": G.185
235  P: "PLAYER 1": G.245
240  P: "PLAYER 2";
245  P: "MADE IT IN": S: "MOVES": G.265
250  P: "FINAL SCORE", "PLAYER 1", "PLAYER 2"
255  P: "", Q, A: END
265  J=0: F.X=1: TO10: P: ".: F.Y=1: TO10: J=J+1
270  IF A(J)=100 P: "0";
275  IF A(J)=200 P: "8";
280  IF A(J)< 100 P: "X";
285  N.Y: P: N.X: P: RET.

Summary of Variables Used
A  PLAYER #2'S SCORE (i.e., THE COMPUTER)
B  VALUE OF 2's SPACE
C  2's POSITION
D  MOVE CHOICE
E  MOVE CHOICE
F  MOVE CHOICE
G  MOVE CHOICE
J  GRID POSITION
M  MOVE
N  VALUE OF PLAYER #1'S SPACE
P  1'S POSITION
Q  1'S SCORE
R  NEW POSITION
S  MOVE #
X  TIMING
Y  VARIOUS
Chapter 4
Non-Games

The programs in this chapter aren't really games at all. One is a random probability demonstration, two are gag programs, and one is a random music composer (it just writes the music, it doesn't play it.)
Coin Flipper

A glance at the listing of this program should tell you that it’s a simple one. There are only 25 steps.

Step 10 simply clears the screen and prints the title. Step 15 asks how many times you want the computer to flip the coin: this number is called X and should be a positive integer. After all, how can a coin be flipped −5.7 times? If a negative number or zero is entered, the program will bomb.

If you like, you can block such an invalid entry by adding the following steps:

17   X=INT(X)
18   IF X<1 GOTO 15

Step 20 tests the value of X. If X = 1 the program jumps, to step 115. C is randomly set to equal 1 (Heads) or 2 (Tails). The result is printed and the program cycles back to step 15 to start over.

If step 20 finds X to be greater than 1, the program continues through step 25 which sets variables H (number of Heads) and T (Number of Tails) to zero. These variables are increased by one count each time the appropriate face comes up. Y is counted up to the value of X for the loop program (steps 30 to 55). On each pass through the loop C is randomly set to either 1 or 2. A 1 is counted as Heads (steps 45 and 50), while a 2 is counted as Tails (100 through 110).

After X loops, the total number of Heads and Tails are printed along with their percentages of the total of flips. If X is a reasonably large number, each should be close to 50%.

The percentage of Heads (A) and of Tails (B) are added (D). If the total does not equal 100%, an error message is printed and the computer stops. This can happen in certain cases because of internal rounding off of extreme decimal places within the computer. If D equals 100%, the program cycles back to step 15 to start over.

If you don’t want to bother with the 100% check (the difference should never be more than a very minute fraction anyway), you can eliminate steps 85, 90 and 95, and replace them with

90 GOTO 15

When you want to terminate the program, just hit the BREAK key.

See Fig. 4-1 for the flowchart.
Standard BASIC

10 CLS:PRINT"", "COIN FLIPPER"
15 PRINT"HOW MANY TIMES SHALL I FLIP THAT OLD COIN";
20 INPUT X
25 IF X=1 GOTO 115
30 LET H = Ø: LET T = Ø
33 PRINT:PRINT:FOR Y=1 TO X
40 LET C=INT(RND(1)*2)+1
45 IF C=2 GOTO 100
50 LET H=H+1:PRINT"H";
55 NEXT Y:PRINT:PRINT
60 PRINT"", "TOTALS"
65 LET A=(H/X)*100:LET B=(T/X)*100:LET D=A+B
70 PRINT"HEADS", H, A; "%"
75 PRINT"TAILS", T, B; "%"
80 PRINT"", ", D; "%"
85 IF D=100 GOTO 15
90 PRINT"I THINK I GOOFED"
95 END

190
100 PRINT "T";
105 LET T = T + 1
110 GOTO 55
115 LET C = INT(RND(1) * 2) + 1
120 IF C = 1 PRINT "HEADS"
125 IF C = 2 PRINT "TAILS"
130 GOTO 15

**TRS-80 BASIC**

10 CLS: P.::"", "COIN FLIPPER"
15 IN. "HOW MANY TIMES SHALL I FLIP THAT OLD COIN?": X
20 IF X = 1 G. 115
25 H = 0: T = 0: P.: P.: F.Y = 1: CX: C = RND(2)
30 IF C = 2 G. 100
40 H = H + 1: P. "H";
50 N.Y..P.: P.: P.::"", "TOTALS"
60 A = (H/X): B = (T/X) * 100: D = A + B
70 P. "HEADS", H, A; "": P. "TAILS", T, B; "%"
80 P. "", "", D; "%"
85 IF D = 100 G. 15
90 P. "I THINK I GOOFED." : END
100 T = T + 1: P. "T";
110 G. 50
115 C = RND(2): IF C = 1 P. "HEADS"
120 IF C = 2 P. "TAILS"
130 G. 15

**Summary Of Variables Used**

A  % of Heads
B  % of Tails
C  Result of current flip
D  A + B (should be 100)
H  Number of Heads
T  Number of Tails
X  Number of flips
Y  Loop count

**Sample Run**

COIN FLIPPER
HOW MANY TIMES SHALL I FLIP THAT OLD COIN? 1
HEADS
HOW MANY TIMES SHALL I FLIP THAT OLD COIN? 25
H T T H T H T T T H T H T T H
T H T T H T H T
TOTALS
HEADS 11 44%
TAILS 14 56%
100%
Favorite Song
Surprise Poem

These two programs are simply computerized gags. Try entering them without thinking about what they'll do. Then you can spring them on your friends.

Since there is no randomness in these programs, it would spoil the joke to include sample runs here.

Once you've run these programs a couple times you should be able to work up similar gag programs of your own.

**Favorite Song Standard BASIC**

5 LET Y=1:LET N=0:PRINT:PRINT:PRINT:PRINT
10 PRINT:PRINT:“WOULD YOU LIKE ME TO DO MY FAVORITE SONG”; 
12 INPUT X 
15 IF X=Y THEN GOTO 100 
20 LET A=INT(RND(0)*300)+1 
22 FOR B=1 TO A 
24 LET C=INT(RND(0)*300)+1 
26 FOR D=1 TO C:NEXT D 
28 PRINT “ FINK! ”; 
30 LET E=INT(RND(0)*20)+1 
35 FOR F=1 TO E:PRINT “ ”; 
40 NEXT F:NEXT B 
45 END 
70 IF X=1 THEN PRINT “ONE BOTTLE ”; 
75 IF X>1 THEN PRINT X;“ BOTTLES”; 
80 RETURN 
85 PRINT “OF BEER ”; 
90 RETURN 
100 FOR A=1 TO 30:PRINT: NEXT A 
102 PRINT “”,“OOOH...”:PRINT:PRINT:PRINT 
105 PRINT:FOR A=1 TO 400:NEXT A 
107 LET X=99 
110 FOR A=1 TO 20:PRINT: NEXT A 
112 FOR A=1 TO 3: NEXT A 
114 GOSUB 70 
116 GOSUB 85 
118 GOSUB 190 
120 PRINT:FOR A=1 TO 270: NEXT A 
122 GOSUB 70 
124 GOSUB 85 

192
FOR A=1 TO 300: NEXT A
PRINT "IF ONE OF THOSE BOTTLES SHOULD HAPPEN TO FALL"
FOR A=1 TO 250: NEXT A
LET X=X-1
IF X=0 THEN GOTO 200
GOSUB 70
GOSUB 85
GOSUB 190
FOR A=1 TO 777: NEXT A
PRINT: PRINT: PRINT
PRINT: PRINT: PRINT
GOTO 112
PRINT "ON THE WALL"
RETURN
PRINT "NO MORE BOTTLES"
GOSUB 85
GOSUB 190
FOR A=1 TO 999: NEXT A
PRINT: PRINT: PRINT
PRINT: PRINT: PRINT
PRINT "WANT ME TO DO IT AGAIN"
GOTO 12

CLS: Y=1: N=0: P.: P.: P.
IN. "WOULD YOU LIKE ME TO DO MY FAVORITE SONG"; X
IF X=YG.100
C=RND(300): F.D=1TOC: A=RND(300): F.B=1TOA
N.B.: P. "FINK!": E=RND(20): F.B=1TOE: P. "":
N.B.: N.D: END
IF X=1 P. "ONE BOTTLE";
IF X>1 P.X; " BOTTLES";
RET.
P. "OF BEER"; RET.
F.A=1TO400: N.A: X=99
CLS: P.: P.: P.
F.A=1TO333: N.A: GOS. 70: GOS. 85: GOS. 190: P.
F.A=1TO300: N.A: P. "IF ONE OF THOSE BOTTLES";
P. "SHOULD HAPPEN TO FALL"; P.: F.A=1TO250
N.A: X=X-1: IF X=0 G. 200
GOS. 70: GOS. 85: GOS. 190: F.A=1TO777: N.A
Surprise Poem Standard BASIC

5 FOR X = 1 TO 30
10 PRINT NEXT X
12 GOSUB 315
14 GOSUB 225
16 GOSUB 255
17 GOSUB 320
18 GOSUB 280
19 GOSUB 220
20 GOSUB 320
21 GOSUB 295
22 GOSUB 320
24 GOSUB 285
26 GOSUB 320
28 GOSUB 270
30 GOSUB 320
32 GOSUB 260
34 GOSUB 315
36 PRINT . PRINT
38 GOSUB 320
40 GOSUB 225
42 GOSUB 320
44 GOSUB 245
50 GOSUB 320
52 GOSUB 225
54 PRINT "N" ; GOSUB 320
56 GOSUB 200
58 GOSUB 320
60 GOSUB 230
62 GOSUB 320
64 GOSUB 205
66 GOSUB 320
68 GOSUB 215
70 GOSUB 315
72 PRINT . PRINT
74 GOSUB 320
76 PRINT " " ; GOSUB 225
78 GOSUB 320
80 GOSUB 250
82 GOSUB 320
84  GOSUB 300
86  GOSUB 320
87  GOSUB 325
88  GOSUB 320
90  GOSUB 290
92  GOSUB 265
94  PRINT ":GOSUB 320
96  PRINT:GOSUB 320
98  GOSUB 320
100 PRINT ":GOSUB 310
102  GOSUB 320
104  GOSUB 210
108  GOSUB 240
112  GOSUB 235
114  GOSUB 320
116  GOSUB 305
120  GOSUB 265
122  GOSUB 315
124  PRINT:PRINT
126  GOSUB 320
128  GOSUB 225
130  GOSUB 255
131  GOSUB 320
132  GOSUB 280
133  GOSUB 220
134  GOSUB 320
135  GOSUB 295
136  GOSUB 320
138  GOSUB 285
142  GOSUB 270
144  GOSUB 320
146  GOSUB 260
148  GOSUB 315
150  PRINT:PRINT
152  GOSUB 320
154  PRINT ":GOSUB 300
156  GOSUB 275
158  GOSUB 320
160  PRINT:PRINT","",
162  GOSUB 320
164  GOSUB 300
166  GOSUB 275
168  PRINT ":PRINT
170  GOSUB 315
172  GOSUB 315
175  END
200 PRINT "A";  
202 RETURN  
205 PRINT "BEGE";  
207 RETURN  
210 PRINT "BOW-";  
212 RETURN  
215 PRINT "CAN"; : RETURN  
220 PRINT "EYE"; : RETURN  
225 PRINT "I"; : RETURN  
230 PRINT "GAR"; : RETURN  
235 PRINT "GED"; : RETURN  
240 PRINT "LEG"; : RETURN  
245 PRINT "LIVE"; : RETURN  
250 PRINT "LOVE"; : RETURN  
255 PRINT "M"; : RETURN  
260 PRINT "MAN"; : RETURN  
265 PRINT "MIN"; : RETURN  
270 PRINT "OR"; : RETURN  
275 PRINT "OT"; : RETURN  
280 PRINT "POP"; : RETURN  
285 PRINT "SAIL"; : RETURN  
290 PRINT "SWIM" ; RETURN  
295 PRINT "THE"; : RETURN  
300 PRINT "TO"; : RETURN  
305 PRINT "WT"; : RETURN  
310 PRINT "WITH"; : RETURN  
315 FOR X = 1 TO 222  
317 NEXT X  
320 FOR X = 1 TO 55: NEXT X  
322 RETURN  
325 PRINT "GO"; : RETURN

**TR-S-80 BASIC**

5 CLS: P.: P.: P.: GOS. 315
10 GOS. 225: GOS. 255: GOS. 320: GOS. 280: GOS. 220: GOS. 320: 
   GOS. 295: GOS. 320
15 GOS. 285: GOS. 270: GOS. 320: GOS. 260
25 GOS. 245: GOS. 320: GOS. 225
30 P. "N"; : GOS. 320: GOS. 200: GOS. 320: GOS. 230
40 P. ""; : GOS. 225: GOS. 320: GOS. 250: GOS. 320
45 GOS. 300: GOS. 320: GOS. 325: GOS. 320: GOS. 290: GOS. 265
50 P. ""; : GOS. 320: P.: GOS. 320: GOS. 320
55 P. ""; : GOS. 310: GOS. 320: GOS. 210
60 GOS. 240: GOS. 235: GOS. 320: GOS. 305

196
END
200 P."A"::RET.
205 P."BEGE"::RET.
210 P."BOW"::RET.
215 P."CAN"::RET.
220 P."EYE"::RET.
225 P."I"::RET.
230 P."GAR"::RET.
235 P."GED"::RET.
240 P."LEG"::RET.
245 P."LIVE"::RET.
250 P."LOVE"::RET.
255 P."M"::RET.
260 P."MAN"::RET.
265 P."MIN"::RET.
270 P."OR"::RET.
275 P."OT"::RET.
280 P."POP"::RET.
285 P."SAIL"::RET.
290 P."SWIM"::RET.
295 P."THE"::RET.
300 P."TO"::RET.
305 P."WT"::RET.
310 P."WITH"::RET.
315 F.X=1TO222:N.X
320 F.X=1TO55:N.X:RET.
325 P."GO"::RET.
Tunesmith

This program is a very simple random music composer. It prints out notes by their letter names, gives the note lengths (\(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}\), etc.), and indicates the overall dynamic level of the phrase. You may manually convert this information into standard musical notation to play it on any instrument you choose.

While the notes are randomly selected, the selection process is weighted (steps 10 to 45) so that the phrase will tend to stay in the key of C.

In all probability many of the phrases produced by this simple program won't sound very musical, but many are interesting, and some sound quite good.

While this program is too simplistic to be of much use as a real compositional aid, it might suggest themes to a composer with a reluctant muse. *Tunesmith* (like all of these programs) is mostly intended for fun.

See Fig. 4-2 for the sample run in standard musical notation and Fig. 4-3 for the flowchart.

**Standard BASIC**

10 DATA 1,0,1,2,13,8,6,1,3,4
15 DATA 1,0,5,6,7,1,8,10,13,6
20 DATA 1,13,8,12,10,11,1,9,13,3
25 DATA 1,1,0,13,12,8,6,5,1,0
30 DATA 5,13,1,3,5,13,10,8,6,1
35 FOR X=1 TO 50
37 READ Q
40 PRINT

![Sample Musical Notation](image)

Fig. 4-2. Tunesmith sample run in standard musical notation.
RUN

SET WEIGHTING DATA

SELECT DYNAMICS

FOR X  1 TO 8

SELECT NOTE

SELECT TIME VALUE

ADVANCE X

NO

YES

INPUT NEXT LINE OR END

END

Fig. 4-3. Tunesmith flowchart.

42 LET A(X)=Q
45 NEXT X
50 REM* DYNAMICS KEY *
55 LET F = INT(RND(0)*7)+1
60 IF F = 1 THEN PRINT “FP”
65 IF F = 2 THEN PRINT “F”
70 IF F = 3 THEN PRINT “MP”
75 IF F = 4 THEN PRINT “MF”
80 IF F = 5 THEN PRINT “MF”
85 IF F = 6 THEN PRINT “F”
90 IF F = 7 THEN PRINT “FF”
95 PRINT
100 FOR X = 1 TO 8
105 LET M = INT(RND(0)*50)+1
110 LET Q = A(M)
112 IF Q = 0 THEN PRINT “REST”;
115 IF Q = 1 THEN PRINT “C ”;
120 IF Q=2 THEN PRINT"C#  ";
125 IF Q=3 THEN PRINT"D  ";
130 IF Q=4 THEN PRINT"D# ";
135 IF Q=5 THEN PRINT"E  ";
140 IF Q=6 THEN PRINT"F  ";
145 IF Q=7 THEN PRINT"F# ";
150 IF Q=8 THEN PRINT"G  ";
155 IF Q=9 THEN PRINT"G# ";
160 IF Q=10 THEN PRINT"A  ";
165 IF Q=11 THEN PRINT"A# ";
170 IF Q=12 THEN PRINT"B  ";
175 IF Q=13 THEN PRINT"C  ";
180 IF Q=0 THEN GOTO 195
185 LET B=INT(RND(0)*10)+1
190 IF B>7 THEN PRINT"-. ";
195 NEXT X
200 PRINT:PRINT
202 FOR X=1 TO 8
205 LET T=INT(RND(0)*9)+1
207 IF T=1 THEN PRINT"1/16 ";
210 IF T=2 THEN PRINT"1/8 ";
215 IF T=3 THEN PRINT"1/4 ";
220 IF T=4 THEN PRINT"1/4 ";
225 IF T=5 THEN PRINT"1/8 ";
230 IF T=6 THEN PRINT"1/2 ";
235 IF T=7 THEN PRINT"1/4 ";
240 IF T=8 THEN PRINT"1/2 ";
245 IF T=9 THEN PRINT"1  ";
250 NEXT X
255 PRINT:PRINT
260 PRINT"TYPE 1 FOR NEXT LINE OR 2 TO END"
265 INPUT H
270 IF H=1 THEN GOTO 100
275 END

**TRS-80 BASIC**

10 DATA 1,0,1,2,13,8,6,1,3,4
15 DATA 1,0,5,6,7,1,8,10,13,6
20 DATA 1,13,8,12,10,11,1,9,13,3
25 DATA 1,1,0,13,12,8,6,5,1,0
30 DATA 5,13,1,3,5,13,10,8,6,1
35 F.X=1 TO 50:READ Q
40 A(X)=Q:N.X
50 CLS:P.:P.
55 F=RND(7):IF F=1 P."PP"
60 IF F=2 P."P"
65 IF F=3 P."MP"
70 IF F=4 P."MF"
75 IF F=5 P."MF"
80 IF F=P."F"
85 IF F=7 P."FF"
90 P.
100 F.X=1TO8:M=RND(50)
110 Q=A(M); IF Q=0 P."REST";
115 IF Q=1 P."C";
120 IF Q=2 P."C#";
125 IF Q=3 P."D";
130 IF Q=4 P."D#";
135 IF Q=5 P."E";
140 IF Q=6 P."F";
145 IF Q=7 P."F#";
150 IF Q=8 P."G";
155 IF Q=9 P."G#";
160 IF Q=10 P."A";
165 IF Q=11 P."A#";
170 IF Q=12 P."B";
175 IF Q=13 P."C";
180 IF Q=0 G. 195
185 B=RND(10)
190 IF B>7 P."—";
195 NEXT X
200 P.:P.:F.X=1TO8
205 T=RND(9); IF T=1 P."1/16";
210 IF T=2 P."¼";
215 IF T=3 P."½";
220 IF T=4 P."¾";
225 IF T=5 P."¾";
230 IF T=6 P."½";
235 IF T=7 P."¼";
240 IF T=8 P."¼";
245 IF T=9 P."1";
250 N.X:P.:P.
255 IN."TYPE 1 FOR NEXT LINE OR 2 TO END"; H
260 IF H=1 G. 100
265 END

Sample Run
MF
C A — F F C — F C C
¼ ¼ ¼ ½ 1/16 1/16 ½ ¼
TYPE 1 FOR NEXT LINE OR 2 TO END ?1
C C — G F# C’ REST E E
½ ¼ ½ ¼ ½ 1 ¼ 1/16
TYPE 1 FOR NEXT LINE OR 2 TO END ?2

201
Chapter 5
Helpful Programs

This chapter includes four programs which are not exactly games. They are helpful programs, designed to be of use to you in many different ways.

BINARY/DECIMAL

You probably know that computers use a different system of counting than we do. Our system is called the decimal system because it has ten digits (1, 2, 3, 4, 5, 6, 7, 8, 9, and 0). The computer, on the other hand, uses the binary system, which has only two digits (1 and 0).

The following program allows you to convert from one system to the other, in either direction. It should be noted that 4095 is the largest decimal number this program can convert. See Fig. 5-1 for the flowchart. Here are some refreshers on how the binary system works.

ADDITION

<table>
<thead>
<tr>
<th>0</th>
<th>0</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>+0</td>
<td>+1</td>
<td>+0</td>
<td>+1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BINARY</th>
<th>DECIMAL EQUIVALENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>101</td>
<td>5</td>
</tr>
<tr>
<td>110</td>
<td>6</td>
</tr>
<tr>
<td>111</td>
<td>7</td>
</tr>
</tbody>
</table>

202
Fig. 5-1. Binary/Decimal Flowchart.
10 LET B=1
15 LET D=2
20 PRINT"ENTER B TO CONVERT FROM BINARY TO DECIMAL,"
25 PRINT"OR D TO CONVERT FROM DECIMAL TO BINARY";
30 INPUT A
40 IF A=2 THEN GOTO 200
50 PRINT"ENTER YOUR BINARYNUMBER";
55 INPUT N
60 IF <1 THEN GOTO 170
65 LET N=INT(N)
70 LET C=0.5
75 LET E=0
80 LET C=C*2
90 IF N=0 THEN GOTO 150
100 LET N=N/10
110 LET M=N-INT(N)
115 LET N=INT(N)
120 IF M=.1 THEN LET E=E+C
130 IF M>.1 THEN GOTO 190
140 GOTO 80
150 PRINT E
160 GOTO 10
170 PRINT"THE NUMBER MUST BE POSITIVE AND GREATER THAN 1"
180 GOTO 10
190 PRINT "THIS NUMBER IS NOT IN BINARY FORM"
195 GOTO 10
200 PRINT"ENTER YOUR DECIMAL NUMBER";
205 INPUT N
210 IF N<1 GOTO 170
215 LET N=INT(N)
220 IF N>4095 THEN GOTO 330
230 LET E=0
235 LET C=2048
240 LET M=INT(N/C)
250 IF M=1 THEN GOSUB 300
260 IF N=0 THEN GOTO 150
270 LET C=C/2
275 IF C<1 THEN GOTO 150
280 LET E=E*10
290 GOTO 240
300 LET E=E+1
310 LET N=N-M
320 RETURN
330 PRINT "THE PROGRAM CAN ONLY HANDLE NUMBERS UP TO 4095"
340 GOTO 10

**TRS-80 BASIC**

10 B=1:D=2
20 P."ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D"
30 P."TO CONVERT FROM DECIMAL TO BINARY";A
40 IF A=2 G. 200
50 IN."ENTER YOUR BINARY NUMBER";N
60 IF N<1 G. 170
65 N=INT(N)
70 C=0.5:E=0
80 C=C*2
90 IF N=0 G. 150
100 N=N/10
110 M=N-INT(N):N=INT(N)
120 IF M=.1 THEN E=E+C
130 IF M>.1 G. 190
140 G. 80
150 P.E
160 G. 10
170 P."THE NUMBER MUST BE POSITIVE AND GREATER THAN 1"
180 G. 10
190 P."THIS NUMBER IS NOT IN BINARY FORM";G.10
200 IN."ENTER YOUR DECIMAL NUMBER";N
210 IF N<1 G. 170
215 N=INT(N)
220 IF N>4095 G. 330
230 E=0:C=2048
240 M=INT(N/C)
250 IF M=1 GOS. 300
260 IF N=0 G. 150
270 C=C/2
280 IF C<1 G. 150
285 E=E*10
290 G. 240
300 E=E+1
310 N=N-M
320 RET.
330 P."THIS PROGRAM CAN ONLY HANDLE NUMBERS UP TO 4095"
340 G. 10

205
Summary of Variables Used
A  MODE CHOICE
B  BINARY
C  PLACE VALUE
D  DECIMAL
E  CONVERTED NUMBER
M  INTERMEDIATE VARIABLE
N  NUMBER TO BE CONVERTED

Sample Run
ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D TO CONVERT FROM DECIMAL TO BINARY? D
ENTER YOUR DECIMAL NUMBER? 123
1111011
ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D TO CONVERT FROM DECIMAL TO BINARY? B
ENTER YOUR BINARY NUMBER? 123
THIS NUMBER IS NOT IN BINARY FORM
ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D TO CONVERT FROM DECIMAL TO BINARY? B
ENTER YOUR BINARY NUMBER? 1010101
85
ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D TO CONVERT FROM DECIMAL TO BINARY? B
ENTER YOUR BINARY NUMBER? 111
7
ENTER B TO CONVERT FROM BINARY TO DECIMAL, OR D TO CONVERT FROM DECIMAL TO BINARY? D
ENTER YOUR DECIMAL NUMBER? 17
10001
Day of the Week

Sometimes it's interesting to know on what day of the week some specific date fell. You could thumb your way through an old calendar, but this program will quickly calculate the day of the week for you.

The dates used in the sample run are July 31, 1980 (7/31/1980), April 17, 1954 (4/17/1954), and August 22, 1734 (8/22/1734). Of course you can also use dates which extend into the future.

Note that this program has no provisions for validating your entries. It will accept 34/952/21212 as a date, but of course the

Fig. 5-2. Flowchart for Day of the Week.
result will be utterly meaningless. So double-check your entries to avoid getting a wrong answer.

See Fig. 5-2 for the flowchart.

**Standard BASIC**

10 PRINT";" ;"DAY OF THE WEEK"
15 PRINT
20 PRINT"ENTER THE MONTH NUMBER — 1-12"; 
25 INPUT M
30 LET M=M-2
40 IF M=0 THEN LET M=12
50 IF M=--1 THEN LET M=11
60 PRINT"ENTER THE DAY OF THE MONTH";
65 INPUT D
70 PRINT"ENTER THE YEAR";
75 INPUT Y
80 IF M > 10 THEN LET Y=Y-1
85 LET X=INT(Y/100)
90 LET Y=(Y-X)*100
95 LET A=INT(D+(2.6*M-0.2))
100 LET A=A+INT(Y/4+Y)
110 LET A=A+INT((X/4)-2*X)
120 IF A<0 THEN GOTO 240
130 LET A=A/7
135 LET A=A-INT(A)*7
140 LET A=INT(A)
150 PRINT"THAT DATE FELL ON A";
160 IF A=0 THEN PRINT"SUNDAY"
170 IF A=1 THEN PRINT"MONDAY"
180 IF A=2 THEN PRINT"TUESDAY"
190 IF A=3 THEN PRINT"WEDNESDAY"
200 IF A=4 THEN PRINT"THURSDAY"
210 IF A=5 THEN PRINT"FRIDAY"
220 IF A=6 THEN PRINT"SATURDAY"
230 END
240 LET A=A+7
250 GOTO 120

**TRS-80 BASIC**

10 P."" ;"DAY OF THE WEEK";P.
20 IN."ENTER THE MONTH NUMBER — 1-12";M
30 M=M-2
40 IF M=0 THEN M=12
50 IF M=--1 THEN M=11
IN."ENTER THE DAY OF THE MONTH";D
70 IN."ENTER THE YEAR";Y
80 IF M>10 THEN Y=Y-1
90 X=INT(Y/100); Y=(Y-X)*100
100 A=INT(D+(2.6*M-.2)+INT(Y/4+Y)
110 A=A+INT((X/4)-2*X)
120 IF A<0 G.240
130 A=A/7:A=A-INT(A)*7
140 A=INT(A)
150 P."THAT DATE FELL ON A";
160 IF A = 0 THEN P."SUNDAY"
170 IF A=1 THEN P."MONDAY"
180 IF A=2 THEN P."TUESDAY"
190 IF A=3 THEN P."WEDNESDAY"
200 IF A=4 THEN P."THURSDAY"
210 IF A=5 THEN P."FRIDAY"
220 IF A=6 THEN P."SATURDAY"
230 END
240 A=A+7;G.120

Summary of Variables Used
A  Day of the week  X  Century
D  Date  Y  Year
M  Month

Sample Run
RUN

DAY OF THE WEEK
ENTER THE MONTH NUMBER — 1-12? 7
ENTER THE DAY OF THE MONTH? 31
ENTER THE YEAR? 1980
THAT DATE FELL ON A THURSDAY
READY

RUN

DAY OF THE WEEK
ENTER THE MONTH NUMBER — 1-12? 4
ENTER THE DAY OF THE MONTH? 17
ENTER THE YEAR? 1954
THAT DATE FELL ON A SATURDAY
READY

RUN

DAY OF THE WEEK
ENTER THE MONTH NUMBER — 1-12? 8
ENTER THE DAY OF THE MONTH? 22
ENTER THE YEAR? 1734
THAT DATE FELL ON A SUNDAY
READY
Ohm’s Law

This one is a bit off the main path as far as this book goes, but it’s interesting to try entering various variables to see how voltage, current, resistance and power interact in an electrical circuit. Just pull numbers out of the air and then study the results.

Most experimenters are at least vaguely familiar with Ohm’s Law (Voltage equals current times resistance), but by running a number of combinations through this program you can really get a solid feel for it.

See Fig. 5-3 for the flowchart.

Standard BASIC

5 REM ** OHM’S LAW **
10 LET O=1
15 LET V=2
20 LET C=3
25 PRINT “DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT”;
30 INPUT X
35 IF X=O THEN GOTO 70
40 IF X=V THEN GOTO 130
50 IF X=C THEN GOTO 160
60 GOTO 20
70 PRINT “VOLTS”;
75 INPUT E
80 GOSUB 220
85 LET R=E/I
90 LET P=E*I
95 PRINT “RESISTANCE IS”;R;“ OHMS (OR”;
100 LET R=R/1000
105 PRINT R;” KILOHMS”
110 PRINT “POWER IS”;P;“ WATTS”
120 GOTO 10
130 GOSUB 220
135 GOSUB 260
140 LET E=I*R
145 LET P=I*R
150 PRINT “VOLTAGE IS”;E;“ VOLTS”
155 GOTO 110
160 PRINT “VOLTS”;
165 INPUT E
170 GOSUB 260
175 LET I=E/R

210
PRINT "CURRENT IS";I:" AMPS (OR ";
LET I=I*1000
PRINT I;" MILLIAMPS")
GOTO 110
LET A=1
LET M=1000
PRINT "IS CURRENT IN AMPS OR MILLIAMPS";
INPUT X

Fig. 5-3. Flowchart for Ohm's Law.
240 PRINT "CURRENT";
245 INPUT I
250 LET I=I/X
255 RETURN
260 LET R=1
270 LET K=1000
280 PRINT "IS RESISTANCE IN OHMS OR KILOHMS";
290 INPUT X
300 PRINT "RESISTANCE";
310 INPUT R
320 LET R=R*X
330 RETURN

TRIS-BASIC
10 O=1:V=2:C=3
20 IN."DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT";X
30 IF X=0 G.70
40 IF X=V G.130
50 IF X=C G.160
60 G.20
70 IN."VOLTS";E
80 GOS.220
90 R=I/E:P=E*I
100 "RESISTANCE IS ":R;"OHMS(OR"
105 R=R/1000:P.R;" KILOHMS)"
110 P."POWER IS ";P;" WATTS"
120 G.10
130 GOS.220
135 GOS.260
140 E=I*R:P=I*I*R
145 P."VOLTAGE IS ";E;" VOLTS"
150 G.110
160 IN."VOLTS";E
165 GOS.260
170 P."CURRENT IS ";I;" AMPS (OR"
180 I=I*1000
190 P.I;" MILLIAMPS)"
200 G.110
220 A=1:M=1000
230 IN."IS CURRENT IN AMPS OR MILLIAMPS";X
240 IN."CURRENT";I
250 I=I/X
255 RET.
260 R=1:K=1000
270 IN."IS RESISTANCE IN OHMS OR KILOHMS";X

212
280 IN."RESISTANCE";R
290 R=R*X
300 RET.

Summary of Variables Used
A  AMPS
C  CURRENT
E  VOLTAGE VALUE
I  CURRENT VALUE
K  KILOHMS
M  MILLIAMPS
O  OHMS
P  POWER VALUE
R  RESISTANCE VALUE
V  VOLTAGE
X  INPUT VARIABLE

Sample Run
DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT? OHMS VOLTS? 9
IS CURRENT IN AMPS OR MILLIAMPS? AMPS CURRENT? 1.5
RESISTANCE IS 6 OHMS (OR 0.0006 KILOHMS)
POWER IS 13.5 WATTS
DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT? OHMS VOLTS? 130
IS CURRENT IN AMPS OR MILLIAMPS? MILLIAMPS CURRENT? 50
RESISTANCE IS 2700 OHMS (OR 2.7 KILOHMS)
POWER IS 6.75 WATTS
DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT? CURRENT VOLTS? 87
IS RESISTANCE IN OHMS OR KILOHMS? KILOHMS RESISTANCE? 4.7
CURRENT IS 0.0185106 AMPS (OR 18.5106 MILLIAMPS)
POWER IS 1.6104255 WATTS
DO YOU NEED TO FIND OHMS, VOLTS, OR CURRENT? VOLTS IS CURRENT IN AMPS OR MILLIAMPS? AMPS CURRENT? 15
IS RESISTANCE IN OHMS OR KILOHMS? OHMS RESISTANCE? 180
VOLTAGE IS 2700 VOLTS
POWER IS 40500 WATTS
Fahrenheit/Celsius

Here is another program that could be used for immediately practical purposes, i.e., when you need to convert a specific temperature from Fahrenheit to Celsius, or vice versa. But I think it can be better used with a string of randomly selected values so you can really get a solid feel of the relationship of Fahrenheit to Celsius. The U.S. seems to be slowing in the process of converting to metric, but it's still a good idea to get comfortable with the metric standards.

You can devise similar programs for converting inches/feet/miles to centimeters/meters/kilometers, pints/quarts/gallons to liters, ounces/pounds/tons to grams and kilograms, and so forth.

See Fig. 5-4 for the flowchart.

**Standard BASIC**

10 LET A=1
15 LET B=2
20 IN."A—FAHRENHEIT TO CELCIUS OR B— CELSIUS TO"
25 PRINT "FAHRENHEIT";
30 INPUT M
40 IF M=2 THEN GOTO 100
50 PRINT "TEMPERATURE IN FAHRENHEIT";
55 INPUT T
60 LET X=(5/9)*(T-32)
70 PRINT "TEMPERATURE IN CELSIUS IS";X;" DEGREES"
80 GOTO 10
100 PRINT "TEMPERATURE IN CELSIUS";
110 INPUT T
120 LET X=(9/5)*T+32
130 PRINT "TEMPERATURE IN FAHRENHEIT IS";X;" DEGREES"
140 GOTO 10

**TRS-80 BASIC**

10 A=1:B=2
20 P."A—FAHRENHEIT TO CELCIUS OR B— CELSIUS TO"
30 IN."FAHRENHEIT";M
40 IF M=2 G. 100
50 IN."TEMPERATURE IN FAHRENHEIT";T
60 X=(5/9)*(T-32)
70 P."TEMPERATURE IN CELSIUS IS";X;" DEGREES"
80 G. 10
100  IN."TEMPERATURE IN CELSIUS"; T
110  X=(9/5)*T+32
120  P."TEMPERATURE IN FAHRENHEIT IS"; X; "DEGREES"
130  G. 10

Summary Of Variables Used
A  FAHRENHEIT TO CELSIUS
B  CELSIUS TO FAHRENHEIT
M  MODE SELECTION
T  INPUT TEMPERATURE
X  CONVERTED TEMPERATURE

Fig. 5-4. Flowchart for Fahrenheit/Celsius.
Sample Run
A — FAHRENHEIT TO CELSIUS OR B — CELSIUS TO FAHRENHEIT? A
TEMPERATURE IN FAHRENHEIT? 72
TEMPERATURE IN CELSIUS IS 22.222222 DEGREES
A — FAHRENHEIT TO CELSIUS OR B — CELSIUS TO FAHRENHEIT? B
TEMPERATURE IN CELSIUS? 0
TEMPERATURE IN FAHRENHEIT IS 32 DEGREES
A — FAHRENHEIT TO CELSIUS OR B — CELSIUS TO FAHRENHEIT? B
TEMPERATURE IN CELSIUS? 32
TEMPERATURE IN FAHRENHEIT IS 89.6 DEGREES
A — FAHRENHEIT TO CELSIUS OR B — CELSIUS TO FAHRENHEIT? A
TEMPERATURE IN FAHRENHEIT? –15
TEMPERATURE IN CELSIUS IS –23.1111111111 DEGREES
A — FAHRENHEIT TO CELSIUS OR B CELSIUS TO FAHRENHEIT? B
TEMPERATURE IN CELSIUS? –15
TEMPERATURE IN FAHRENHEIT IS 5 DEGREES
BASIC is one of the easiest computer languages to learn because the commands are in English, or they're straightforward abbreviations. It's also fairly standardized, so a program written on one computer can usually be easily translated for use on another manufacturer's unit. There are slight variations from brand to brand, but they are usually quite minor.

In this Appendix, commands used in the programs contained in this book will be explained. Alternative forms used on some of the more popular models now on the market will also be given. By comparing the following list of commands with the commands given on the manual for your computer, you should have no difficulty adapting the programs for use on your own machine. In most cases the commands will be identical, so you can enter them directly.

There are a number of other commands available in most versions of BASIC, but I have listed here the most commonly used. The programs in this book are limited to these common commands so they can be run on almost any computer.

In some cases you will be able to substitute a number of program steps with a single special-purpose command. This option is available on some advanced computers. You should always feel quite free to modify the programs any way you like and to take advantage of any special functions of your own computer.

Note that the games in this book don't make any use of graphics. This is because graphic capabilities are quite unstandardized from computer to computer. To avoid confusion and translation difficulties, I decided to forego graphics in these programs. Naturally, you can add any graphics you please.

**BASIC COMMANDS**

+  
* Addition. This symbol is used exactly the way it should be in algebra. For example, the statement LET C=A+B will add A and B and identify the sum as C.

-  
* Subtraction. Example; LET C=A-B. See +

* Multiplication. This symbol must be used when multiplication is desired. C=AB is acceptable in algebra, but not in BASIC. If you omit the symbol, the program will bomb
out. An asterisk is used instead of the more familiar \( \times \) to avoid confusion with the variable. Example; \( C = A \times B \)

/  
Division. Example; \( C = A / B \)

=  
Equals. See LET and IF ... THEN ...

>  
Greater than. See IF ... THEN ...

<  
Less than. See IF ... THEN ...

( )  
Parentheses are used primarily the way they are in algebra, to alter the order of mathematical operations. For example, \( 2 \times 3 + 4 = 10 \), but \( 2 \times (3 + 4) = 14 \). Note that \( 2 \times (3 + 4) \) is not acceptable to a computer. It must be written as \( 2 \times (3 + 4) \).

:  
A colon separates two commands on a single line. For example, LET A = 5: LET B = 7. Not all computers have this capability.

;  
A semi-colon allows you to combine text and/or variable values on a single line with a PRINT command. For example, if \( X = 5 \), the command PRINT "THE VALUE OF X IS"; X would produce this result—

THE VALUE OF X IS 5

See also PRINT

,  
A comma allows you to combine text and/or variables on a single line with a PRINT command, but they will be separated by a space. For example, if \( X = 5 \), the command PRINT "THE VALUE OF X IS", X would produce this result—

THE VALUE OF X IS 5

A comma can also be used on most computers to separate variables. For example, INPUT A, B. The input data must also be set off by commas.

See also INPUT

See also PRINT

A(X)  
Array location number X. X can be a variable, or a fixed numeral.

The array can give you a large supply of variables in addition to the 26 letters of the alphabet. The size and number of arrays varies from computer to computer. Only one array is used in the programs in this book.

A$  
A string variable. This allows the computer to recall up to sixteen (typically) characters. For example, if \( A$ = \text{HELLO} \), PRINT A$, A$, A$ would produce this result:

218
HELLO  HELLO  HELLO
While many computers offer a number of string variables, only A$ and B$ are used
in these programs. Note that a space counts as a character in a string variable. That is, "JOHN DOE" is
considered to have eight characters.

ABS(X)
This produces the **absolute value** of X (or any variable. The absolute value is always positive. If X is positive then ABS(X) will
equal X. If X is negative, the sign is reversed. For example, ABS(5)=5, ABS(-7)=
7.

CLE
Clear program. See NEW

CLS
Clear screen. This erases everything displayed on the video terminal, and resets
the pointer to the top of the screen. This command sometimes varies on different
computers. On the Apple II it is HOME, and on the PET it is PRINT "  "
A number of computers don't have a clear screen command that can be incorporated into
the program. For these computers you can use the following sequence:

```
- FOR X=1 TO Y
- PRINT
- NEXT X
```

Y is greater than the number of lines the video display will hold at the time. This method (which is used for the Standard BASIC
versions throughout this book) will start the text scrolling up from the bottom of the screen, rather than starting at the top and
working down. Each new line will push the previous lines up one.

**E+**

**Exponential scientific notation.** Often you need to work with numbers that are too
large or too small to be dealt with directly. In these cases an exponent is
used. An exponent tells you how many times to multiply (or divide if negative) the
number by 10. For example, 1.568E+07 =
15,680,000. Standard algebraic notation
would be $1.563 \times 10^7$

END
This command tells the computer that the program is finished and it should stop. In
some cases this command is optional, but it is always necessary when subroutines follow the main body of the program. On some computers the command is **STOP**.

FOR X=A TO B: NEXT X

This is a **loop counter**. For example, FOR X = 1 TO 100: NEXT X will make the computer count from 1 to 100. In this form the command produces a timing delay. Another use is to insert a number of additional program steps between FOR X = A TO B and NEXT X for repeated execution. The abbreviated form for the TRS-80 is F.X=ATOB:N.X

FOR X=A TO B STEP C

The **step statement** is used when you need to count by some interval other than one. A negative number can be used if A is larger than B. Example: FOR X=1TO11 STEP 2: PRINT NEXT X would result in the following:

```
1
3
5
7
9
11
```

**GOSUB**

**Go to subroutine.** This command must be followed by the line number where the subroutine begins. Subroutines are used when a number of steps are required at several points throughout a program. By using a subroutine rather than entering the steps separately each time, much memory space can be saved. A subroutine must end with the command **RETURN** to send the computer’s pointer back to where it left off in the main program. The TRS-80 abbreviations are **GOS**. and **RET**.

**GOTO**

This command can send the program ahead or back to any program step. It must be followed by the appropriate line number. **GOTO** is most often used with an **IF … THEN** test. The TRS-80 abbreviation is **G**.

**HOME**

Clears the display screen on APPLE II computers. See **CLS**

**IF … THEN**

This statement is used to test and compare data. For example, **IF X=Y THEN GOTO 200.**
If X does equal Y then the program will jump to line 200, ignoring any intermediate steps. If X does not equal Y the program will continue the next consecutive step. The term GOTO can be skipped on some computers. Others will allow you to leave out the word THEN.

> or < can be used in place of =

Another frequent form is IF X=Y THEN A=B.

This works in the same manner as above.

INPUT

This stops the program and signals the operator (usually with a question mark or some prompting symbol) to enter data. Generally a preceding PRINT command will specify what data is required.

The INPUT command must be followed by a variable character that will take on the value of the inputted data. String variables can be used (see A$). It can be abbreviated as IN. on the TRS-80.

Some computers (including the TRS-80) will allow an implied PRINT command between the term INPUT and the variable. For example, PRINT “ENTER YOUR DATA”; X will appear on the display as:

```
ENTER YOUR DATA?
```

The same result can be achieved with two commands, i.e. PRINT “ENTER YOUR DATA”;

```
:PRINT X
```

See also,

INT(X)

This command chops off any fractional portion of the variable's value, leaving only the integer. For example, INT(3.14) = 3

LET

This command is used to assign values to variables. For examples, LET A=5, or LET X=A + B. The order cannot be reversed. A + B = X and 5=A are not allowed.

Many computers allow the LET to be left off and merely implied. The commands would then be simply A=5 or X = A + B

NEW

This command is never used within a program. It is used to clean an old program out of the computer's memory, and make it ready for a new program.

Some computers use CLE or SCR for this command.
PRINT  When used by itself the PRINT command prints
a blank line. Or, if the preceding PRINT
command ended with a comma or semi-colon,
this command will start a new line.
See also; and,

PRINT X  When a PRINT command is followed by a
variable, the numerical value of that
variable will be printed. For example,
LET X=5:PRINT X will result in
5
This command can also print the result of
a mathematical operation. For example,
PRINT 5+3*(7-4) will result in
14

PRINT "xxxxx"  If a PRINT command is followed by any
characters enclosed in quotes, whatever
is in quotes will be printed. For
example, PRINT "THIS IS AN EXAMPLE" will
result in this display—

THIS IS AN EXAMPLE

PRINT " "  This is the clear screen command for
the PET computer. See CLS

REM  Remark. This command is ignored by the
computer. It allows you to place
explanatory notes at convenient places in
a program

RETURN  This command must be used to end a
subroutine. On the TRS-80 it can be
abbreviated as RET.
See GOSUB

RND(X)  This command is used to generate a random
number for adding an element of chance to
games or probability studies. LET X=RND(0)
produces a number between 0 and 1, for
example, 0.5371. Some computers (such as the TRS-80)
will allow you to directly produce larger
random numbers. For example, X=RND(10)
would produce an integer between one and
ten, inclusive. Most computers, however,
will only recognize RND(0). Higher numbers
can be generated with a few additional
commands. The random number can be multiplied
by the largest number you want. LET X=
RND(0)*0 will generate numbers from 0.0001
to 9.9999. By using the integer command
(INT), you end up with random numbers between
0 and 9, inclusive. To avoid the possibility of a zero, just add one to whatever the random number might be. In other words, \( X = \text{RND}(10) \) is equivalent to \( \text{LET } X = \text{INT}(\text{RND}(0) \times 10) + 1 \).

A few computers (such as the PET) require RND(1), rather than RND(0).

**RUN**

This command is never used within a program. It is used to put the program into operation. There is usually a BREAK key to let you stop the computer in mid program.

**SCR**

SCRUB program, or SCRA TCH program. See NEW

**SGN(X)**

Reverse sign of variable in brackets. For example, \( \text{LET } X = -5; \text{SGN}(X); \text{PRINT } X \)

\[ 5 \]

\( \text{LET } Y = 7; \text{SGN}(Y); \text{PRINT } Y \)

\[ -7 \]

**SQR(X)**

Square X. That is, multiply the variable times itself. \( \text{LET } X = X \times X \) would give the same result.
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
</tr>
<tr>
<td>Balancing the Scales</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Binary/Decimal</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Craps</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>G</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
34 MORE Tested, Ready-To-Run Game Programs in BASIC
by Delton T. Horn

Who says computers are only for serious business? There's a light side to your computer's personality, too...and here's the book that shows you just how much fun it can really be! Includes a complete collection of games, gags, brain teasers, and "non-games"...even programs that entertain while they educate! In easy-to-read-and-use format with lots of illustrations, flowcharts, and listings for each program in both standard BASIC and abbreviated BASIC using the Level I TRS-80 computer.

Find one-player games ranging from Tic-Tac-Toe and Lost in the Jungle to the challenging Guess The Variables, Quiz Whiz, or Memory Test. Two-player games like Money Mad or Stack Cut can keep you and a friend occupied for hours...and there are even games you can watch the computer play against itself! Looking for something that's practical, but still entertaining? Try Binary Decimal. It tests your skills at converting numbers from one system to another, and is a must for anyone attempting to write their own programs. Day of the Week, Ohm's Law, and Fahrenheit/Celsius are other fun-but-practical exercises included in this upbeat ideabook.

Discover Frustration, a game so complex and challenging that there's a whole section detailing the strategies involved. Plus, there are lots of "non-games"...Coin Flipper, Surprise Poem, Favorite Song, or Tunesmith. An appendix gives you all the data you need to understand the BASIC commands included in the various programs, and suggests alternative forms for computer models other than the TRS-80. Hints, too, on how to change and modify the programs to suit your own particular fancy.

If you'd like to put some fun-and-games into your computer's life, then this is a program guide you won't want to miss!

Delton T. Horn is a field engineer and technician, and author of TAB's Electronic Music Synthesizers.

OTHER POPULAR TAB BOOKS OF INTEREST

1001 Things To Do With Your Personal Computer (No. 1160—$9.95 paper; $14.95 hard)
24 Tested, Ready-to-Run Game Programs in BASIC (No. 1085—$9.95 paper only)

57 Practical Programs & Games in BASIC (No. 1000—$7.95 paper; $13.95 hard)
The Most Popular Subroutines in BASIC (No. 1050—$7.95 paper; $13.95 hard)

TAB TAB BOOKS Inc.
Blue Ridge Summit, Pa. 17214

Send for FREE TAB Catalog describing over 750 current titles in print.

FPT > > $9.25

ISBN 0-8306-1228-9

PRICES HIGHER IN CANADA

895-0481