PROGRAMMER'S NOTEBOOK

Rolling the Dice Subroutines for a Board Game Program

By Jim Keogh

WOULD you like to design a game for your microcomputer that would simulate the kind of games played on a board? It would be interesting to have all the fun and excitement of playing the cardboard version but on your computer. Before you start to create such a program, you must be prepared to include subroutines for a random "roll" of the dice. After all, most board games involve the roll of a pair of dice to determine the moves.

The subroutines given here each contain a different, but variable, function that can be easily combined with your own routines to give your program that extra punch. The subroutines are designed to have your microcomputer "draw" a pair of dice on the screen. With some slight modifications you will be able to roll the dice.

First, the subroutine draws two dice on the screen, one next to the other. You will notice that they are only two squares without any dots on their faces. Since we want the dots (the values of the dice) to change with every roll, the coding for the dots is listed separately from the outline of the dice. They are added to the program listing after you enter the dice routine.

Two random number generators are used to roll the dice—one for each die. The generators are set to select a number from one to six. When these numbers are selected by the computer, the program instructs the computer to move to the line(s) containing the coding to display the number on the die.

Each time the subroutine is activated, a different pair of numbers will appear on the screen in the dice. You can activate this subroutine as part of your own board game by having the computer follow the coding in the subroutine every time it is a player's turn to play the game.

To test these routines, add the "END" command to your code. Don't forget to remove it when you incorporate the routines into your game program. ◇

TRS-80

OUTLINE OF DICE

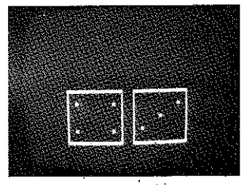
```
  1 CLS
 10 FOR A = 15498 TO 15518
 20 POKEA, 131
 30 NEXT A
 40 FOR A = 15523 TO 15543
 50 POKEA, 131
 60 NEXT A
 70 POKE 15498,151
 80 FOR A = 15562 TO 15818 STEP 64
 90 POKE A, 149
100 NEXT A
110 POKE 15518,171
120 FOR A = 15582 TO 15838 STEP 64
130 POKE A, 170
140 NEXT A
150 POKE 15818,181
170 FOR A = 15819 TO 15838
180 POKE A, 176
190 NEXT A
200 POKE 15838,186
210 FOR A = 15523 TO 15843 STEP 64
220 POKE A, 149
230 NEXT A
240 FOR A = 15543 TO 15863 STEP 64
250 POKE A, 170
260 NEXT A
270 FOR A = 15843 TO 15863
280 POKE A, 176
290 NEXT A
300 POKE 15863,186
310 POKE 15543,171
320 POKE 15523,151
330 POKE 15843,181
```

VALUES FOR LEFT DIE

```
1 = POKE 15700,131
2 = POKE 15565,140
    POKE 15771,140
3 = POKE 15565,140
    POKE 15771,140
    POKE 15757,140
4 = POKE 15565,140
    POKE 15771,140
    POKE 15757,140
    POKE 15579,140
5 = POKE 15565,140
    POKE 15771,140
    POKE 15757,140
    POKE 15579,140
    POKE 15700,131
6 = POKE 15565,140
    POKE 15771,140
    POKE 15757,140
    POKE 15579,140
    POKE 15693,131
    POKE 15707,131
```

VALUES FOR RIGHT DIE

```
1 = POKE 15725,131
2 = POKE 15590,176
    POKE 15796,140
3 = POKE 15590,176
    POKE 15725,131
    POKE 15796,140
4 = POKE 15590,176
    POKE 15796,140
    POKE 15782,140
    POKE 15604,176
5 = POKE 15590,176
    POKE 15725,131
    POKE 15796,140
    POKE 15782,140
    POKE 15604,176
6 = POKE 15590,140
    POKE 15796,140
    POKE 15782,140
    POKE 15604,176
    POKE 15718,131
    POKE 15732,131
```



APPLE II

OUTLINE OF DICE

```
10 HLIN 4, 18 AT 5
20 HLIN 4, 18 AT 19
30 VLIN 5, 19 AT 4
40 VLIN 5, 19 AT 18
50 HLIN 23, 37 AT 5
60 HLIN 23, 37 AT 19
70 VLIN 5, 19 AT 23
80 VLIN 5, 19 AT 37
```

VALUES FOR LEFT DIE

```
1 = PLOT 11, 12,
2 = PLOT 6, 7
    PLOT 16, 17
3 = PLOT 11, 12
    PLOT 6, 7
    PLOT 16, 17
4 = PLOT 6, 7
    PLOT 16, 17
    PLOT 16, 7
    PLOT 6, 17
5 = PLOT 11, 12
    PLOT 6, 7
    PLOT 16, 17
    PLOT 16, 7
    PLOT 6, 17
6 = PLOT 6, 12
    PLOT 16, 12
    PLOT 6, 7
    PLOT 16, 17
    PLOT 16, 7
    PLOT 6, 17
```

VALUES FOR RIGHT DIE

```
1 = PLOT 30, 12
2 = PLOT 25, 7
    PLOT 35, 17
3 = PLOT 30, 12
    PLOT 25, 7
    PLOT 35, 17
4 = PLOT 25, 17
    PLOT 35, 7
    PLOT 25, 7
    PLOT 35, 17
5 = PLOT 30, 12
    PLOT 25, 17
    PLOT 35, 7
    PLOT 25, 7
    PLOT 35, 17
6 = PLOT 25, 12
    PLOT 35, 12
    PLOT 25, 17
    PLOT 35, 7
    PLOT 25, 7
    PLOT 35, 17
```


COMPUTER HOTLINE

Answering your questions on computers and their use

By Stan Veit

IN THIS column, we select questions from readers that we feel will be most useful and answer them as best we can. We cannot, of course, answer all of the questions we receive on an individual basis, but here are some recent queries sent to the magazine. If you have a question, address it to the "Computer Hotline."

STRANGE HAPPENINGS IN APPLE

Q: *Strange things are happening to my Apple computer. I have the Language Card, Serial I/O Card and 80-Column Card installed—in addition to the disk controller. I use the computer a lot and it always works like a charm. However, every once in a while, something just stops running. I turn off the machine and pull the offending card, look at it, and put it back. Nine out of ten times it works after that! My dealer says this is common and he just cleans off the plug-in contacts on the board. Sometimes just pulling the board and replacing it is enough. My friends with TRS-80 Mod I tell me that they have card edge contacts that are not gold-plated and it is even worse. Can you explain what is happening?—Bob Paul, Orlando, FL.*

A: There are several explanations for this problem, but the most reasonable is "There is a Fungus Among Us." There are airborne spores such as yeast that can land on electrical contacts—and they grow there. Possibly they are attracted by the potential on the contacts. These fungi flourish in humid climates and they can form an insulating but invisible coating on the contacts. In this they can even push the contacts apart! Removing the boards and cleaning them usually works. Don't forget to turn off the computer before you pull any boards.

OSBORNE MODEM

Q: *I am tired of waiting for the Osborne Computer Co. to come out with the long-awaited modem. I want to get on the Compuserve net. How can I do this?—Jack Depler, Kansas City, MO.*

A: You can use any acoustic-coupler modem and connect an RS232 cable from the serial I/O port to the modem. You will also need communications software. The Micro Link by Wordcraft is distributed by Osborne for its computer. It is priced at $89.

WHAT KIND OF DISPLAY?

Q: *I am considering purchase of an IBM-PC Computer. However, I am confused as to what kind of video display to order. Can you solve my problem? Can I use an r-f modulator and my TV set? Should I get either their color interface and monitor or a monochrome interface and monitor? I will mainly use my computer for business and word processing—Robert Simmons, Westwood, NJ*

A: To start with, forget about the r-f modulator and use your TV set for watching TV. The modulator/TV works OK for games, but is not intended for serious computer work. If you are going to do a lot of graphics and little text, then you can go with a color interface and monitor. It has the complete character set on it and you can use it for alphanumerics. However, characters on a color monitor are not real sharp, and I have looked at several rather expensive ones.

If you are going to use IBM boards, and you eliminate the monochrome display/printer adapter in favor of the color graphics adapter board, you are going to add a separate printer adapter board. This is because the printer interface is on the monochrome board. If you are going to use the computer for text and numbers, get the monochrome display/printer