

APX

ATARI® PROGRAM EXCHANGE



Steve Smith

BUMPER POOL

APX-10053 APX-20052

User-Written Software for ATARI Home Computers

Steve Smith

BUMPER POOL

APX-10053 APX-20052

BUMPER POOL

by

Steve Smith

Program and Manual Contents © 1981 Steve Smith

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INTRODUCTION

OVERVIEW

BUMPER POOL is a two-player game that resembles the popular pool hall game. You each start with five balls; yours are at one end of the table, and your opponent's are at the other end. The object is to pocket all five of your balls in the opening at the opposite end of the pool table from which you start before your opponent does so with his or her balls. Bumpers located in the center and at each end of the table block direct shots. Thus, you must use bank shots off other balls or cushion shots off the table edge to align a ball for a clean shot at the opening. On each turn, you choose which ball to move, the direction in which to move it, and how far to move it. You also must decide whether to play offensively by shooting for an opening or defensively by hitting your opponent's ball away from its intended opening.

REQUIRED ACCESSORIES

Cassette version
16K RAM
ATARI 410 Program Recorder
Diskette version
24K RAM
ATARI 810 Disk Drive
ATARI BASIC Language Cartridge
A set of ATARI Joystick Controllers

CONTACTING THE AUTHOR

Users wishing to contact the author about BUMPER POOL may write to him at
7516 Burke Street, NE
Albuquerque, New Mexico 87109

GETTING STARTED

LOADING BUMPER POOL INTO COMPUTER MEMORY

1. Plug the joystick controllers into the two left-hand controller jacks (jacks 1 and 2) on the front of your computer console.

2. Insert the ATARI BASIC Language Cartridge in the (Left Cartridge) slot of your computer.

3. If you have the cassette version of BUMPER POOL:

a. Turn on your TV set.

b. Turn on your computer and connect your program recorder to the computer and to a wall outlet.

c. Slide the BUMPER POOL cassette in the program recorder's cassette holder and press REWIND on the recorder until the tape rewinds completely. Then press PLAY.

d. Type CLOAD on your computer and then press the RETURN key two times. The tape will load into computer memory.

e. After the tape finishes loading, the word READY will display on your TV screen. Type RUN and press the RETURN key. The first display screen of BUMPER POOL, as described below, will appear on your TV screen.

If you have the diskette version of BUMPER POOL:

a. Turn on your disk drive.

b. When the BUSY light goes out, open the disk drive door and insert the BUMPER POOL diskette with the label in the lower right-hand side nearest to you.

c. Turn on your computer and TV set.

d. When the READY prompt displays on your TV screen, type RUN "D:POOL" and press the RETURN key. If you're using more than one disk drive, remember to follow the device initial (D) with the number of the drive containing the BUMPER POOL diskette (e.g., RUN "D2:POOL" for disk drive two). The program will load into computer memory and start.

FIRST DISPLAY SCREEN

The following information, together with a short sound and color show, displays on your TV screen while the program creates the pool table:

```
-----  
|                                     |  
|           WELCOME TO THE          |  
|           BUMPER POOL TOURNAMENT |  
|           2 PLAYERS USING JOYSTICKS 1 AND 2! |  
|           STICK #1 USES BALLS 1-5 |  
|           STICK #2 USES BALLS 6-10 |  
|           PLEASE WAIT WHILE I CREATE THE BALLS |  
|                                     |  
|-----|
```

This message appears only once--when you start the game using the RUN command. Additional rounds start immediately after the end of the previous round.

PLAYING BUMPER POOL

THE POOL TABLE

The pool table is an outline of a rectangular table with an opening at each end. Eight round bumpers (represented by X's in the figure below) are in the middle and two are at each end of the table. Balls 1 through 5 (represented by their digits in the figure below) are on the left-hand side of the table and balls 6 through 10 are on the right-hand side of the table. Using the joystick in jack one, player 1 controls balls 1 through 5; using the joystick in jack two, player 2 controls balls 6 through 10.

The bottom of the screen shows ball selection, direction, distance, and balls already pocketed for left (player 1) and right (player 2) players. (Because the left side always goes first, you might want to alternate joysticks with your opponent for each round.)

The table, balls, and text all display in white on a dark green background for player 1's turn. The screen background changes to light green and the table, balls, and text change to black for player 2's turn.

The playing field looks approximately as follows.

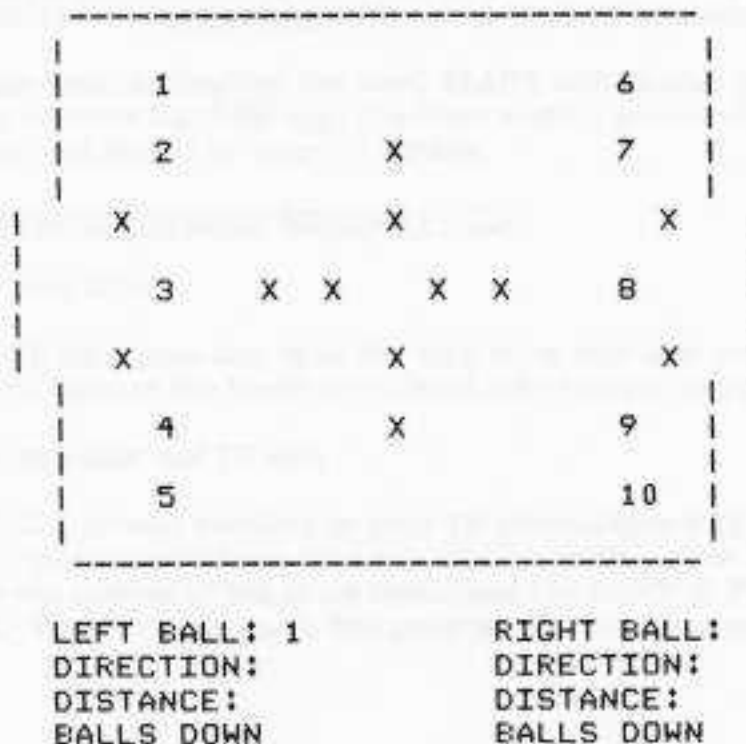


Figure 1 BUMPER POOL Table and Screen

PLAYING STEPS

Indication of player's turn

The first line of text below the pool table, LEFT BALL/RIGHT BALL, indicates both whose turn it is and which ball is currently in play. The initial display shows a 1 next to LEFT BALL, indicating ball 1 is in play (and that it's therefore player 1's turn). Change the ball number by holding your joystick controller so that the red button is at the upper left-hand side nearest your TV screen and pushing the joystick forward toward the TV screen. Give additional pushes on the joystick until the number displays of the ball you want to move and then press the red button.

As you pocket each ball, its number displays on the last line of text, BALLS DOWN, and that number no longer displays when you push your joystick to select a ball.

Directing the ball's line of movement

The second line of text, DIRECTION, indicates the line of movement you want the selected ball to take. An arrow displays on this line after you select the ball to play. Try to center the ball so that it will go into the opening with a straight shot. Again, push forward on your joystick until the arrow points in the appropriate direction and then press the red button.

The program prevents both players from shooting any of their balls into the opening at their own end of the table. Balls 1 through 5 must go into the right-end opening and balls 6 through 10 into the left-end opening.

Specifying the ball's distance

The third line of text, DISTANCE, indicates how far you want the selected ball to travel. The shortest distance, 1, displays in this line after you indicate the direction in which you want your selected ball to move. The range is from 1 to 9, a 1 representing about six ball lengths, and a 9 about fifty-four ball lengths. Choose short distances, less than 5, until you get a feel for how far balls travel with each of the nine selections. Push the joystick forward until the desired digit displays and then press the red button.

Your selected ball now moves in the direction you chose and travels the specified distance. If you set up a "cushion" shot, that is, a shot that bounces off the table edge, the ball will bank predictably. All other balls hit by the ball in motion also move predictably. However, a ball hitting a bumper bounces unpredictably. All ten balls can be moving simultaneously, if they're all struck!

After all movement stops, the number of the next available ball displays next to the text RIGHT BALL, and it's player 2's turn.

Display of balls pocketed

The final line of text, BALLS DOWN, shows which balls you and your opponent have already pocketed. Each time you pocket a ball, you'll be treated to a short color and sound show.

Playing by the rules

Our official rule book tells us that the first shot taken by each player must be the center ball (ball 3 for player 1 and ball 8 for player 2). While the program doesn't control for this rule, it does make the game more interesting.

PLAYING DEFENSE

In your drive to pocket all your balls first, don't forget the value of playing some strategic defense. For example, if your opponent has a straight shot lined up, consider using your next turn to hit his ball away or to block it with one of yours.

END OF GAME

Players continue to alternate turns until one player pockets all five balls. The game ends automatically. The screen clears and then shows which player is the winner--LEFT SIDE or RIGHT SIDE--along with some congratulatory music. Then the game automatically resets to a clean pool table, with the balls in their starting positions, for the next round.

RESTARTING THE GAME

You can interrupt the game at any time and start over by pressing the SYSTEM RESET key and then typing RUN. If you don't want to restart (remember the sound and color show), then just press the SYSTEM RESET key to return to BASIC.

PROGRAM WARNINGS

JOYSTICK CONTROL

When you make your ball, distance, and direction selections by pushing the joystick forward, you'll often notice the selection is one number greater than you had intended. This condition is caused by the speed of the computer when scanning for joystick movement. Slow, deliberate forward pushes should prevent this overshooting from happening.

Once you press the red button for each selection, you can't change your mind. Therefore, look at your choices carefully before pressing the button.

DISPLAY SCREEN CLARITY

Some of the ball numbers may be difficult to read (especially the 10) if your TV screen isn't tuned correctly. Tune your set so that all the numbers are readable before starting to play.

ADVANCED TECHNICAL INFORMATION

CREATING BALLS, BUMPERS, AND DIRECTION ARROWS

At the start of the game, as the message "Please wait while I create the balls" displays, the program is moving and changing the Display List to create new characters needed for displaying balls with numbers in them, the eight direction arrows, and the bumpers.

PRIMARY VARIABLES USED IN BUMPER POOL PROGRAM

VARIABLE	EXPLANATION
F(10,4)	F(n,x) F(x,1) F(x,2) F(x,3) F(x,4)
	BALL 1 x position y position direction distance
THIS ARRAY HOLDS	BALL 2 " " " "
ALL DATA PER-	BALL 3 " " " "
TAINING TO EACH	BALL 4 " " " "
BALL. When	BALL 5 " " " "
F(x,1)=0 and when	BALL 6 " " " "
F(x,4)=0 then the	BALL 7 " " " "
ball is "down".	BALL 8 " " " "
When just	BALL 9 " " " "
F(x,4)=0, then	BALL 10 " " " "
the ball isn't in	
motion.	
WX	Used for calculation of new x position of ball
WY	Used for calculation of new y position of ball
X	Used to hold current x position of ball
Y	Used to hold current y position of ball
P	Holds current player number
Q	Holds y position of player data entry
D	Holds current ball direction
B	Holds current ball number being tested
L	Holds value of position the ball is attempting to move to
ND	Holds calculation result of new direction when the ball hits another ball, bumper, or table
G	Counter for balls down for player stick #1 (left)
G1	Counter for balls down for player stick #2 (right)
TR	Value of red joystick button
ST	Value of joystick position.
SL	RAM location of new character list
TMS, WT, DELAY, T, BUMPER, A, MOVE, SC, PING	Miscellaneous FOR-NEXT loop variables

BUMPER POOL PROGRAM DESCRIPTION

PAGE 1

Open screen as output device, go change character list, set margins and dimension primary array.
Clear screen, get rid of the cursor, go draw the play table, set misc. variables to zero.
Start of main routine - increment player #, reset the attract mode to 0, set text horiz. position.
Go input player variables, rotate player #.
Start loop to check status of each ball - check if ball is active or in motion.
Check if all balls have been stopped. Next turn.

Get x,y coordinates. Get the direction value.
If value is 2,3 or 4 then increment to move right.
If value is 6,7 or 8 then decrement to move left.
If value is 1,2 or 8 then decrement to move up.
If value is 4,5 or 6 then increment to move down.
Get the value of the "move to" position. If not a blank area then go to handle encountered object.
Check if ball will pass thru corner (left)
Check if balls 1 - 5 will go in right opening.
Check if balls 6 - 10 will go in left opening.
Check and handle ball going in wrong hole on right.

Check and handle ball going in wrong hole on left.

Draw ball in new position, erase ball from old position, and store new x,y coordinates of the ball.
Make ball swishing sound then decrement the distance variable by 1. Go handle next ball.

Calculate new direction if move not possible.

Calculate new direction if bumper encountered.

Calculate new direction if cushion is encountered.

Calculate new direction if cushion is encountered.

Calculate new direction if cushion is encountered.

Calculate new direction if cushion is encountered.

If cushion was encountered then make sound hitting the cushion, set direction value with new direction.
If another ball was encountered then set direction of ball hit, set new direction of hitting ball.

BUMPER POOL PROGRAM LISTING

```

10 REM BUMPER POOL - BY STEVE SMITH
20 REM 7516 BURKE STREET, NE
30 REM ALBUQUERQUE, NM 87109
40 OPEN #1,12,0,"S:";GOSUB 9000:POKE
82,0:POKE 83,39:DIM F(10,4)
50 PRINT "3":POKE 752,1:POSITION
0,1:PUT #1,32:GOSUB 8000:P=0:G=0:G1=0
100 SOUND 0,0,0,0:P=P+1:G=14:POKE
77,0:IF P=2 THEN G=34
110 GOSUB 6990:IF P=2 THEN P=0
200 R=0:FOR B=1 TO 10:IF F(B,1)<0 AND
F(B,4)<0 THEN 220
215 R=R+B:NEXT B:IF R=55 THEN 100
217 GOTO 200
220
X=F(B,1):Y=F(B,2):D=F(B,3):WX=X:WY=Y:IF
D>1 AND D<5 THEN WX=X+1
250 IF D>5 THEN WX=X-1
260 IF D=1 OR D=2 OR D=8 THEN WY=Y-1
270 IF D>3 AND D<7 THEN WY=Y+1
280 LOCATE WX,WY,L:IF L<32 THEN GOTO
450
290 IF WY<3 OR WY>17 THEN 450
345 IF B<6 AND WX=38 THEN 5000
350 IF B>5 AND WX=2 THEN 5000
355 IF WX=38 AND B>5 AND (D>1 AND D<5)
THEN F(B,4)=1:GOTO 410
356 IF WX=2 AND B<6 AND D>5 THEN
F(B,4)=1:GOTO 410
360 POSITION WX,WY:PUT #1,B+2:POSITION
X,Y:PUT #1,32:F(B,1)=WX:F(B,2)=WY
410 SOUND 1,0,0,0:SOUND
0,50+L,8,2:F(B,4)=F(B,4)-1:NEXT B:GOTO
200
450 I=F(B,3):ND=I-4:IF ND<0 THEN
ND=I+4:IF ND=1 OR ND=3 OR ND=5 OR ND=7
THEN 465
451 IF L=20 THEN ND=ND+1:IF ND>8 THEN
ND=1
452 IF L=20 THEN 465
453 ND=I-4:IF (ND=-2 OR ND=2) AND
(L<22 AND L>13) THEN ND=4:GOTO 465
454 IF (ND=-2 OR ND=2) AND (L<2 AND
L>14) THEN ND=8:GOTO 465
456 IF (ND=0 OR ND=4) AND (L<13 AND
L<2) THEN ND=6:GOTO 465
457 IF (ND=0 OR ND=4) AND (L<14 AND
L<22) THEN ND=2
465 IF L=2 OR L>12 THEN SOUND
1,15,6,15:F(B,3)=ND:GOTO 410
470
F(L-2,3)=I:F(L-2,4)=F(B,4):F(B,3)=ND:SOU
ND 1,15,10,15:GOTO 410

```

Reset for/next loop, increment left player score, setup for ball down logic, and check for end of game. Increment right player score, setup for ball down logic, and check for end of game. Erase ball from play area, set ball to inactive, set all balls to not in motion.

Ring the bell and flash some color.

Go to handle next player input.

End of Game. Clear screen, display winning player.

Make sound for a winner.

Go to redraw the screen for new game.

Set up play colors for left player.

Set up play colors for right player.

Prepare for and position entry of ball selection.

Initiate loop to accept left player entries.

Initiate loop to accept right player entries.

Only display ball numbers that are active.

Special handling to display two digit ball number.

Check if the fire button is pressed.

Check for stick forward (up) movement to increment the ball #; cause delay, go try next ball #.

Reset ball selection loop.

Prepare for and position entry of direction. Display the proper arrow direction.

Check if fire button is pressed.

Check for stick forward (up) movement. Inc. direction. Retry fire button and stick movement.

Reset direction to up if direction over limit.

Display arrow direction, cause delay, try again.

Set direction variable to chosen direction.

```

5000 REM PUT BALL IN HOLE
5002 SOUND 0,0,0,0
5005 POP :IF B<6 THEN G=G+1:G2=G:IF G=5 THEN 5015
5006 IF B>5 THEN G1=G+1:G2=G1:IF G1=5 THEN 5015
5007 POSITION X,Y:PUT #1,32:F(B,1)=0:F(B,4)=0:FOR T=1 TO 10:F(T,4)=0:NEXT T
5008 FOR TMS=1 TO 8:VL=10:IR=0.5:LM=3:GOSUB 5010:NEXT TMS:VL=5:IR=0.9:LM=1:GOSUB 5010
5009 POSITION Q+G2,22:PUT #1,B+2:SOUND 2,0,0,0:SOUND 3,0,0,0:POKE 710,194:GOTO 100
5010 SOUND 2,40,10,VL:SOUND 3,42,10,VL:VL=VL*IR:POKE 710,VL+64:IF VL>LM THEN 5010
5012 RETURN
5015 PRINT #1;"":POSITION 10,10
5020 IF P=1 THEN PRINT #1:"LEFT STICK WINS!!!"
5030 IF P<>1 THEN PRINT #1:"RIGHT STICK WINS!!!"
5040 COL=38:LO=57:HI=45:NT=HI:FOR TIM=0 TO 4:POKE 710,COL:SOUND 2,NT,10,14:FOR WT=1 TO 180:NEXT WT
5045 NT=LO:LO=HI:HI=NT:COL=COL-2:NEXT TIM
5050 SOUND 2,0,0,0:SOUND 3,0,0,0:GOTO 50
6990 REM ENTER BALL SELECTION
6992 IF P=1 THEN POKE 710,194:POKE 709,30
6994 IF P<>1 THEN POKE 710,206:POKE 709,68
7000 POSITION Q,19:PUT #1,32:POSITION Q+1,19:PUT #1,32:POSITION Q,20:PUT #1,32:POSITION Q,21:PUT #1,32:POSITION Q
7010 IF P=1 THEN FOR B=1 TO 5:IF F(B,1)<>0 THEN PUT #1,B+4B
7020 IF P<>1 THEN FOR B=6 TO 10:IF F(B,1)<>0 AND B<10 THEN PUT #1,B+4B:PRINT #1;" "
7025 IF F(B,1)=0 THEN NEXT B:GOTO 7010
7030 IF P<>1 AND B=10 THEN PRINT #1;"1";"0"
7040 TR=STRIG(P-1):ST=STICK(P-1):IF TR=0 THEN 7070
7050 IF ST=14 THEN GOSUB 9500:POSITION Q,19:GOSUB 7400:NEXT B:GOTO 7010
7060 GOTO 7040
7070 POP
7100 REM ENTER DIRECTION
7110 POSITION Q,20:D=1:PUT #1,D+23:GOSUB 7400
7120 TR=STRIG(P-1):IF TR=0 THEN 7160
7130 ST=STICK(P-1):IF ST=14 THEN D=D+1
7135 IF ST<>14 THEN 7120
7140 GOSUB 9500:IF D>8 THEN D=1
7150 POSITION Q,20:PUT #1,23+D:GOSUB 7400:GOTO 7120
7160 F(B,3)=0

```


Calculate area at top of RAM to receive the new character list. Setup top of RAM location. Clear screen, set margins, clear cursor, then print the initial screen with game information.

Move the necessary portions of the character display list from ROM and poke the display into high RAM. Create random music sounds.

Create random border colors. The random sounds and colors are an attempt to reduce boredom while the display list is being moved. Create the bumper, balls, and arrow characters from the values in the following data statements and load them into the new character list area's which are also part of the data statements. Each data statement contains data for two characters except for the last one which contains three.

Ping sound routine for player data selection noise.

End of Program

```

9000 REM MOVE CHARACTER LIST
9010 POKE 106,PEEK(106)-5:GRAPHICS 0+16
9020 SL=(PEEK(106)+1)*256
9025 PRINT "3":POKE 82,0:POKE
83,39:POKE 752,1:POSITION 2,1:PUT
#1,32:POSITION 14,7:PRINT #1;"WELCOME
TO THE"
9026 POSITION 10,9:PRINT
#1;"BUMPER POOL TOURNAMENT"
9027 POSITION 5,11:PRINT #1;"2 PLAYERS
USING JOYSTICKS 1 AND 2:"
9028 POSITION 9,13:PRINT #1;"STICK #1
USES BALLS 1-5"
9029 POSITION 8,15:? #1;"STICK #2 USES
BALLS 6-10":POSITION 3,17:PRINT
#1;"PLEASE WAIT WHILE I CREATE THE
BALLS"
9030 FOR MOVE=0 TO 720:POKE
SL+MOVE,PEEK(57344+MOVE):SOUND
0,RND(8)*75,10,6:POKE 712,MOVE/3:NEXT
MOVE
9040 SOUND 0,0,0,0:POKE 712,40:RESTORE
9080
9060 REM CHANGE CHARACTERS
9070 FOR SC=1 TO 19:READ LOC:FOR CHAR=0
TO 7:READ VALUE:POKE
LOC+SL+CHAR,VALUE:NEXT CHAR:NEXT SC
9080 DATA
536,60,126,231,231,231,231,126,60,544,60
,66,251,195,223,195,126,60
9120 DATA
552,60,66,251,243,251,195,126,60,560,60,
90,219,195,251,251,126,60
9160 DATA
568,60,66,223,195,251,195,126,60,576,60,
95,223,195,219,195,126,60
9180 DATA
584,60,66,251,247,239,223,126,60,592,60,
66,219,195,219,195,126,60
9200 DATA
600,60,66,219,219,195,251,122,60,608,60,
126,209,213,213,209,126,60
9220 DATA
704,8,28,42,73,8,8,8,8,712,31,3,5,9,17,3
2,64,128
9230 DATA
720,0,8,4,2,255,2,4,8,728,128,64,32,17,9
,5,3,31
9240 DATA
736,8,8,8,8,73,42,28,8,744,1,2,4,136,144
,160,192,248
9250 DATA
752,0,16,32,64,255,64,32,16,768,248,192,
160,144,136,4,2,1,672,60,126,255,255,255
,255,126,60
9260 RETURN
9500 SOUND 0,20,10,5:FOR PING=1 TO
30:NEXT PING:SOUND 0,0,0,0:RETURN
9999 END

```

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