

**TSC  
6502  
Game Package I**

PD65-1



**TECHNICAL SYSTEMS CONSULTANTS**

# **TSC 6502 Game Package I**

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# IMPORTANT INFORMATION

The programs in this package were designed for maximum flexibility so they could run on many 6502 based machines. Page 0 of memory is used for storage, Page 1 is used for the stack and the main program begins on Page 2. The programs contain 3 external jumps for easy adaptation to the many machines and monitors available, but the listings are assembled with MOS Technology's KIM-1 addresses. If you are not using the KIM-1 monitor you must patch in addresses for the following:

- |         |   |   |
|---------|---|---|
| INPUT   | - | Input one ASCII character to the accumulator. The parity bit must be zero. No restrictions on X or Y. |
| OUTPUT  | - | Output one ASCII character from the accumulator. The parity bit is zero. No restrictions on X or Y.   |
| MONITOR | - | The entry point for your monitor. This is used for exit from the program.                             |

## ENTERING THE PROGRAM

The programs written by TSC can be entered into your system directly from the source listing in one of two ways. First, assuming your monitor is running, the memory examine and change command can be used to input the Hexadecimal Data. If, for example, the program in question begins at address 0200 the following procedure can be used:

Open location 0200. Type in the data for that location and close it. Proceed to the next location.

The second procedure is less error prone. This method utilizes the machine code dump (MOS Technology standard format) included with all listings. Each line of the machine code file begins with; the record marker, and ends with the checksum. Therefore, if you type the load command and then type the entire machine file, the program will be entered. The blank columns in the hex dump are not to be entered as data. They are for readability. If a typing error is made, it may be detected by the checksum error detection in your monitor. To recover simply type another load command, retype the line which generated the checksum error and continue.

Programs which contain text strings may not have the strings expanded into HEX code in the source listing. Wherever possible the text strings have been located at the end of the program to simplify entry of the associated code. To input that code you must find the lines in the machine file that contain the data and use method two above to input it. The lines for the text strings can be found using the following information. Each line of the machine file contains the HEX code for up to 16 bytes of memory. The address of the first byte is given by characters 5 through 7 of that line. So it is easy to look up the address and input the needed code.

If, after you have entered the code for a particular program, it happens to not work, go back and check the contents of memory. If portions do not agree with the source listing, make the appropriate changes and try again.

Note that it is not necessary to input all the code for a particular program all in one sitting if you have a storage device (paper tape, cassette, etc.). Simply load the previously inputted portion and continue where you left off, storing the new file when finished.

```
*
*
*      COPYRIGHT (C) 1976 BY
*
*      TECHNICAL SYSTEMS CONSULTANTS
*      BOX 2574 W. LAFAYETTE IN 47906
*
*
*
* THE TSC 6502 RANDOM NUMBER GENERATOR SUPPLIES
* THE RANDOMNESS REQUIRED BY MANY PROGRAMS. THE
* PROGRAM IS BASED ON A PSEUDO-RANDOM SHIFT REGISTER
* APPROACH WHICH HAS BEEN WIDELY PUBLISHED. THE
* PROGRAM USES TWO BYTES (RNDM AND RNDM+1) FOR THE
* SHIFT REGISTER. THE ONLY REQUIREMENT IS THAT ONE
* OF THE BYTES MUST BE NON-ZERO, OTHERWISE IT WILL
* NOT RUN. A CALL TO THIS ROUTINE RETURNS A VALUE
* IN THE ACCUMULATOR (FLAGS MODIFIED, X AND Y
* UNCHANGED).
*
* THIS PROGRAM IS ENTIRELY RELOCATABLE. THIS MEANS
* THAT IT WILL RUN ANYWHERE IN YOUR MACHINES MEMORY
* SPACE. THE STORAGE (RNDM, RNDM+1) MUST BE ON
* PAGE 0.
*
```

0000		RNDM	ORG	0	
		*	RMB	2	
		*			
0200	A9	08	ORG	\$200	
0202	48		LDA	\$8	SET FOR 8 ITERATIONS
0203	A5	00	PHA		SAVE COUNTER
0205	2A		LDA	RNDM	GET BYTE
0206	45	00	ROL	A	
0208	2A		EOR	RNDM	XOR BITS 13 AND 14
0209	2A		ROL	A	
020A	26	01	ROL	RNDM+1	GET TO CARRY
020C	26	00	ROL	RNDM	SHIFT BYTE
020E	68				SHIFT SECOND BYTE
020F	18		PLA		GET COUNTER
0210	69	FF	CLC		
0212	D0	EE	ADC	\$\$FF	DECREMENT
0214	A5	00	BNE	R1	IF NOT DONE, DO AGAIN
0216	60		LDA	RNDM	GET RANDOM BYTE
			RTS		DONE
			END		

```

#10 0200 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 00 68 18 0340
#07 0210 69 FF D0 EE A5 00 60 0444

#00 0002 0002

```



LOCN B1 B2 B3

```
*
*
*
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*      TECHNICAL SYSTEMS CONSULTANTS
*      BOX 2574 W. LAFAYETTE IN 47906
*
*
*      THIS PROGRAM IMPLEMENTS THE WORD GUESSING
*      GAME "HANGMAN" FOR 6502 BASED COMPUTERS.
*      THE PROGRAM ASSUMES THE USER HAS SOME TYPE
*      OF I/O TERMINAL AND ROUTINES FOR PRINTING
*      AND INPUTTING ONE ASCII CHARACTER VIA THAT
*      DEVICE. THE PROGRAM IS SUPPLIED WITH AD-
*      DRESSES SET FOR THE KIM-1 MONITOR. OTHER
*      USERS WILL PATCH THEIR OUTPUT AND INPUT AD-
*      DRESSES AT 0209 AND 0211 RESPECTIVELY. ALSO
*      YOU MUST PATCH YOUR MONITOR ENTRY ADDRESS
*      IN AT 0216.
*
*      THE OBJECT OF THIS GAME IS TO GUESS THE WORD
*      SELECTED FROM THE SUPPLIED LIST. THIS IS
*      DONE BY ENTERING A LETTER (A-Z) IN RESPONSE
*      TO THE PROMPT "GUESS? ". IF THAT LETTER IS
*      IN THE SELECTED WORD THE COMPUTER WILL PRINT
*      THE WORD SHOWING THE LOCATION OF THAT LETTER.
*      LETTERS NOT YET GUESSED WILL BE INDICATED
*      BY "-". IF MORE THAN ONE OF THAT PARTICULAR
*      LETTER IS IN THE WORD ONLY THE FIRST OCCURENCE
*      OF THE LETTER IS DISPLAYED. FOR EACH INCOR-
*      RECT GUESS THE COMPUTER WILL DISPLAY ONE MORE
*      LETTER OF THE WORD "HANGMAN". WHEN THE WORD
*      "HANGMAN" APPEARS COMPLETELY YOU LOSE AND THE
*      WORD IS THEN REVEALED. YOU ARE THEN ASKED
*      TO "PLAY AGAIN?". THE APPROPRIATE RESPONSES
*      ARE Y OR N. IF N IS TYPED CONTROL WILL BE
*      TRANSFERRED TO YOUR MONITOR.
*
*      THE WORD LIST SUPPLIED CAN BE EASILY MODIFIED
*      TO SUIT YOUR NEEDS. THE LIST STARTS AT "WRDLST"
*      (0397) AND EACH WORD IS PRECEDED AND FOLLOWED
*      BY HEX CODE 04. EACH WORD CAN BE UP TO 9
*      LETTERS LONG WITH ONE ASCII CHARACTER IN EACH
*      BYTE. IF THE NUMBER OF WORDS IS CHANGED
*      (LISTING IS SUPPLIED WITH 16) THE VALUE OF
*      "WRDCNT" MUST ALSO BE CHANGED. THAT IS, YOU
*      MUST CHANGE THE CONTENTS OF LOCATION 025A TO
*      REFLECT THE NUMBER OF WORDS (IN HEX) IN THE LIST.
*
*      AFTER ANY WORD IS USED IT IS MARKED TO PRE-
*      CLUDE THE POSSIBILITY OF IT OCCURING MORE THAN
*      ONCE IN A PARTICULAR GAME. WHEN ALL WORDS HAVE
*      BEEN USED THE COMPUTER WILL APPEAR TO HANG JUST
*      BEFORE PRINTING THE NUMBER OF LETTERS IN THE
*      WORD. THIS YOUR INDICATION THAT IT IS ALL DONE.
*      TO PLAY AGAIN YOU MUST THEN RELOAD THE WORD LIST
*      OR THE WHOLE PROGRAM. TO DISABLE THE MARKING OF
```

LOCN B1 B2 B3

\* THE USED WORDS, CHANGE LOCATION 0278 TO EA (NOP).  
 \* BEFORE STARTING THIS PROGRAM YOU MUST BE CER-  
 \* TAIN THAT NOT BOTH BYTES RNDM AND RNDM+1 ARE  
 \* ZERO. IF SO, SET ONE OR BOTH TO SOME NON-ZERO  
 \* VALUE.

\* THE STARTING ADDRESS OF THIS PROGRAM IS 0200.

\*

\*

\* STORAGE

		ORG	0
0000	RNDM	RMB	2
0002	COUNT	RMB	1
0003	TEMP	RMB	1
0004	WRDBUF	RMB	10
000E	PTEMP	RMB	1

\*

\*

0010	WRDCNT	EQU	16
------	--------	-----	----

\*

\*

		ORG	\$200	
0200 D8	START	CLD		CLEAR DECIMAL MODE
0201 4C 4A 02		JMP	BEGIN	GO TO BEGINNING
0204 A9 20	OUTS	LDA	#'	LOAD A SPACE
0206 86 0E	OUTCH	STX	PTEMP	
0208 20 A0 1E		JSR	\$1EA0	GO PRINT
020B A6 0E		LDX	PTEMP	RESTORE
020D 60		RTS		
020E 86 0E	INCH	STX	PTEMP	SAVE
0210 20 5A 1E		JSR	\$1E5A	GO GET CHAR
0213 A6 0E		LDX	PTEMP	RESTORE
0215 60		RTS		
0216 00 1C	MON	FDB	\$001C	KIM ENTRY POINT
0218 A2 00	PCRLF	LDX	#0	
021A F0 04		BEQ	PDATA	GO PRINT CR LF
021C 20 06 02	P2	JSR	OUTCH	PRINT CHAR
021F E8	PDNXT	INX		BUMP POINTER
0220 BD 29 03	PDATA	LDA	ST,X	GET A CHARACTER
0223 C9 04		CMP	#4	CHECK FOR END OF STRING
0225 D0 F5		BNE	P2	IF NOT, GO PRINT
0227 60		RTS		DONE
0228 E8	PNXT	INX		POINT TO NEXT STRING
0229 8A	PSTR	TXA		X TO A
022A 48		PHA		SAVE
022B 20 18 02		JSR	PCRLF	GO PRINT CR LF
022E 68		PLA		GET OLD X
022F AA		TAX		RESTORE
0230 4C 20 02		JMP	PDATA	
0233 A9 08	RANDOM	LDA	#8	SET FOR 8 ITERATIONS
0235 48	R1	PHA		SAVE COUNTER
0236 A5 00		LDA	RNDM	GET BYTE
0238 2A		ROL	A	
0239 45 00		EOR	RNDM	XOR BITS 13 AND 14
023B 2A		ROL	A	
023C 2A		ROL	A	GET TO CARRY

LOCN B1 B2 B3				
023D 26 01		ROL	RNDM+1	SHIFT BYTE
023F 26 00		ROL	RNDM	SHIFT SECOND BYTE
0241 68		PLA		GET COUNTER
0242 18		CLC		
0243 69 FF		ADC	#\$FF	DECREMENT
0245 D0 EE		BNE	R1	IF NOT DONE, DO AGAIN
0247 A5 00		LDA	RNDM	GET RANDOM BYTE
0249 60		RTS		DONE
024A 20 18 02	BEGIN	JSR	PCRLF	
024D 20 28 02		JSR	PNXT	
0250 20 28 02		JSR	PNXT	
0253 20 28 02		JSR	PNXT	PRINT MESSG.
0256 20 33 02	SELECT	JSR	RANDOM	GET NUMBER
0259 C9 10		CMP	#WRDCNT	CHECK IN RANGE
025B B0 F9		BCS	SELECT	IF NOT, SELECT NEXT
025D 85 02		STA	COUNT	SAVE COUNT
025F E6 02		INC	COUNT	
0261 A0 00		LDY	#0	SET INDEX
0263 89 97 03	GETLET	LDA	WRDLST,Y	GET A LETTER
0266 C8		INY		ADVANCE PTR
0267 C9 04		CMP	#4	CHECK IF MARKER
0269 D0 F8		BNE	GETLET	IF NOT, GET NEXT
026B C6 02		DEC	COUNT	ONE WORD PAST
026D D0 F4		BNE	GETLET	CHECK IF AT WORD
026F 89 97 03		LDA	WRDLST,Y	GET LETTER
0272 F0 E2		BEQ	SELECT	CHECK IF USED
0274 A2 00		LDX	#0	
0276 95 04		STA	WRDBUF,X	SAVE
0278 BA		TXA		
0279 99 97 03		STA	WRDLST,Y	MARK AS USED
027C E6 02	CHKEND	INC	COUNT	ONE LETTER
027E C8		INY		
027F E8		INX		ADVANCE PTRS
0280 89 97 03		LDA	WRDLST,Y	GET LETTER
0283 95 04		STA	WRDBUF,X	STORE
0285 C9 04		CMP	#4	CHECK FOR END
0287 D0 F3		BNE	CHKEND	DO NEXT
0289 A5 02		LDA	COUNT	GET LETTER COUNT
028B 09 30		ORA	#\$30	ADD ASCII
028D 20 06 02		JSR	OUTCH	PRINT COUNT
0290 A2 36		LDX	#LETTER-ST	POINT TO MESSG.
0292 20 20 02		JSR	PDATA	PRINT IT
0295 A9 00		LDA	#0	CLEAR A
0297 85 02		STA	COUNT	ZERO TRY COUNTER
0299 A2 3F	OUTPR	LDX	#PROMPT-ST	
029B 20 29 02		JSR	PSTR	GO PRINT
029E 20 0E 02		JSR	INCH	GET CHARACTER
02A1 C9 41		CMP	#'A	CHECK <A
02A3 30 F4		BMI	OUTPR	IF SO, GET ANOTHER
02A5 C9 5B		CMP	#'Z+1	CHECK >Z
02A7 10 F0		BPL	OUTPR	IF SO, GET ANOTHER
02A9 A2 FF		LDX	#\$FF	
02AB 85 03		STA	TEMP	SAVE
02AD E8	CYCLE	INX		ADV. PTR.
02AE 85 04		LDA	WRDBUF,X	GET LETTER



LOCN	B1	B2	B3				
02B0	C9	04			CMP	#4	CHECK END OF WORD
02B2	F0	0A			BEQ	NOMAT	IF SO, NO MATCH
02B4	C5	03			CMP	TEMP	CHECK IF MATCH
02B6	D0	F5			BNE	CYCLE	IF NOT, CHECK NEXT
02B8	09	80			ORA	##80	SET FLAG FOR MATCH
02BA	95	04			STA	WRDBUF,X	PUT IT BACK
02BC	30	02			BMI	PRTWRD	GO PRINT WORD
02BE	E6	02		NOMAT	INC	COUNT	ONE ERROR
02C0	20	18	02	PRTWRD	JSR	PCRLF	CR LF
02C3	A2	00			LDX	#0	SET INDEX
02C5	86	03			STX	TEMP	SET FLAG
02C7	B5	04		GETL	LDA	WRDBUF,X	GET A LETTER
02C9	10	08			BPL	NOPRT	IF NO FLAG, DON'T PRINT
02CB	29	7F			AND	##7F	REMOVE FLAG
02CD	20	06	02		JSR	OUTCH	PRINT IT
02D0	20	04	02	SPC	JSR	OUTS	PRINT A SPACE
02D3	E8				INX		ADVANCE PTR.
02D4	D0	F1			BNE	GETL	SAVE A BYTE
02D6	C9	04		NOPRT	CMP	#4	CHECK END
02D8	F0	0A			BEQ	ENDWRD	
02DA	A9	2D			LDA	#'-	LOAD A -
02DC	85	03			STA	TEMP	SET FLAG
02DE	20	06	02		JSR	OUTCH	PRINT -
02E1	4C	D0	02		JMP	SPC	GO PRINT NEXT
02E4	20	04	02	ENDWRD	JSR	OUTS	
02E7	20	04	02		JSR	OUTS	PRINT 2 SPACES
02EA	A5	03			LDA	TEMP	GET FLAG
02EC	F0	29			BEQ	WON	IF 0, NO LETTERS LEFT
02EE	A2	00			LDX	#0	
02F0	E4	02		CHECK	CPX	COUNT	CHECK NO LETTERS
02F2	F0	09			BEQ	ALLDON	
02F4	BD	30	03		LDA	HANG,X	GET A LETTER
02F7	20	06	02		JSR	OUTCH	PRINT IT
02FA	E8				INX		ADVANCE PTR
02FB	D0	F3			BNE	CHECK	SAVE A BYTE
02FD	E0	07		ALLDON	CPX	#7	CHECK LOST
02FF	D0	98			BNE	OUTPR	
0301	A2	4C		LOSE	LDX	#LOSSTR-ST	
0303	20	29	02		JSR	PSTR	PRINT MSG.
0306	A2	FF			LDX	##FF	
0308	E8			CYC2	INX		
0309	B5	04			LDA	WRDBUF,X	GET LETTER
030B	29	7F			AND	##7F	MASK FLAGS
030D	C9	04			CMP	#4	CHECK DONE
030F	F0	06			BEQ	WON	IF SO, ASK PLAY AGAIN
0311	20	06	02		JSR	OUTCH	PRINT LETTER
0314	4C	08	03		JMP	CYC2	AGAIN
0317	A2	5A		WON	LDX	#WANT-ST	
0319	20	29	02		JSR	PSTR	PRINT MSG.
031C	20	0E	02		JSR	INCH	GET INPUT
031F	C9	4E			CMP	#'N	CHECK NO
0321	F0	03			BEQ	NO	
0323	4C	4A	02		JMP	BEGIN	
0326	6C	16	02	NO	JMP	(MON)	
0329	0D			ST	FCB	\$D,\$A,0,0,0,0,4	

```
LOCN B1 B2 B3
032A 0A
032B 00
032C 00
032D 00
032E 00
032F 04
0330 48      HANG      FCC      ;HANGMAN 6502;
0331 41
0332 4E
0333 47
0334 4D
0335 41
0336 4E
0337 20
0338 36
0339 35
033A 30
033B 32
033C 04      FCB      4
033D 49      FCC      ;I AM THINKING OF;
033E 20
033F 41
0340 4D
0341 20
0342 54
0343 48
0344 49
0345 4E
0346 4B
0347 49
0348 4E
0349 47
034A 20
034B 4F
034C 46
034D 20      FCC      ; A WORD;
034E 41
034F 20
0350 57
0351 4F
0352 52
0353 44
0354 04      FCB      4
0355 54      FCC      ;THAT HAS ;
0356 48
0357 41
0358 54
0359 20
035A 48
035B 41
035C 53
035D 20
035E 04      FCB      4
035F 20      LETTER   FCC      ; LETTERS;
0360 4C
```

LOCN B1 B2 B3

0361 45

0362 54

0363 54

0364 45

0365 52

0366 53

0367 04

PROMPT FCB 4  
FCC ;YOUR GUESS? ;

0368 59

0369 4F

036A 55

036B 52

036C 20

036D 47

036E 55

036F 45

0370 53

0371 53

0372 3F

0373 20

0374 04

LOSSTR FCB 4  
FCC ;THE WORD WAS ;

0375 54

0376 48

0377 45

0378 20

0379 57

037A 4F

037B 52

037C 44

037D 20

037E 57

037F 41

0380 53

0381 20

0382 04

WANT FCB 4  
FCC ;WANT TO PLAY AGAIN? ;

0383 57

0384 41

0385 4E

0386 54

0387 20

0388 54

0389 4F

038A 20

038B 50

038C 4C

038D 41

038E 59

038F 20

0390 41

0391 47

0392 41

0393 49

0394 4E

0395 3F

0396 20

WRDLST FCB 4

0397 04

LOCN	B1	B2	B3		
0398	54			FCC	#TURKEY#
0399	55				
039A	52				
039B	4B				
039C	45				
039D	59				
039E	04			FCB	4
039F	4D			FCC	#MACHINE#
03A0	41				
03A1	43				
03A2	4B				
03A3	49				
03A4	4E				
03A5	45				
03A6	04			FCB	4
03A7	54			FCC	#TREE#
03A8	52				
03A9	45				
03AA	45				
03AB	04			FCB	4
03AC	46			FCC	#FATHER#
03AD	41				
03AE	54				
03AF	4B				
03B0	45				
03B1	52				
03B2	04			FCB	4
03B3	4B			FCC	#HOUSE#
03B4	4F				
03B5	55				
03B6	53				
03B7	45				
03B8	04			FCB	4
03B9	53			FCC	#SECOND#
03BA	45				
03BB	43				
03BC	4F				
03BD	4E				
03BE	44				
03BF	04			FCB	4
03C0	41			FCC	#APPLE#
03C1	50				
03C2	50				
03C3	4C				
03C4	45				
03C5	04			FCB	4
03C6	54			FCC	#TURTLE#
03C7	55				
03C8	52				
03C9	54				
03CA	4C				
03CB	45				
03CC	04			FCB	4
03CD	42			FCC	#BOXES#
03CE	4F				

LOCN	B1	B2	B3		
03CF	58				
03D0	45				
03D1	53				
03D2	04			FCB	4
03D3	54			FCC	!TRUCK!
03D4	52				
03D5	55				
03D6	43				
03D7	4B				
03D8	04			FCB	4
03D9	52			FCC	!RADICAL!
03DA	41				
03DB	44				
03DC	49				
03DD	43				
03DE	41				
03DF	4C				
03E0	04			FCB	4
03E1	53			FCC	!STAPLE!
03E2	54				
03E3	41				
03E4	50				
03E5	4C				
03E6	45				
03E7	04			FCB	4
03E8	56			FCC	!VERTICAL!
03E9	45				
03EA	52				
03EB	54				
03EC	49				
03ED	43				
03EE	41				
03EF	4C				
03F0	04			FCB	4
03F1	50			FCC	!PEA!
03F2	45				
03F3	41				
03F4	04			FCB	4
03F5	43			FCC	!CART!
03F6	41				
03F7	52				
03F8	54				
03F9	04			FCB	4
03FA	42			FCC	!BROAD!
03FB	52				
03FC	4F				
03FD	41				
03FE	44				
03FF	04			FCB	4
				END	

SYMBOL TABLE:



ALLDON	02FD	BEGIN	024A	CHECK	02F0	CHKEND	027C	COUNT	0002
CYCLE	02AD	CYC2	0308	ENDWRD	02E4	GETL	02C7	GETLET	0263
HANG	0330	INCH	020E	LETTER	035F	LOSE	0301	LOSSTR	0375
MON	0216	NO	0326	NOMAT	02BE	NOPRT	02D6	OUTCH	0206
OUTPR	0299	OUTS	0204	PCRLF	0218	PDATA	0220	PDNXT	021F
PNXT	0228	PROMPT	0368	PRTWRD	02C0	PSTR	0229	PTMP	000E
P2	021C	RANDOM	0233	RNDM	0000	R1	0235	SELECT	0256
SPC	02D0	ST	0329	START	0200	TEMP	0003	WANT	0383
WON	0317	WRDBUF	0004	WRDCNT	0010	WRDLST	0397		

## OBJECT CODE:

```

#10 0200 D8 4C 4A 02 A9 20 86 0E 20 A0 1E A6 0E 60 86 0E 0565
#10 0210 20 5A 1E A6 0E 60 00 1C A2 00 F0 04 20 06 02 E8 0490
#10 0220 BD 29 03 C9 04 D0 F5 60 E8 8A 48 20 18 02 68 AA 0713
#10 0230 4C 20 02 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 035E
#10 0240 00 68 18 69 FF D0 EE A5 00 60 20 18 02 20 28 02 0581
#10 0250 20 28 02 20 28 02 20 33 02 C9 10 B0 F9 85 02 E6 053A
#10 0260 02 A0 00 B9 97 03 C8 C9 04 D0 F8 C6 02 D0 F4 B9 0909
#10 0270 97 03 F0 E2 A2 00 95 04 8A 99 97 03 E6 02 C8 E8 087E
#10 0280 B9 97 03 95 04 C9 04 D0 F3 A5 02 09 30 20 06 02 0616
#10 0290 A2 36 20 20 02 A9 00 85 02 A2 3F 20 29 02 20 0E 0446
#10 02A0 02 C9 41 30 F4 C9 5B 10 F0 A2 FF 85 03 E8 B5 04 08D0
#10 02B0 C9 04 F0 0A C5 03 D0 F5 09 80 95 04 30 02 E6 02 0752
#10 02C0 20 18 02 A2 00 86 03 85 04 10 0B 29 7F 20 06 02 03DB
#10 02D0 20 04 02 E8 D0 F1 C9 04 F0 0A A9 2D 85 03 20 06 06FC
#10 02E0 02 4C D0 02 20 04 02 20 04 02 A5 03 F0 29 A2 00 04C1
#10 02F0 E4 02 F0 09 BD 30 03 20 06 02 E8 D0 F3 E0 07 D0 085B
#10 0300 98 A2 4C 20 29 02 A2 FF E8 B5 04 29 7F C9 04 F0 078B
#10 0310 06 20 06 02 4C 08 03 A2 5A 20 29 02 20 0E 02 C9 02E8
#10 0320 4E F0 03 4C 4A 02 6C 16 02 0D 0A 00 00 00 00 04 02AB
#10 0330 48 41 4E 47 4D 41 4E 20 36 35 30 32 04 49 20 41 03D8
#10 0340 4D 20 54 48 49 4E 4B 49 4E 47 20 4F 46 20 41 20 0452
#10 0350 57 4F 52 44 04 54 48 41 54 20 48 41 53 20 04 20 0414
#10 0360 4C 45 54 54 45 52 53 04 59 4F 55 52 20 47 55 45 04EA
#10 0370 53 53 3F 20 04 54 48 45 20 57 4F 52 44 20 57 41 0481
#10 0380 53 20 04 57 41 4E 54 20 54 4F 20 50 4C 41 59 20 047D
#10 0390 41 47 41 49 4E 3F 20 04 54 55 52 4B 45 59 04 4D 049B
#10 03A0 41 43 48 49 4E 45 04 54 52 45 45 04 46 41 54 48 04B6
#10 03B0 45 52 04 48 4F 55 53 45 04 53 45 43 4F 4E 44 04 04A6
#10 03C0 41 50 50 4C 45 04 54 55 52 54 4C 45 04 42 4F 58 0516
#10 03D0 45 53 04 54 52 55 43 4B 04 52 41 44 49 43 41 4C 04FC
#10 03E0 04 53 54 41 50 4C 45 04 56 45 52 54 49 43 41 4C 051E
#10 03F0 04 50 45 41 04 43 41 52 54 04 42 52 4F 41 44 04 047B
#00 0020 0020

```

HANGMAN  
I AM THINKING OF A WORD  
THAT HAS 6 LETTERS  
YOUR GUESS? E  
- - - - E -  
YOUR GUESS? I  
- - - - E - H  
YOUR GUESS? A  
- - - - E - HA  
YOUR GUESS? O  
- - - - E - HAN  
YOUR GUESS? U  
- U - - E - HAN  
YOUR GUESS? T  
T U - - E - HAN  
YOUR GUESS? L  
T U - - E - HANG  
YOUR GUESS? R  
T U R - E - HANG  
YOUR GUESS? Y  
T U R - E Y HANG  
YOUR GUESS? K  
T U R K E Y  
WANT TO PLAY AGAIN? Y

HANGMAN  
I AM THINKING OF A WORD  
THAT HAS 6 LETTERS  
YOUR GUESS? E  
- - - - E -  
YOUR GUESS? A  
- A - - E -  
YOUR GUESS? I  
- A - - E - H  
YOUR GUESS? R  
- A - - E R H  
YOUR GUESS? H  
- A - H E R H  
YOUR GUESS? T  
- A T H E R H  
YOUR GUESS? L  
- A T H E R HA  
YOUR GUESS? G  
- A T H E R HAN  
YOUR GUESS? F  
F A T H E R  
WANT TO PLAY AGAIN? Y

HANGMAN  
I AM THINKING OF A WORD  
THAT HAS 5 LETTERS  
YOUR GUESS? E  
- - - E -  
YOUR GUESS? I  
- - - E - H  
YOUR GUESS? A  
- - - E - HA  
YOUR GUESS? O  
- O - E - HA  
YOUR GUESS? R  
- O - E - HAN  
YOUR GUESS? T  
- O - E - HANG  
YOUR GUESS? B  
B O - E - HANG  
YOUR GUESS? P  
B O - E - HANG  
YOUR GUESS? M  
B O - F - HANGMA  
YOUR GUESS? D  
B O - E - HANGMAN  
THE WORD WAS ROXFS  
WANT TO PLAY AGAIN? Y

HANGMAN  
I AM THINKING OF A WORD  
THAT HAS 6 LETTERS  
YOUR GUESS? F  
- - - - F -  
YOUR GUESS? A  
- - A - - E  
YOUR GUESS? I  
- - A - - E H  
YOUR GUESS? O  
- - A - - E HA  
YOUR GUESS? U  
- - A - - E HAN  
YOUR GUESS? S  
S - A - - E HAN  
YOUR GUESS? H  
S - A - - E HANG  
YOUR GUESS? T  
S T A - - E HANG  
YOUR GUESS? T  
S T A - - E HANGM  
YOUR GUESS? R  
S T A - - E HANGMA  
YOUR GUESS? L  
S T A - L E HANGMA  
YOUR GUESS? P  
S T A P L E  
WANT TO PLAY AGAIN? N

LOCN B1 B2 B3

```

*
* HURKLE FOR 6502
*
* COPYRIGHT (C) 1976 BY
* TECHNICAL SYSTEMS CONSULTANTS
* BOX 2574
* WEST LAFAYETTE, IND. 47906
*
*
* INSTRUCTIONS FOR PLAYING HURKLE
*
*   THIS GAME IS ADAPTED FOR THE 6502 FROM
*   THE VERSION RELEASED BY THE PEOPLES COMPUTER
*   COMPANY. THE OBJECT OF THE GAME IS TO FIND THE
*   HIDING HURKLE. HE WILL BE HIDING ON A 10X10
*   GRID WITH 0,0 BEING THE SOUTHWEST CORNER OF THE
*   PLAYING FIELD. YOU WILL HAVE THREE GUESSES TO
*   FIND HIM!
*
*   TO START THE GAME, START EXECUTION AT HEX
*   LOCATION 0200. YOU WILL THEN BE ASKED FOR AN
*   INITIAL GUESS. IF YOU DIDNT FIND HIM THE COMPUTER
*   WILL GIVE YOU A CLUE, TELLING YOU WHICH DIRECTION
*   YOU NEED TO GO TO FIND HIM. FOR EXAMPLE, IF YOU
*   GUESSED 2,3 AND THE HURKLE WAS HIDING AT 6,6
*   YOU WOULD BE TOLD TO GO NORTH EAST. THE FIRST
*   NUMBER ENTERED MOVES YOU NORTH OR SOUTH
*   (INCREASING VALUES MOVE YOU NORTH) AND THE 2ND
*   NUMBER MOVES YOU EAST OR WEST (INCREASING NUMBERS
*   MOVE YOU EAST). IF YOU CANT FIND HIM IN 3
*   GUESSES, YOU WILL BE TOLD WHERE HE WAS HIDING.
*
* HAPPY HURKLE HUNTING !!
*
*

```

		ORG	0	
0000	RNDM	RMB	2	
0002	PTEMP	RMB	1	
0003	XSTORE	RMB	1	
0004	YSTORE	RMB	1	
0005	SAVE	RMB	1	
0006	COUNT	RMB	1	
		ORG	\$200	
0200 D8	START	CLD		CLEAR DECIMAL MODE
0201 4C 6E 02		JMP	HURK65	GO TO BEGINNING
0204 A9 20	OUTS	LDA	#'	LOAD A SPACE
0206 86 02	OUTCH	STX	PTEMP	
0208 20 A0 1E		JSR	\$1EA0	GO PRINT
020B A6 02		LDX	PTEMP	RESTORE
020D 60		RTS		
020E B6 02	INCH	STX	PTEMP	SAVE

```

LOCN B1 B2 B3
0210 20 5A 1E      JSR    $1E5A    GO GET CHAR
0213 A6 02          LDX    PTEMP    RESTORE
0215 60             RTS
0216 00 1C      MON    FDB    $001C    KIM ENTRY POINT

```

## \* PRINT CARRIAGE RETURN LINE FEED

```

0218 A2 00      PCRLF  LDX    #0
021A F0 04      BEQ    PDATA    GO PRINT CR LF
021C 20 06 02   P2      JSR    OUTCH  PRINT CHAR
021F E8         PDNXT  INX          BUMP POINTER
0220 BD 1F 03   PDATA  LDA    ST,X   GET A CHARACTER
0223 C9 04      CMP    #4          CHECK FOR END OF STRING
0225 D0 F5      BNE    P2          IF NOT, GO PRINT
0227 60         RTS              DONE
0228 E8         PNXT  INX          POINT TO NEXT STRING

```

## \* PRINT STRING

```

0229 8A         PSTR  TXA          X TO A
022A 48         PHA          SAVE
022B 20 18 02   JSR    PCRLF      GO PRINT CR LF
022E 68         PLA          GET OLD X
022F AA         TAX          RESTORE
0230 4C 20 02   JMP    PDATA

```

## \* RANDOM ROUTINE

```

0233 A9 08      RANDOM LDA    #8    SET FOR 8 ITERATIONS
0235 48      R1    PHA          SAVE COUNTER
0236 A5 00      LDA    RNDM      GET BYTE
0238 2A          ROL A
0239 45 00      EOR    RNDM      XOR BITS 13 AND 14
023B 2A          ROL A
023C 2A          ROL A
023D 26 01      ROL    RNDM+1    GET TO CARRY
023F 26 00      ROL    RNDM      SHIFT BYTE
0241 68          PLA          SHIFT SECOND BYTE
0242 18          CLC          GET COUNTER
0243 69 FF      ADC    #$FF      DECREMENT
0245 D0 EE      BNE    R1        IF NOT DONE, DO AGAIN
0247 A5 00      LDA    RNDM      GET RANDOM BYTE
0249 60         RTS              DONE

```

## \* GET RANDOM LOCATION

```

024A 20 33 02   GETVAL JSR    RANDOM  GET A RANDOM NUM.
024D 29 0F      AND    #$0F      MASK IT OFF
024F C9 0A      CMP    #$0A      GREATER THAN 9 ?
0251 B0 F7      BCS    GETVAL     IF SO REPEAT
0253 09 30      ORA    #'0       MAKE ASCII
0255 60         RTS              RETURN

```

## \* GET AND CHECK GUESS



```

LOCN B1 B2 B3
0256 A2 25   GETCHR LDX   #PRMP-ST
0258 20 20 02   JSR   PDATA   OUTPUT PROMPT
025B 20 0E 02   JSR   INCH     GET GUESS
025E C9 30       CMP   #30     CHECK IF VALID
0260 90 05       BCC   NOGOOD
0262 C9 3A       CMP   #3A     GREATER THAN 9 ?
0264 B0 01       BCS   NOGOOD
0266 60         RTS           RETURN
0267 A2 29   NOGOOD LDX   #DUMB-ST
0269 20 29 02   JSR   PSTR     YOU GOOFED
026C 38       SEC           SET ERROR
026D 60       RTS           RETURN

```

## \* MAIN PROGRAM STARTS HERE

```

026E 20 4A 02   HURK65 JSR   GETVAL   GET RANDOM LOC.
0271 85 04       STA   YSTORE   SAVE IT
0273 20 4A 02   JSR   GETVAL   GET ANOTHER LOC.
0276 85 03       STA   XSTORE   SAVE IT
0278 A9 31       LDA   #1       SET UP COUNTER
027A 85 06       STA   COUNT
027C 20 18 02   JSR   PCRLF    OUTPUT A CR AND LF
027F 20 18 02   JSR   PCRLF
0282 20 28 02   JSR   PNXT     OUTPUT INTRO

```

## \* MAIN LOOP

```

0285 A2 1D   LOOP LDX   #GUES-ST
0287 20 29 02   JSR   PSTR     OUTPUT STRING
028A A5 06       LDA   COUNT   GET COUNT
028C 20 06 02   JSR   OUTCH    OUTPUT IT
028F 20 56 02   JSR   GETCHR   GET GUESS
0292 B0 F1       BCS   LOOP     IF GOOFED REPEAT
0294 85 05       STA   SAVE     SAVE GUESS
0296 20 56 02   JSR   GETCHR   GET 2ND GUESS
0299 B0 EA       BCS   LOOP
029B 48         PHA           SAVE GUESS
029C A5 05       LDA   SAVE
029E C5 04       CMP   YSTORE   CHECK Y LOC
02A0 F0 29       BEQ   CHECK
02A2 A2 3F       LDX   #GOSTR-ST
02A4 20 29 02   JSR   PSTR     OUTPUT STRING
02A7 A5 05       LDA   SAVE
02A9 C5 04       CMP   YSTORE   CHECK Y
02AB B0 05       BCS   HI
02AD A2 43       LDX   #NORTH-ST
02AF 4C B4 02   JMP   H2       OUTPUT NORTH
02B2 A2 49   HI   LDX   #SOUTH-ST
02B4 20 20 02   H2   JSR   PDATA   OUTPUT SOUTH
02B7 68   NEXT   PLA           GET X GUESS
02B8 C5 03       CMP   XSTORE   CHECK X
02BA F0 2F       BEQ   NEXT2    IS IT EQUAL ?
02BC B0 05       BCS   HI2
02BE A2 4F       LDX   #EAST-ST

```



```

LOCN B1 B2 B3
02C0 4C C5 02      JMP      HI3      OUTPUT EAST
02C3 A2 54      HI2      LDX      #WEST-ST
02C5 20 20 02      HI3      JSR      PDATA      OUTPUT WEST
02C8 4C EB 02      JMP      NEXT2      JUMP AHEAD

```

## \* CHECK IF WON

```

02CB 68      CHECK      PLA      GET X
02CC C5 03      CMP      XSTORE      COMPARE IT
02CE F0 09      BEQ      CHECK1      EQUAL
02D0 48      PHA      SAVE ACC.
02D1 A2 3F      LDX      #GOSTR-ST
02D3 20 29 02      JSR      PSTR      OUTPUT 'GO'
02D6 4C B7 02      JMP      NEXT

```

## \* HE WON !!

```

02D9 A2 59      CHECK1      LDX      #WIN-ST
02DB 20 29 02      JSR      PSTR      OUTPUT WIN STRING
02DE A5 06      LDA      COUNT      GET COUNT
02E0 20 06 02      JSR      OUTCH      OUTPUT IT
02E3 A2 68      LDX      #WIN2-ST
02E5 20 20 02      JSR      PDATA      FINISH MESSAGE
02E8 4C 0D 03      JMP      PLAGN

02EB E6 06      NEXT2      INC      COUNT      BUMP THE TRY COUNT
02ED A5 06      LDA      COUNT
02EF C9 34      CMP      #'4      ALL TRIES USED ?
02F1 F0 03      BEQ      NEXT3
02F3 4C 85 02      JMP      LOOP      REPEAT LOOP

```

## \* HE LOST

```

02F6 A2 78      NEXT3      LDX      #LOSE-ST
02F8 20 29 02      JSR      PSTR      OUTPUT LOSE STRING
02FB 20 28 02      JSR      PNXT
02FE A5 04      LDA      YSTORE      GET Y LOC.
0300 20 06 02      JSR      OUTCH      OUTPUT IT
0303 A9 2C      LDA      #',
0305 20 06 02      JSR      OUTCH      OUTPUT A COMMA
0308 A5 03      LDA      XSTORE      GET X LOC.
030A 20 06 02      JSR      OUTCH      OUTPUT IT

```

## \* SEE IF PLAY AGAIN

```

030D A2 A6      PLAGN      LDX      #AGAIN-ST
030F 20 29 02      JSR      PSTR      OUTPUT STRING
0312 20 0E 02      JSR      INCH      GET REPLY
0315 C9 4E      CMP      #'N      IS IT A 'N'
0317 F0 03      BEQ      EXIT      IF SO, EXIT
0319 4C 6E 02      JMP      HURK65      GO PLAY AGAIN
031C 6C 16 02      EXIT      JMP      (MON)      GO TO MONITOR

```

## \* STRINGS START HERE

```

LOCN B1 B2 B3
031F 0D      ST      FCB      $D,$A,0,0,0,0,4
0326 54      HURKST  FCC      ;THE HURKLE IS HIDING!;
0338 04      FCB      4
033C 47      GUES    FCC      ;GUESS #;
0343 04      FCB      4
0344 20      PRMPT   FCC      ; ? ;
0347 04      FCB      4
0348 59      DUMB    FCC      ;YOU GOOFED, TRY AGAIN;
035D 04      FCB      4
035E 47      GOSTR   FCC      ;GO ;
0361 04      FCB      4
0362 4E      NORTH   FCC      ;NORTH;
0367 04      FCB      4
0368 53      SOUTH   FCC      ;SOUTH;
036D 04      FCB      4
036E 45      EAST    FCC      ;EAST;
0372 04      FCB      4
0373 57      WEST    FCC      ;WEST;
0377 04      FCB      4
0378 59      WIN     FCC      ;YOU FOUND HIM IN ;
0389 04      FCB      4
038A 20      WIN2    FCC      ; GUESSES !!!;
0396 04      FCB      4
0397 53      LOSE    FCC      ;SORRY, THAT WAS 3 GUESSES.;
03B1 04      FCB      4
03B2 54      LOSE2   FCC      ;THE HURKLE WAS AT ;
03C4 04      FCB      4
03C5 57      AGAIN   FCC      ;WANT TO PLAY AGAIN? ;
03D9 04      FCB      4

```

END

## SYMBOL TABLE:

AGAIN	03C5	CHECK	02CB	CHECK1	02D9	COUNT	0006	DUMB	0348
EAST	036E	EXIT	031C	GETCHR	0256	GETVAL	024A	GOSTR	035E
GUES	033C	HI	02B2	HI2	02C3	HI3	02C5	HURKST	0326
HURK65	026E	H2	02B4	INCH	020E	LOOP	02B5	LOSE	0397
LOSE2	03B2	MON	0216	NEXT	02B7	NEXT2	02EB	NEXT3	02F6
NOGOOD	0267	NORTH	0362	OUTCH	0206	OUTS	0204	PCRLF	0218
PDATA	0220	PDNXT	021F	PLAGN	030D	PNXT	0228	PRMPT	0344
PSTR	0229	PTMP	0002	P2	021C	RANDOM	0233	RNDM	0000
R1	0235	SAVE	0005	SOUTH	0368	ST	031F	START	0200
WEST	0373	WIN	0378	WIN2	038A	XSTORE	0003	YSTORE	0004

## OBJECT CODE:

```

;10 0200 D8 4C 6E 02 A9 20 86 02 20 A0 1E A6 02 60 86 02 0565
;10 0210 20 5A 1E A6 02 60 00 1C A2 00 F0 04 20 06 02 E8 0484
;10 0220 BD 1F 03 C9 04 D0 F5 60 E8 8A 48 20 18 02 68 AA 0709
;10 0230 4C 20 02 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 035E

```

```

#10 0240 00 68 18 69 FF D0 EE A5 00 60 20 33 02 29 0F C9 0653
#10 0250 0A B0 F7 09 30 60 A2 25 20 20 02 20 0E 02 C9 30 04DE
#10 0260 90 05 C9 3A B0 01 60 A2 29 20 29 02 38 60 20 4A 0533
#10 0270 02 85 04 20 4A 02 85 03 A9 31 85 06 20 18 02 20 03C0
#10 0280 18 02 20 28 02 A2 1D 20 29 02 A5 06 20 06 02 20 02F3
#10 0290 56 02 B0 F1 85 05 20 56 02 B0 EA 48 A5 05 C5 04 06F2
#10 02A0 F0 29 A2 3F 20 29 02 A5 05 C5 04 B0 05 A2 43 4C 0650
#10 02B0 B4 02 A2 49 20 20 02 68 C5 03 F0 2F B0 05 A2 4F 069A
#10 02C0 4C C5 02 A2 54 20 20 02 4C EB 02 68 C5 03 F0 09 067F
#10 02D0 48 A2 3F 20 29 02 4C B7 02 A2 59 20 29 02 A5 06 054C
#10 02E0 20 06 02 A2 6B 20 20 02 4C 0D 03 E6 06 A5 06 C9 0525
#10 02F0 34 F0 03 4C 85 02 A2 78 20 29 02 20 28 02 A5 04 0554
#10 0300 20 06 02 A9 2C 20 06 02 A5 03 20 06 02 A2 A6 20 0370
#10 0310 29 02 20 0E 02 C9 4E F0 03 4C 6E 02 6C 16 02 0D 03D5
#10 0320 0A 00 00 00 00 04 54 48 45 20 48 55 52 4B 4C 45 030D
#10 0330 20 49 53 20 48 49 44 49 4E 47 21 04 47 55 45 53 042B
#10 0340 53 20 23 04 20 3F 20 04 59 4F 55 20 47 4F 4F 46 03B8
#10 0350 45 44 2C 20 54 52 59 20 41 47 41 49 4E 04 47 4F 0451
#10 0360 20 04 4E 4F 52 54 48 04 53 4F 55 54 48 04 45 41 0443
#10 0370 53 54 04 57 45 53 54 04 59 4F 55 20 46 4F 55 4E 04CA
#10 0380 44 20 48 49 4D 20 49 4E 20 04 20 47 55 45 53 53 0457
#10 0390 45 53 20 21 21 21 04 53 4F 52 52 59 2C 20 54 48 0449
#10 03A0 41 54 20 57 41 53 20 33 20 47 55 45 53 53 45 53 04E5
#10 03B0 2E 04 54 48 45 20 48 55 52 4B 4C 45 20 57 41 53 04CC
#10 03C0 20 41 54 20 04 57 41 4E 54 20 54 4F 20 50 4C 41 04A6
#0A 03D0 59 20 41 47 41 49 4E 3F 20 04 0319

#00 001E 001E

```

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO WEST  
 GUESS #2 ? 5 ? 3  
 YOU FOUND HIM IN 2 GUESSES !!!  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO SOUTHEAST  
 GUESS #2 ? 3 ? 8  
 YOU FOUND HIM IN 2 GUESSES !!!  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO SOUTHEAST  
 GUESS #2 ? 3 ? 8  
 GO EAST  
 GUESS #3 ? 3 ? 9  
 YOU FOUND HIM IN 3 GUESSES !!!  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO WEST  
 GUESS #2 ? 5 ? 3  
 YOU FOUND HIM IN 2 GUESSES !!!  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO NORTHWEST  
 GUESS #2 ? 8 ? 3  
 GO WEST  
 GUESS #3 ? 3 ? 2  
 GO WEST  
 SORRY, THAT WAS 3 GUESSES.  
 THE HURKLE WAS AT 8.8  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO SOUTHWEST  
 GUESS #2 ? 3 ? 3  
 GO SOUTH  
 GUESS #3 ? 1 ? 3  
 GO SOUTH  
 SORRY, THAT WAS 3 GUESSES.  
 THE HURKLE WAS AT 0.3  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO NORTHWEST  
 GUESS #2 ? 8 ? 2  
 GO EAST  
 GUESS #3 ? 8 ? 4  
 GO WEST  
 SORRY, THAT WAS 3 GUESSES.  
 THE HURKLE WAS AT 8.3  
 WANT TO PLAY AGAIN? Y

THE HURKLE IS HIDING!  
 GUESS #1 ? 5 ? 5  
 GO SOUTHWEST  
 GUESS #2 ? 3 ? 3  
 GO WEST  
 GUESS #3 ? 3 ? 1  
 GO EAST  
 SORRY, THAT WAS 3 GUESSES.  
 THE HURKLE WAS AT 3.2  
 WANT TO PLAY AGAIN? N

LOCN B1 B2 B3

\*  
\*  
\*  
\*  
\*  
\*  
\*  
\*  
\*

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TECHNICAL SYSTEMS CONSULTANTS  
BOX 2574 W. LAFAYETTE IN 47906

\* THIS PROGRAM IMPLEMENTS THE POPULAR MASTERMIND  
 \* GAME FOR MOS 6502 BASED COMPUTERS. THE PROGRAM  
 \* ASSUMES THAT THE USER HAS AN I/O TERMINAL OF SOME  
 \* TYPE AND A ROUTINE FOR PRINTING AN ASCII CHARACTER  
 \* AND INPUTTING AN ASCII CHARACTER USING THAT DEVICE.  
 \* THE USER MUST INSTALL THE ADDRESSES OF THOSE I/O  
 \* ROUTINES AT 0209 AND 0211 (IN NORMAL 6502 FORM)  
 \* FOR OUTPUT AND INPUT RESPECTIVELY. ALSO, THE USER  
 \* MUST INSTALL THE ENTRY ADDRESS OF HIS MONITOR  
 \* AT 0216. THE SOURCE LISTING IS SUPPLIED WITH THE  
 \* ADDRESSES SET FOR THE KIM-1 MONITOR.  
 \* THE OBJECT OF THIS GAME IS TO GUESS A SEQUENCE  
 \* OF 4 LETTERS IN THE RANGE OF A-F THAT THE COMPUTER  
 \* HAS SELECTED. THE COMPUTER WILL GIVE YOU CLUES  
 \* AS TO THE ACCURACY OF YOUR GUESS AS FOLLOWS:  
 \* ONE BLACK MARKER FOR EACH LETTER GUESSED IN THE  
 \* CORRECT POSITION.  
 \* ONE WHITE MARKER FOR EACH LETTER GUESSED IN THE  
 \* SEQUENCE BUT NOT IN THE CORRECT POSITION.  
 \* THE TOTAL NUMBER OF MARKERS (BLACK + WHITE) WILL  
 \* NEVER EXCEED 4 BECAUSE THE COMPUTER WILL AWARD AT  
 \* MOST ONE MARKER FOR EACH POSITION OF THE USER'S  
 \* GUESS. WHEN YOU RECEIVE 4 BLACK MARKERS YOU HAVE  
 \* GUESSED THE SEQUENCE AND THE COMPUTER WILL INFORM  
 \* YOU AS TO HOW MANY TRIES YOU NEEDED.  
 \* IF YOU GIVE UP, YOU MAY TYPE A 'G' AS ONE OF  
 \* OF YOUR GUESSES AND THE COMPUTER WILL TELL YOU  
 \* WHAT THE SEQUENCE WAS.  
 \* SEE THE ATTACHED SAMPLE OUTPUT FOR AN EXAMPLE.  
 \* CAUTION MUST BE EXERCISED SO THAT NOT BOTH BYTES  
 \* RNDM AND RNDM+1 ARE ZERO. IF THIS IS THE CASE,  
 \* CHANGE ONE OR BOTH BYTES TO SOME VALUE (NON-ZERO)  
 \* BEFORE YOU BEGIN RUNNING THE PROGRAM.  
 \* THE STARTING ADDRESS OF THIS PROGRAM IS 0200.

HAVE FUN!

\* ZERO PAGE STORAGE

	ORG	0
0000	RNDM	2
0002	PTEMP	1
0003	BLACKS	1
0004	WHITES	1



LOCN	B1	B2	B3					
0005				TRIES	RMB	1		
0006				TOKENS	RMB	4		
000A				HIS	RMB	4		
000E				XTEMP	RMB	1		
				*				
				*				
				*				
				ORG	\$200			
0200	D8			START	CLD			CLEAR DECIMAL MODE
0201	4C	4A	02		JMP	BEGIN		GO TO BEGINNING
0204	A9	20		OUTS	LDA	#'		LOAD A SPACE
0206	86	02		OUTCH	STX	PTEMP		
0208	20	A0	1E		JSR	\$1EA0		GO PRINT
0208	A6	02			LDX	PTEMP		RESTORE
020D	60				RTS			
020E	86	02		INCH	STX	PTEMP		SAVE
0210	20	5A	1E		JSR	\$1E5A		GO GET CHAR
0213	A6	02			LDX	PTEMP		RESTORE
0215	60				RTS			
0216	00	1C		MON	FDB	\$001C		KIM ENTRY POINT
0218	A2	00		PCRLF	LDX	#0		
021A	F0	04			BEQ	PDATA		GO PRINT CR LF
021C	20	06	02	P2	JSR	OUTCH		PRINT CHAR
021F	E8			PDNXT	INX			BUMP POINTER
0220	BD	40	03	PDATA	LDA	ST,X		GET A CHARACTER
0223	C9	04			CMP	#4		CHECK FOR END OF STRING
0225	D0	F5			BNE	P2		IF NOT, GO PRINT
0227	60				RTS			DONE
0228	E8			PNXT	INX			POINT TO NEXT STRING
0229	8A			PSTR	TXA			X TO A
022A	48				PHA			SAVE
022B	20	18	02		JSR	PCRLF		GO PRINT CR LF
022E	68				PLA			GET OLD X
022F	AA				TAX			RESTORE
0230	4C	20	02		JMP	PDATA		
0233	A9	08		RANDOM	LDA	#8		SET FOR 8 ITERATIONS
0235	48			R1	PHA			SAVE COUNTER
0236	A5	00			LDA	RNDM		GET BYTE
0238	2A				ROL	A		
0239	45	00			EOR	RNDM		XOR BITS 13 AND 14
023B	2A				ROL	A		
023C	2A				ROL	A		GET TO CARRY
023D	26	01			ROL	RNDM+1		SHIFT BYTE
023F	26	00			ROL	RNDM		SHIFT SECOND BYTE
0241	68				PLA			GET COUNTER
0242	18				CLC			
0243	69	FF			ADC	##FF		DECREMENT
0245	D0	EE			BNE	R1		IF NOT DONE, DO AGAIN
0247	A5	00			LDA	RNDM		GET RANDOM BYTE
0249	60				RTS			DONE
024A	20	18	02	BEGIN	JSR	PCRLF		
024D	20	28	02		JSR	PNXT		
0250	20	28	02		JSR	PNXT		AGAIN
0253	20	28	02		JSR	PNXT		AGAIN
0256	A2	03			LDX	#3		

LOCN B1 B2 B3				
0258 20 33 02	SELECT	JSR	RANDOM	GET A NUMBER
025B 29 07		AND	#7	MASK
025D C9 06		CMP	#6	CHECK > 5
025F B0 F7		BCS	SELECT	IF SO, GET ANOTHER
0261 69 41		ADC	#'A	ADD ON ALPHA BIAS
0263 95 06		STA	TOKENS,X	SAVE TOKEN
0265 CA		DEX		COUNT ONE DONE
0266 10 F0		BPL	SELECT	IF NOT 4, DO AGAIN
0268 E8		INX		INCREMENT TO 0
0269 B6 05		STX	TRIES	SET TRIES = 0
026B A2 42	GETTRY	LDX	#GUESS-ST	POINT STRING
026D 20 29 02		JSR	PSTR	GO PRINT
0270 A2 03		LDX	#3	SET FOR 4 TOKENS
0272 20 0E 02	GETLET	JSR	INCH	GO GET CHAR
0275 C9 41		CMP	#'A	CHECK AGAINST A
0277 90 09		BCC	ERROR	IF < A, ERROR
0279 C9 47		CMP	#'G	CHECK AGAINST G
027B 90 0C		BCC	OK	IF < G, ALL RIGHT
027D D0 03		BNE	ERROR	
027F 4C 26 03		JMP	GIVE	GIVING UP?
0282 A2 4F	ERROR	LDX	#WHAT-ST	POINT TO STRING
0284 20 29 02		JSR	PSTR	GO PRINT
0287 F0 E2		BEQ	GETTRY	SAVE A BYTE
0289 95 0A	OK	STA	HIS,X	PUT IN HIS STORE
028B 20 04 02		JSR	OUTS	PRINT A SPACE
028E CA		DEX		ONE DONE
028F 10 E1		BPL	GETLET	IF NOT 4, DO AGAIN
0291 A2 03		LDX	#3	SET COUNTER
0293 B5 06	CLRFLG	LDA	TOKENS,X	GET TOKEN
0295 29 4F		AND	#\$4F	CLEAR FLAG
0297 95 06		STA	TOKENS,X	PUT BACK
0299 CA		DEX		
029A 10 F7		BPL	CLRFLG	
029C E8		INX		
029D B6 03		STX	BLACKS	
029F B6 04		STX	WHITES	
02A1 A2 03		LDX	#3	SET COUNTER
02A3 B5 0A	LOOP	LDA	HIS,X	GET HIS TRY
02A5 D5 06		CMP	TOKENS,X	CHECK AGAINST TARGET
02A7 D0 0A		BNE	CHKNXT	IF NO MATCH, TRY NEXT
02A9 09 80		ORA	#\$80	SET INDICATOR
02AB 95 06		STA	TOKENS,X	PUT MARKED BACK
02AD 09 20		ORA	#\$20	
02AF 95 0A		STA	HIS,X	MARK HIS TOO
02B1 E6 03		INC	BLACKS	SET ONE RIGHT
02B3 CA	CHKNXT	DEX		ADVANCE POINTER
02B4 10 ED		BPL	LOOP	IF NOT 4, CHECK MORE
02B6 A2 03		LDX	#3	SET FOR WHITES
02B8 A0 03	LOOP1	LDY	#3	
02BA B5 0A		LDA	HIS,X	GET HIS TRY
02BC D9 06 00	LOOP2	CMP	TOKENS,Y	CHECK FOR MATCH
02BF D0 09		BNE	CHKNX2	NO MATCH?
02C1 E6 04		INC	WHITES	KICK COUNTER
02C3 09 80		ORA	#\$80	SET FLAG
02C5 99 06 00		STA	TOKENS,Y	PUT BACK

LOCN B1 B2 B3				
02C8 30 03		BMI	CHKNX3	SAVE A BYTE
02CA 88	CHKNX2	DEY		MOVE POINTER
02CB 10 EF		BPL	LOOP2	TRY AGAIN
02CD CA	CHKNX3	DEX		MOVE POINTER
02CE 10 E8		BPL	LOOP1	TRY AGAIN
02D0 A5 05		LDA	TRIES	GET TRY COUNT
02D2 F8		SED		
02D3 18		CLC		
02D4 69 01		ADC	#1	ADD 1
02D6 D8		CLD		
02D7 85 05		STA	TRIES	
02D9 20 04 02		JSR	OUTS	PRINT SPACE
02DC A5 03		LDA	BLACKS	GET BLACK COUNT
02DE 09 30		ORA	##30	SET FOR ASCII
02E0 20 06 02		JSR	OUTCH	PRINT
02E3 A2 56		LDX	#BLK-ST	
02E5 20 20 02		JSR	PDATA	PRINT MSG.
02E8 A5 04		LDA	WHITES	GET WHITE COUNT
02EA 09 30		ORA	##30	SET ASCII
02EC 20 06 02		JSR	OUTCH	PRINT
02EF 20 1F 02		JSR	PDNXT	PRINT NEXT
02F2 A5 03		LDA	BLACKS	GET COUNT
02F4 C9 04		CMP	#4	CHECK WON
02F6 F0 03		BEQ	WON	
02F8 4C 6B 02		JMP	GETTRY	
02FB 20 28 02	WON	JSR	PNXT	PRINT WIN MESSAGE
02FE A5 05		LDA	TRIES	GET COUNT
0300 29 F0		AND	##F0	
0302 F0 09		BEQ	PLSD	CHECK FOR MSD
0304 4A		LSR	A	
0305 4A		LSR	A	
0306 4A		LSR	A	
0307 4A		LSR	A	MAKE LSD
0308 09 30		ORA	##30	SET ASCII
030A 20 06 02		JSR	OUTCH	
030D A5 05	PLSD	LDA	TRIES	GET COUNT AGAIN
030F 29 0F		AND	##0F	MASK OUT LSD
0311 09 30		ORA	##30	SET ASCII
0313 20 06 02		JSR	OUTCH	
0316 20 1F 02		JSR	PDNXT	PRINT REST OF MSG.
0319 20 28 02	PRTPLA	JSR	PNXT	NEXT MSG.
031C 20 0E 02		JSR	INCH	GET RESPONSE
031F C9 4E		CMP	#'N	
0321 F0 1A		BEQ	NO	IF NO, EXIT
0323 4C 4A 02		JMP	BEGIN	RECYCLE
0326 A2 83	GIVE	LDX	#IT-ST	
0328 20 29 02		JSR	PSTR	PRINT MSG.
032B A2 03		LDX	#3	SET INDEX
032D B5 06	GLOOP	LDA	TOKENS,X	GET TOKEN
032F 20 06 02		JSR	OUTCH	PRINT IT
0332 20 04 02		JSR	OUTS	AND A SPACE
0335 CA		DEX		
0336 10 F5		BPL	GLOOP	DO ALL 4
0338 A2 75		LDX	#PLAY-ST-1	POINT TO MSG.
033A 4C 19 03		JMP	PRTPLA	

```
LOCN B1 B2 B3
033D 6C 16 02 NO    JMP    (MON)    ELSE TO MONITOR
0340 0D          ST    FCB    $D,$A,0,0,0,0,4
0341 0A
0342 00
0343 00
0344 00
0345 00
0346 04
0347 4D          INTRO  FCC    ;MASTERMIND 6502;
0348 41
0349 53
034A 54
034B 45
034C 52
034D 4D
034E 49
034F 4E
0350 44
0351 20
0352 36
0353 35
0354 30
0355 32
0356 04          FCB    4
0357 49          FCC    ;I AM THINKING OF 4 LETTERS;
0358 20
0359 41
035A 4D
035B 20
035C 54
035D 48
035E 49
035F 4E
0360 4B
0361 49
0362 4E
0363 47
0364 20
0365 4F
0366 46
0367 20
0368 34
0369 20
036A 4C
036B 45
036C 54
036D 54
036E 45
036F 52
0370 53
0371 04          FCB    4
0372 42          FCC    ;BETWEEN A AND F;
0373 45
0374 54
0375 57
```

```

LOCN B1 B2 B3
0376 45
0377 45
0378 4E
0379 20
037A 41
037B 20
037C 41
037D 4E
037E 44
037F 20
0380 46
0381 04          FCB      4
0382 59          GUESS    FCC      ;YOUR GUESS? ;
0383 4F
0384 55
0385 52
0386 20
0387 47
0388 55
0389 45
038A 53
038B 53
038C 3F
038D 20
038E 04          FCB      4
038F 57          WHAT     FCC      ;WHAT?;
0390 48
0391 41
0392 54
0393 3F
0394 07          FCB      7+4
0395 04
0396 20          BLK      FCC      ;BLK ;
0397 42
0398 4C
0399 4B
039A 20
039B 20
039C 04          FCB      4
039D 20          WHT      FCC      ;WHT;
039E 57
039F 4B
03A0 54
03A1 04          FCB      4
03A2 59          WIN      FCC      ;YOU WIN IN ;
03A3 4F
03A4 55
03A5 20
03A6 57
03A7 49
03A8 4E
03A9 20
03AA 49
03AB 4E
03AC 20

```



```

LOCN B1 B2 B3
03AD 04          FCB  4
03AE 20          FCC  ; TRIES! ;
03AF 54
03B0 52
03B1 49
03B2 45
03B3 53
03B4 21
03B5 04          FCB  4
03B6 50          FCC  ;PLAY AGAIN? ;
03B7 4C          PLAY
03B8 41
03B9 59
03BA 20
03BB 41
03BC 47
03BD 41
03BE 49
03BF 4E
03C0 3F
03C1 20
03C2 04          FCB  4
03C3 49          FCC  ;IT WAS ;
03C4 54          IT
03C5 20
03C6 57
03C7 41
03C8 53
03C9 20
03CA 04          FCB  4
                      END

```

## SYMBOL TABLE:

BEGIN	024A	BLACKS	0003	BLK	0396	CHKNXT	02B3	CHKNX2	02CA
CHKNX3	02CD	CLRFLG	0293	ERROR	0282	GETLET	0272	GETTRY	026B
GIVE	0326	GLOOP	032D	GUESS	0382	HIS	000A	INCH	020E
INTRO	0347	IT	03C3	LOOP	02A3	LOOP1	02B8	LOOP2	02BC
MON	0216	NO	033D	OK	0289	OUTCH	0206	OUTS	0204
PCRLF	0218	PDATA	0220	PDNXT	021F	PLAY	03B6	PLSD	030D
PNXT	0228	PRTPLA	0319	PSTR	0229	PTEMP	0002	P2	021C
RANDOM	0233	RNDM	0000	R1	0235	SELECT	0258	ST	0340
START	0200	TOKENS	0006	TRIES	0005	WHAT	03BF	WHITES	0004
WHT	039D	WIN	03A2	WON	02FB	XTEMP	000E		

## OBJECT CODE:

```

#10 0200 D8 4C 4A 02 A9 20 86 02 20 A0 1E A6 02 60 86 02 0541
#10 0210 20 5A 1E A6 02 60 00 1C A2 00 F0 04 20 06 02 E8 0484
#10 0220 BD 40 03 C9 04 D0 F5 60 E8 8A 48 20 18 02 68 AA 072A
#10 0230 4C 20 02 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 035E

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#10 0240 00 68 18 69 FF D0 EE A5 00 60 20 18 02 20 28 02 0581
#10 0250 20 28 02 20 28 02 A2 03 20 33 02 29 07 C9 06 B0 039F
#10 0260 F7 69 41 95 06 CA 10 F0 E8 86 05 A2 42 20 29 02 071A
#10 0270 A2 03 20 0E 02 C9 41 90 09 C9 47 90 0C D0 03 4C 05C5
#10 0280 26 03 A2 4F 20 29 02 F0 E2 95 0A 20 04 02 CA 10 0568
#10 0290 E1 A2 03 B5 06 29 4F 95 06 CA 10 F7 E8 86 03 86 07BE
#10 02A0 04 A2 03 B5 0A D5 06 D0 0A 09 80 95 06 09 20 95 05B1
#10 02B0 0A E6 03 CA 10 ED A2 03 A0 03 B5 0A D9 06 00 D0 0732
#10 02C0 09 E6 04 09 80 99 06 00 30 03 88 10 EF CA 10 E8 0669
#10 02D0 A5 05 F8 18 69 01 D8 85 05 20 04 02 A5 03 09 30 056F
#10 02E0 20 06 02 A2 56 20 20 02 A5 04 09 30 20 06 02 20 037E
#10 02F0 1F 02 A5 03 C9 04 F0 03 4C 68 02 20 28 02 A5 05 0538
#10 0300 29 F0 F0 09 4A 4A 4A 4A 09 30 20 06 02 A5 05 29 0481
#10 0310 0F 09 30 20 06 02 20 1F 02 20 28 02 20 0E 02 C9 0217
#10 0320 4E F0 1A 4C 4A 02 A2 83 20 29 02 A2 03 B5 06 20 0513
#10 0330 06 02 20 04 02 CA 10 F5 A2 75 4C 19 03 6C 16 02 0443
#10 0340 0D 0A 00 00 00 00 04 4D 41 53 54 45 52 4D 49 4E 031E
#10 0350 44 20 36 35 30 32 04 49 20 41 4D 20 54 48 49 4E 03E2
#10 0360 4B 49 4E 47 20 4F 46 20 34 20 4C 45 54 54 45 52 0495
#10 0370 53 04 42 45 54 57 45 45 4E 20 41 20 41 4E 44 20 0458
#10 0380 46 04 59 4F 55 52 20 47 55 45 53 53 3F 20 04 57 048D
#10 0390 48 41 54 3F 07 04 20 42 4C 4B 20 20 04 20 57 48 03C6
#10 03A0 54 04 59 4F 55 20 57 49 4E 20 49 4E 20 04 20 54 0465
#10 03B0 52 49 45 53 21 04 50 4C 41 59 20 41 47 41 49 4E 04D1
#0B 03C0 3F 20 04 49 54 20 57 41 53 20 04 02FD

```

```

#00 001D 001D

```

MASTERMIND  
 I AM THINKING OF 4 LETTERS  
 BETWEEN A AND F  
 YOUR GUESS? A A A A 1 BLK 0 WHT  
 YOUR GUESS? A B B B 0 BLK 1 WHT  
 YOUR GUESS? C A C C 0 BLK 1 WHT  
 YOUR GUESS? D D A D 3 BLK 0 WHT  
 YOUR GUESS? D D A E 2 BLK 2 WHT  
 YOUR GUESS? E D A D 4 BLK 0 WHT  
 YOU WIN IN 6 TRIES!  
 PLAY AGAIN? Y

MASTERMIND  
 I AM THINKING OF 4 LETTERS  
 BETWEEN A AND F  
 YOUR GUESS? A A A A 1 BLK 0 WHT  
 YOUR GUESS? A B B B 0 BLK 1 WHT  
 YOUR GUESS? C A C C 2 BLK 0 WHT  
 YOUR GUESS? C A D D 2 BLK 2 WHT  
 YOUR GUESS? A C D D 1 BLK 3 WHT  
 YOUR GUESS? A  
 IT WAS D A D C  
 PLAY AGAIN? Y

MASTERMIND  
 I AM THINKING OF 4 LETTERS  
 BETWEEN A AND F  
 YOUR GUESS? F F F F 2 BLK 0 WHT  
 YOUR GUESS? F F E F 1 BLK 1 WHT  
 YOUR GUESS? D F F D 1 BLK 1 WHT  
 YOUR GUESS? C F C F 3 BLK 0 WHT  
 YOUR GUESS? B F C F 3 BLK 0 WHT  
 YOUR GUESS? A F C F 4 BLK 0 WHT  
 YOU WIN IN 6 TRIES!  
 PLAY AGAIN? N

LOCN B1 B2 B3

```

*
*
*
*      COPYRIGHT (C) 1976 BY
*
*      TECHNICAL SYSTEMS CONSULTANTS
*      BOX 2574 W. LAFAYETTE IN 47906
*
*
*
*      THIS PROGRAM IMPLEMENTS A GAME OF SKILL AND
*      LOGIC CALLED 'SWITCH' FOR THE 6502 COMPUTER.
*      THE PROGRAM ASSUMES THE USER HAS I/O ROUTINES
*      FOR PRINTING AND INPUTTING AN ASCII CHARACTER
*      VIA AN I/O TERMINAL. THE LISTING IS SUPPLIED
*      WITH ADDRESSES SET FOR THE KIM-1 MONITOR SO
*      OTHER USERS WILL NEED TO PATCH IN THEIR OUTPUT
*      AND INPUT ADDRESSES AT 0209 AND 0211 RESPECTIVELY.
*      ALSO THE ENTRY ADDRESS OF THE MONITOR PROGRAM
*      MUST BE PATCHED AT 0216.
*      THE OBJECT OF THIS GAME IS TO REARRANGE A
*      RANDOM SEQUENCE OF THE NUMBERS 1 TO 9 TO NUM-
*      ERICAL ORDER LEFT TO RIGHT. THIS IS DONE BY
*      REVERSING THE SEQUENCE OF THE FIRST N NUMBERS
*      WHERE N IS THE RESPONSE TO THE PROMPT 'SWITCH?'
*      BY REVERSING SEQUENCES OF APPROPRIATE LENGTH
*      (IN THE PROPER ORDER) THE RE-ORDERING CAN BE
*      ACHIEVED IN A MAXIMUM OF 15 MOVES REGARDLESS
*      OF THE INITIAL RANDOMNESS.
*      SEE THE ATTACHED SAMPLE OUTPUT FOR ADDITIONAL
*      DETAILS.
*      BEFORE STARTING THE PROGRAM YOU MUST BE CER-
*      TAIN THAT NOT BOTH BYTES RNDM AND RNDM+1 ARE
*      ZERO. IF SO, SET ONE OR BOTH TO SOME NON-ZERO
*      VALUE.
*      THE STARTING ADDRESS OF THIS PROGRAM IS 0200.
*
*      GOOD LUCK!
*
*
*      ORG      0
0000      RNDM   RMB    2
0002      PTEMP  RMB    1
0003      SEQ    RMB    9
000C      TRIES  RMB    1
000D      XTEMP  RMB    1
*
*
*
*      ORG      $200
0200 DB      START  CLD          CLEAR DECIMAL MODE
0201 4C 4A 02  JMP      BEGIN    GO TO BEGINNING
0204 A9 20      OUTS   LDA      #'  LOAD A SPACE
0206 86 02      OUTCH  STX      PTEMP
0208 20 A0 1E      JSR      $1EA0  GO PRINT

```

LOCN B1 B2 B3				
020B A6 02		LDX	PTEMP	RESTORE
020D 60		RTS		
020E 86 02	INCH	STX	PTEMP	SAVE
0210 20 5A 1E		JSR	\$1E5A	GO GET CHAR
0213 A6 02		LDX	PTEMP	RESTORE
0215 60		RTS		
0216 00 1C	MON	FDB	\$001C	KIM ENTRY POINT
0218 A2 00	PCRLF	LDX	#0	
021A F0 04		BEQ	PDATA	GO PRINT CR LF
021C 20 06 02	P2	JSR	OUTCH	PRINT CHAR
021F E8	PDNXT	INX		BUMP POINTER
0220 BD 0C 03	PDATA	LDA	ST,X	GET A CHARACTER
0223 C9 04		CMP	#4	CHECK FOR END OF STRING
0225 D0 F5		BNE	P2	IF NOT, GO PRINT
0227 60		RTS		DONE
0228 E8	PNXT	INX		POINT TO NEXT STRING
0229 8A	PSTR	TXA		X TO A
022A 48		PHA		SAVE
022B 20 18 02		JSR	PCRLF	GO PRINT CR LF
022E 68		PLA		GET OLD X
022F AA		TAX		RESTORE
0230 4C 20 02		JMP	PDATA	
0233 A9 08	RANDOM	LDA	#8	SET FOR 8 ITERATIONS
0235 48	R1	PHA		SAVE COUNTER
0236 A5 00		LDA	RNDM	GET BYTE
0238 2A		ROL	A	
0239 45 00		EOR	RNDM	XOR BITS 13 AND 14
023B 2A		ROL	A	
023C 2A		ROL	A	GET TO CARRY
023D 26 01		ROL	RNDM+1	SHIFT BYTE
023F 26 00		ROL	RNDM	SHIFT SECOND BYTE
0241 68		PLA		GET COUNTER
0242 18		CLC		
0243 69 FF		ADC	#\$FF	DECREMENT
0245 D0 EE		BNE	R1	IF NOT DONE, DO AGAIN
0247 A5 00		LDA	RNDM	GET RANDOM BYTE
0249 60		RTS		DONE
024A 20 18 02	BEGIN	JSR	PCRLF	PRINT CR LF
024D 20 28 02		JSR	PNXT	NEXT STRING
0250 20 28 02		JSR	PNXT	NEXT STRING
0253 A9 09		LDA	#9	SET COUNTER
0255 A2 08		LDX	#8	SET INDEX
0257 95 03	INIT	STA	SEQ,X	SET STRING
0259 8A		TXA		MOVE COUNTER
025A CA		DEX		ADVANCE PTR
025B 10 FA		BPL	INIT	IF NOT 9, REPEAT
025D A0 10		LDY	#16	
025F 20 33 02	MIX	JSR	RANDOM	GET RANDOM NUMBER
0262 29 0F		AND	#\$0F	MASK 0-F
0264 C9 09		CMP	#\$9	CHECK >9
0266 B0 F7		BCS	MIX	IF SO, GET ANOTHER
0268 AA		TAX		SET FOR INDEX
0269 B5 03		LDA	SEQ,X	GET ENTRY
026B 48		PHA		SAVE
026C A5 03		LDA	SEQ	GET HEAD OF STRING



LOCN B1 B2 B3			
026E 95 03		STA	SEQ,X
0270 68		PLA	
0271 85 03		STA	SEQ
0273 88		DEY	
0274 D0 E9		BNE	MIX
0276 84 0C		STY	TRIES
0278 20 18 02	PSEQ	JSR	PCRLF
027B A2 08		LDX	##8
027D B5 03	GETCH	LDA	SEQ,X
027F 09 30		ORA	##30
0281 20 06 02		JSR	OUTCH
0284 20 04 02		JSR	OUTS
0287 CA		DEX	
0288 10 F3		BPL	GETCH
028A A2 08	CHECK	LDX	##8
028C A9 01		LDA	#1
028E 85 0D		STA	XTEMP
0290 B5 03	CHKSEQ	LDA	SEQ,X
0292 C5 0D		CMP	XTEMP
0294 D0 32		BNE	SWMSG
0296 E6 0D		INC	XTEMP
0298 CA		DEX	
0299 D0 F5		BNE	CHKSEQ
029B A2 2B		LDX	#WIN-ST
029D 20 29 02		JSR	PSTR
02A0 A5 0C		LDA	TRIES
02A2 29 F0		AND	##F0
02A4 F0 09		BEQ	PRTLOW
02A6 4A		LSR	A
02A7 4A		LSR	A
02A8 4A		LSR	A
02A9 4A		LSR	A
02AA 09 30		ORA	##30
02AC 20 06 02		JSR	OUTCH
02AF A5 0C	PRTLOW	LDA	TRIES
02B1 29 0F		AND	##0F
02B3 09 30		ORA	##30
02B5 20 06 02		JSR	OUTCH
02B8 20 1F 02		JSR	PDNXT
02BB 20 28 02		JSR	PNXT
02BE 20 0E 02		JSR	INCH
02C1 C9 4E		CMP	#'N
02C3 D0 85		BNE	BEGIN
02C5 6C 16 02	NO	JMP	(MON)
02CB A2 23	SWMSG	LDX	#SW-ST
02CA 20 20 02		JSR	PDATA
02CD A9 3F	AGAIN	LDA	#'?
02CF 20 06 02		JSR	OUTCH
02D2 20 04 02		JSR	OUTS
02D5 20 0E 02		JSR	INCH
02D8 38		SEC	
02D9 E9 31		SBC	##31
02DB 30 F0		BMI	AGAIN
02DD C9 09		CMP	##9
02DF B0 EC		BCS	AGAIN

PUT IN STRING  
 RETRIEVE ENTRY  
 PLACE AT HEAD  
 KICK COUNTER  
 DO 16 TIMES  
 CLEAR TRIES  
 CR,LF  
 GET CHAR OF STRING  
 SET ASCII  
 PRINT IT  
 PRINT SPACE  
 COUNT DOWN  
 DO AGAIN  
 SET INDEX  
 SET FOR FIRST CHAR  
 SAVE  
 GET DIGIT  
 CHECK IN ORDER  
 IF NOT, GO PRINT  
 NEXT DIGIT  
 ADVANCE POINTER  
 GO CHECK REST  
 PRINT MESSAGE  
 GET TRY COUNT  
 MASK LOW  
 IF MS 0, DON'T PRINT  
 TO LS PLACE  
 ADD ASCII  
 PRINT IT  
 MASK OUT HIGH  
 ADD ASCII  
 PRINT IT  
 PRINT IT  
 NEXT MSG.  
 GET RESPONSE  
 POINT TO MSG.  
 PRINT IT  
 PRINT A ?  
 AND A SPACE  
 GET A CHAR  
 STRIP ASCII  
 CHECK FOR <1  
 CHECK >9

```

LOCN B1 B2 B3
02E1 49 FF      EOR    %%FF
02E3 38         SEC
02E4 69 08      ADC    %%8      SUBTRACT FROM 8
02E6 AA         TAX          USE FOR INDEX
02E7 A0 08      LDY    %%8      SET Y INDEX
02E9 B9 03 00   SWAP   LDA    SEQ,Y  GET AN ENTRY
02EC 48         PHA          STORE
02ED B5 03      LDA    SEQ,X  GET OTHER
02EF 99 03 00   STA    SEQ,Y  PUT IN PLACE
02F2 68         PLA
02F3 95 03      STA    SEQ,X  PUT OTHER IN PLACE
02F5 86 0D      STX    XTEMP   STORE FOR COMPARE
02F7 C4 0D      CPY    XTEMP
02F9 F0 06      BEQ    INCTRY  IF X=Y, DONE
02FB 88         DEY          ADVANCE Y
02FC E8         INX          ADVANCE X
02FD C4 0D      CPY    XTEMP   CHECK Y=X NOW
02FF D0 E8      BNE    SWAP    IF NOT, KEEP SWAPPING
0301 F8         SED
0302 A5 0C      LDA    TRIES   GET COUNT
0304 69 00      ADC    %%0     INCREMENT
0306 85 0C      STA    TRIES   SAVE
0308 D8         CLD
0309 4C 78 02   PRINT  JMP     PSEQ
030C 0D         ST     FCB     $D,$A,0,0,0,0,4
030D 0A
030E 00
030F 00
0310 00
0311 00
0312 04
0313 53         FCC    ;SWITCH 6502;
0314 57
0315 49
0316 54
0317 43
0318 48
0319 20
031A 36
031B 35
031C 30
031D 32
031E 04         FCB     4
031F 54         FCC     ;THE SEQUENCE IS;
0320 48
0321 45
0322 20
0323 53
0324 45
0325 51
0326 55
0327 45
0328 4E
0329 43
032A 45

```

```

LOCN B1 B2 B3
032B 20
032C 49
032D 53
032E 04          FCB      4
032F 20          SW      FCC      ; SWITCH;
0330 53
0331 57
0332 49
0333 54
0334 43
0335 48
0336 04          WIN      FCB      4
0337 53          FCC      ;SUCCESS IN ;
0338 55
0339 43
033A 43
033B 45
033C 53
033D 53
033E 20
033F 49
0340 4E
0341 20
0342 04          FCB      4
0343 20          FCC      ; TRIES!;
0344 54
0345 52
0346 49
0347 45
0348 53
0349 21
034A 04          FCB      4
034B 50          FCC      ;PLAY AGAIN? ;
034C 4C
034D 41
034E 59
034F 20
0350 41
0351 47
0352 41
0353 49
0354 4E
0355 3F
0356 20
0357 04          FCB      4
                     END

```

## SYMBOL TABLE:

AGAIN	02CD	BEGIN	024A	CHECK	028A	CHKSEQ	0290	GETCH	027D
INCH	020E	INCTRY	0301	INIT	0257	MIX	025F	MON	0216
NO	02C5	OUTCH	0206	OUTS	0204	PCRLF	0218	PDATA	0220
PDNXT	021F	PNXT	0228	PRINT	0309	PRTLOW	02AF	PSEQ	0278

PSTR	0229	PTEMP	0002	P2	021C	RANDOM	0233	RNDM	0000
R1	0235	SEQ	0003	ST	030C	START	0200	SW	032F
SWAP	02E9	SWMSG	02C8	TRIES	000C	WIN	0337	XTEMP	000D

## OBJECT CODE:

```

;10 0200 D8 4C 4A 02 A9 20 86 02 20 A0 1E A6 02 60 86 02 0541
;10 0210 20 5A 1E A6 02 60 00 1C A2 00 F0 04 20 06 02 E8 0484
;10 0220 BD 0C 03 C9 04 D0 F5 60 E8 8A 48 20 18 02 68 AA 06F6
;10 0230 4C 20 02 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 035E
;10 0240 00 68 18 69 FF D0 EE A5 00 60 20 18 02 20 28 02 0581
;10 0250 20 28 02 A9 09 A2 08 95 03 8A CA 10 FA A0 10 20 05CE
;10 0260 33 02 29 0F C9 09 B0 F7 AA B5 03 48 A5 03 95 03 0642
;10 0270 68 85 03 88 D0 E9 84 0C 20 18 02 A2 08 B5 03 09 05E8
;10 0280 30 20 06 02 20 04 02 CA 10 F3 A2 08 A9 01 85 0D 04C3
;10 0290 85 03 C5 0D D0 32 E6 0D CA D0 F5 A2 28 20 29 02 07C8
;10 02A0 A5 0C 29 F0 F0 09 4A 4A 4A 4A 09 30 20 06 02 A5 05A3
;10 02B0 0C 29 0F 09 30 20 06 02 20 1F 02 20 28 02 20 0E 0220
;10 02C0 02 C9 4E D0 85 6C 16 02 A2 23 20 20 02 A9 3F 20 05D3
;10 02D0 06 02 20 04 02 20 0E 02 38 E9 31 30 F0 C9 09 B0 0534
;10 02E0 EC 49 FF 38 69 08 AA A0 08 B9 03 00 48 B5 03 99 0776
;10 02F0 03 00 68 95 03 86 0D C4 0D F0 06 88 E8 C4 0D D0 0770
;10 0300 E8 F8 A5 0C 69 00 85 0C D8 4C 78 02 0D 0A 00 00 0553
;10 0310 00 00 04 53 57 49 54 43 48 20 36 35 30 32 04 54 033E
;10 0320 48 45 20 53 45 51 55 45 4E 43 45 20 49 53 04 20 0419
;10 0330 53 57 49 54 43 48 04 53 55 43 43 45 53 53 20 49 049B
;10 0340 4E 20 04 20 54 52 49 45 53 21 04 50 4C 41 59 20 03E7
;08 0350 41 47 41 49 4E 3F 20 04 021E

```

;00 0016 0016

```

SWITCH
THE SEQUENCE IS
8 7 4 2 5 9 6 3 1 SWITCH? 6
9 5 2 4 7 8 6 3 1 SWITCH? 9
1 3 6 8 7 4 2 5 9 SWITCH? 4
8 6 3 1 7 4 2 5 9 SWITCH? 8
5 2 4 7 1 3 6 8 9 SWITCH? 4
7 4 2 5 1 3 6 8 9 SWITCH? 7
6 3 1 5 2 4 7 8 9 SWITCH? 6
4 2 5 1 3 6 7 8 9 SWITCH? 3
5 2 4 1 3 6 7 8 9 SWITCH? 5
3 1 4 2 5 6 7 8 9 SWITCH? 3
4 1 3 2 5 6 7 8 9 SWITCH? 4
2 3 1 4 5 6 7 8 9 SWITCH? 2
3 2 1 4 5 6 7 8 9 SWITCH? 3
1 2 3 4 5 6 7 8 9
SUCCESS IN 13 TRIES!
PLAY AGAIN? Y

```

```

SWITCH
THE SEQUENCE IS
5 9 7 1 4 2 3 6 8 SWITCH? 2
9 5 7 1 4 2 3 6 8 SWITCH? 9
8 6 3 2 4 1 7 5 9 SWITCH? 8
5 7 1 4 2 3 6 8 9 SWITCH? 2
7 5 1 4 2 3 6 8 9 SWITCH? 7
6 3 2 4 1 5 7 8 9 SWITCH? 6
5 1 4 2 3 6 7 8 9 SWITCH? 5
3 2 4 1 5 6 7 8 9 SWITCH? 3
4 2 3 1 5 6 7 8 9 SWITCH? 4
1 3 2 4 5 6 7 8 9 SWITCH? 2
3 1 2 4 5 6 7 8 9 SWITCH? 3
2 1 3 4 5 6 7 8 9 SWITCH? 2
1 2 3 4 5 6 7 8 9
SUCCESS IN 12 TRIES!
PLAY AGAIN? Y

```

```

SWITCH
THE SEQUENCE IS
2 3 7 4 1 5 8 9 6 SWITCH? 8
9 8 5 1 4 7 3 2 6 SWITCH? 9
6 2 3 7 4 1 5 8 9 SWITCH? 4
7 3 2 6 4 1 5 8 9 SWITCH? 7
5 1 4 6 2 3 7 8 9 SWITCH? 4
6 4 1 5 2 3 7 8 9 SWITCH? 6
3 2 5 1 4 6 7 8 9 SWITCH? 3
5 2 3 1 4 6 7 8 9 SWITCH? 5
4 1 3 2 5 6 7 8 9 SWITCH? 4
2 3 1 4 5 6 7 8 9 SWITCH? 2
3 2 1 4 5 6 7 8 9 SWITCH? 3
1 2 3 4 5 6 7 8 9
SUCCESS IN 11 TRIES!
PLAY AGAIN? Y

```

```

SWITCH
THE SEQUENCE IS
3 8 7 2 1 6 5 9 4 SWITCH? 8
9 5 6 1 2 7 8 3 4 SWITCH? 9
4 3 8 7 2 1 6 5 9 SWITCH? 3
8 3 4 7 2 1 6 5 9 SWITCH? 8
5 6 1 2 7 4 3 8 9 SWITCH? 5
7 2 1 6 5 4 3 8 9 SWITCH? 7
3 4 5 6 1 2 7 8 9 SWITCH? 4
6 5 4 3 1 2 7 8 9 SWITCH? 6
2 1 3 4 5 6 7 8 9 SWITCH? 2
1 2 3 4 5 6 7 8 9
SUCCESS IN 9 TRIES!
PLAY AGAIN? N

```



LOCN B1 B2 B3

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GOOD LUCK!

		ORG	0
0000	RNDM	RMB	2
0002	PTEMP	RMB	1
0003	MONEY	RMB	2
0005	BET	RMB	2
0007	CARD1	RMB	1
0008	CARD2	RMB	1

LOCN	B1	B2	B3		ORG		
0200	D8			START	CLD	\$200	CLEAR DECIMAL MODE
0201	4C	7D	02		JMP	BEGIN	GO TO BEGINNING
0204	A9	20		OUTS	LDA	#'	LOAD A SPACE
0206	B6	02		OUTCH	STX	PTEMP	
0208	20	A0	1E		JSR	\$1EA0	GO PRINT
0208	A6	02			LDX	PTEMP	RESTORE
020D	60				RTS		
020E	B6	02		INCH	STX	PTEMP	SAVE
0210	20	5A	1E		JSR	\$1E5A	GO GET CHAR
0213	A6	02			LDX	PTEMP	RESTORE
0215	60				RTS		
0216	00	1C		MON	FDB	\$001C	KIM ENTRY POINT
0218	A2	00		PCRLF	LDX	#0	
021A	F0	04			BEQ	PDATA	GO PRINT CR LF
021C	20	06	02	P2	JSR	OUTCH	PRINT CHAR
021F	EB			PDNXT	INX		BUMP POINTER
0220	BD	9B	03	PDATA	LDA	ST,X	GET A CHARACTER
0223	C9	04			CMP	#4	CHECK FOR END OF STRING
0225	D0	F5			BNE	P2	IF NOT, GO PRINT
0227	60				RTS		DONE
0228	E8			PNXT	INX		POINT TO NEXT STRING
0229	8A			PSTR	TXA		X TO A
022A	48				PHA		SAVE
022B	20	18	02		JSR	PCRLF	GO PRINT CR LF
022E	68				PLA		GET OLD X
022F	AA				TAX		RESTORE
0230	4C	20	02		JMP	PDATA	
0233	A9	08		RANDOM	LDA	#8	SET FOR 8 ITERATIONS
0235	48			R1	PHA		SAVE COUNTER
0236	A5	00			LDA	RNDM	GET BYTE
0238	2A				ROL	A	
0239	45	00			EOR	RNDM	XOR BITS 13 AND 14
023B	2A				ROL	A	
023C	2A				ROL	A	GET TO CARRY
023D	26	01			ROL	RNDM+1	SHIFT BYTE
023F	26	00			ROL	RNDM	SHIFT SECOND BYTE
0241	68				PLA		GET COUNTER
0242	18				CLC		
0243	69	FF			ADC	##FF	DECREMENT
0245	D0	EE			BNE	R1	IF NOT DONE, DO AGAIN
0247	A5	00			LDA	RNDM	GET RANDOM BYTE
0249	60				RTS		DONE
024A	4A			OUTDL	LSR	A	
024B	4A				LSR	A	
024C	4A				LSR	A	
024D	4A				LSR	A	
024E	29	0F		OUTNUM	AND	##F	
0250	09	30			ORA	##30	
0252	20	06	02		JSR	OUTCH	
0255	38				SEC		SET INDICATOR
0256	60				RTS		
0257	A2	17		PRTHON	LDX	##YOU-ST	
0259	20	29	02		JSR	PSTR	PRINT MSG.
025C	18				CLC		

LOCN	B1	B2	B3			
025D	A5	03		LDA	MONEY	
025F	F0	0C		BEQ	CNXT2	
0261	29	F0		AND	#\$F0	
0263	F0	03		BEQ	CNXT1	
0265	20	4A	02	JSR	OUTDL	
0268	A5	03	CNXT1	LDA	MONEY	
026A	20	4E	02	PNXT1	JSR	OUTNUM
026D	A9	F0	CNXT2	LDA	#\$F0	
026F	25	04		AND	MONEY+1	
0271	B0	02		BCS	PNXT2	
0273	F0	03		BEQ	CNXT3	
0275	20	4A	02	PNXT2	JSR	OUTDL
0278	A5	04	CNXT3	LDA	MONEY+1	
027A	4C	4E	02	JMP	OUTNUM	PRINT MONEY (NO LEADING 0'S)
027D	20	18	02	BEGIN	JSR	PCRLF
0280	20	28	02		JSR	PNXT
0283	A9	00		LDA	#0	PRINT REST OF MESSAGE
0285	B5	04		STA	MONEY+1	
0287	A9	01		LDA	#1	
0289	B5	03	SAVMON	STA	MONEY	SET MONEY TO \$100
028B	20	57	02	JSR	PRTHON	GO PRINT AMOUNT
028E	A5	03		LDA	MONEY	
0290	D0	18		BNE	MONLFT	CHECK MONEY LEFT
0292	A5	04		LDA	MONEY+1	
0294	D0	14		BNE	MONLFT	CHECK MONEY LEFT
0296	A2	26		LDX	YOUR-ST	
0298	20	29	02	JSR	PSTR	PRINT MESSG.
029B	A2	3E	CHEPLA	LDX	PLA-ST	
029D	20	29	02	JSR	PSTR	ASK IF PLAY AGAIN
02A0	20	0E	02	JSR	INCH	GET ANSWER
02A3	C9	4E		CMP	#N	
02A5	D0	D6		BNE	BEGIN	
02A7	6C	16	02	NO	JMP	ELSE TO MONITOR
02AA	A5	03	MONLFT	LDA	MONEY	GET MS BYTE
02AC	C9	20		CMP	#\$20	CHECK AGAINST \$2000
02AE	90	0B		BCC	NXTBET	CARRY CLEAR NO WIN
02B0	A2	BE		LDX	CONG-ST	
02B2	20	29	02	JSR	PSTR	PRINT CONGRATS
02B5	20	28	02	JSR	PNXT	NEXT MESSG.
02B8	4C	9B	02	JMP	CHEPLA	SEE IF PLAY AGAIN
02BB	A2	4B	NXTBET	LDX	THE-ST	
02BD	20	29	02	JSR	PSTR	PRINT MESSG.
02C0	20	91	03	JSR	SELCRD	PICK A CARD..ANY CARD
02C3	B5	07		STA	CARD1	SAVE IT
02C5	20	75	03	JSR	PTCRD	PRINT IT (GET NEXT,TOO)
02C8	C5	07		CMP	CARD1	CHECK IF BIGGER THAN FIRST
02CA	B0	0B		BCS	HICRD	
02CC	48			PHA		
02CD	A5	07		LDA	CARD1	
02CF	B5	08		STA	CARD2	EXCHANGE ORDER
02D1	68			PLA		
02D2	B5	07		STA	CARD1	PUT BACK
02D4	4C	D9	02	JMP	PTCRD	
02D7	B5	08	HICRD	STA	CARD2	IF HIGHER, NO PROBLEM
02D9	20	75	03	PTCRD	JSR	GO PRINT CARD (GET NEXT)

LOCN B1 B2 B3				
02DC 48		PHA		SAVE NEXT CARD
02DD A2 6B	GETBET	LDX	#WHAT-ST	
02DF 20 29 02		JSR	PSTR	PRINT PROMPT
02E2 A9 00		LDA	#0	
02E4 85 05		STA	BET	
02E6 85 06		STA	BET+1	SET BET TO 0
02E8 20 0E 02	GETDIG	JSR	INCH	GET CHAR
02EB 38		SEC		
02EC E9 30		SBC	#'0	REMOVE ASCII
02EE 30 04		BMI	ERROR	CHECK <0
02F0 C9 0A		CMF	#10	
02F2 90 0C		BCC	OK	CHECK >9
02F4 C9 DD	ERROR	CMF	#D-'0	
02F6 F0 18		BEQ	ENDBET	CHECK FOR CR
02F8 A9 3F		LDA	#'?	
02FA 20 06 02		JSR	OUTCH	PRINT QUIZZER
02FD 4C DD 02		JMP	GETBET	GET AGAIN
0300 A2 04	OK	LDX	#4	
0302 06 06	BETLFT	ASL	BET+1	
0304 26 05		ROL	BET	SHIFT IT OVER
0306 CA		DEX		
0307 D0 F9		BNE	BETLFT	4 TIMES
0309 05 06		ORA	BET+1	SOCK IT IN
030B 85 06		STA	BET+1	
030D 4C E8 02		JMP	GETDIG	
0310 A5 03	ENDBET	LDA	MONEY	
0312 C5 05		CMF	BET	CHECK IF ENUF
0314 F0 04		BEQ	TSTLOW	SPECIAL CASE
0316 90 08		BCC	NOTENF	
0318 B0 11		BCS	ENUF	
031A A5 04	TSTLOW	LDA	MONEY+1	
031C C5 06		CMF	BET+1	CHECK LOW MONEY
031E B0 08		BCS	ENUF	
0320 A2 7E	NOTENF	LDX	#DONT-ST	
0322 20 29 02		JSR	PSTR	PRINT NOT ENUF
0325 20 57 02		JSR	PRTHON	PRINT WHAT'S LEFT
032B 4C DD 02		JMP	GETBET	GET NEXT BET
032B A5 05	ENUF	LDA	BET	GET BET
032D D0 07		BNE	NXTCRD	IF NOT 0 CONT.
032F A5 06		LDA	BET+1	
0331 D0 03		BNE	NXTCRD	CHECK LS BYTE
0333 4C BB 02		JMP	NXTBET	IF 0, DON'T DEAL
0336 A2 A9	NXTCRD	LDX	#YUR-ST	
033B 20 29 02		JSR	PSTR	PRINT MSG.
033B 68		PLA		
033C 48		PHA		SAVE
033D 20 75 03		JSR	PRTCRD	GO PRINT
0340 68		PLA		GET AGAIN
0341 C5 07		CMF	CARD1	
0343 F0 06		BEQ	TOOBAD	CHECK EQUAL
0345 90 04		BCC	TOOBAD	CHECK >= CARD2
0347 C5 08		CMF	CARD2	
0349 90 15		BCC	WINNER	CHECK >CARD1 AND <CARD2
034B A2 98	TOOBAD	LDX	#SOR-ST	
034D 20 29 02		JSR	PSTR	PRINT MSG.

LOCN	B1	B2	B3			
0350	A5	04			LDA	MONEY+1
0352	38				SEC	
0353	F8				SED	
0354	E5	06			SBC	BET+1 TAKE BET AWAY
0356	85	04			STA	MONEY+1
0358	A5	03			LDA	MONEY
035A	E5	05			SBC	BET EVEN MORE
035C	D8				CLD	SET MODE BACK
035D	4C	89	02		JMP	SAVMON GO TELL
0360	A2	E9		WINNER	LDX	#WIN-ST
0362	20	29	02		JSR	PSTR
0365	A5	04			LDA	MONEY+1
0367	F8				SED	
0368	18				CLC	
0369	65	06			ADC	BET+1
036B	85	04			STA	MONEY+1 ADD IT ON
036D	A5	03			LDA	MONEY
036F	65	05			ADC	BET
0371	D8				CLD	RESET MODE
0372	4C	89	02		JMP	SAVMON GO TELL HIM
0375	18			PRTCRD	CLC	
0376	69	32			ADC	#'2 SET 2=2
0378	C9	3A			CMP	#'9+1 CHECK >9
037A	90	0F			BCC	PRTCR1
037C	A2	00			LDX	#0
037E	E9	39			SBC	#'9 TAKE OFF BIAS
0380	38			ADVTBL	SEC	
0381	E9	01			SBC	#1 SEARCH THE TABLE
0383	F0	03			BEQ	GOTTOK
0385	E8				INX	
0386	D0	F8			BNE	ADVTBL SAVE A BYTE
0388	BD	01	04	GOTTOK	LDA	CRDTBL,X GET LETTER
038B	20	06	02	PRTCR1	JSR	OUTCH PRINT CARD
038E	20	04	02		JSR	OUTS AND A SPACE
0391	20	33	02	SELCRD	JSR	RANDOM GET NUMBER
0394	29	0F			AND	##F MASK TO EXPEDITE
0396	C9	0D			CMP	##D CHECK IN RANGE
0398	B0	F7			BCS	SELCRD IF NOT, GET ANOTHER
039A	60				RTS	DONE
039B	0D			ST	FCB	\$D,\$A,0,0,0,0,4
039C	0A					
039D	00					
039E	00					
039F	00					
03A0	00					
03A1	04					
03A2	41				FCC	#ACEY-DUCEY 6502#
03A3	43					
03A4	45					
03A5	59					
03A6	2D					
03A7	44					
03A8	55					
03A9	43					
03AA	45					



LOCN B1 B2 B3

03AB 59

03AC 20

03AD 36

03AE 35

03AF 30

03B0 32

03B1 04

YOU FCB 4  
FCC ;YOU NOW HAVE \$;

03B2 59

03B3 4F

03B4 55

03B5 20

03B6 4E

03B7 4F

03B8 57

03B9 20

03BA 48

03BB 41

03BC 56

03BD 45

03BE 20

03BF 24

03C0 04

YOUR FCB 4  
FCC ;YOUR MONEY IS ALL GONE!;

03C1 59

03C2 4F

03C3 55

03C4 52

03C5 20

03C6 4D

03C7 4F

03C8 4E

03C9 45

03CA 59

03CB 20

03CC 49

03CD 53

03CE 20

03CF 41

03D0 4C

03D1 4C

03D2 20

03D3 47

03D4 4F

03D5 4E

03D6 45

03D7 21

03D8 04

PLA FCB 4  
FCC ;PLAY AGAIN? ;

03D9 50

03DA 4C

03DB 41

03DC 59

03DD 20

03DE 41

03DF 47

03E0 41

03E1 49

LOCN B1 B2 B3

03E2 4E

03E3 3F

03E4 20

03E5 04

03E6 0A

03E7 59

03E8 4F

03E9 55

03EA 52

03EB 20

03EC 46

03ED 49

03EE 52

03EF 53

03F0 54

03F1 20

03F2 32

03F3 20

03F4 43

03F5 41

03F6 52

03F7 44

03F8 53

03F9 20

03FA 41

03FB 52

03FC 45

03FD 3A

03FE 20

03FF 20

0400 04

0401 54

0402 4A

0403 51

0404 4B

0405 41

0406 57

0407 48

0408 41

0409 54

040A 20

040B 49

040C 53

040D 20

040E 59

040F 4F

0410 55

0411 52

0412 20

0413 42

0414 45

0415 54

0416 3F

0417 20

0418 04

THE FCB 4  
FCB \$A  
FCC ;YOUR FIRST 2 CARDS ARE: ;

CRDTBL FCB 4  
FCC ;TJQKA;

WHAT FCC ;WHAT IS YOUR BET? ;

FCB 4

LOCN	B1	B2	B3			
0419	59			DONT	FCC	;YOU DON'T HAVE THAT MUCH!;
041A	4F					
041B	55					
041C	20					
041D	44					
041E	4F					
041F	4E					
0420	27					
0421	54					
0422	20					
0423	48					
0424	41					
0425	56					
0426	45					
0427	20					
0428	54					
0429	48					
042A	41					
042B	54					
042C	20					
042D	4D					
042E	55					
042F	43					
0430	48					
0431	21					
0432	04				FCB	4
0433	53			SOR	FCC	;SORRY, YOU LOSE.;
0434	4F					
0435	52					
0436	52					
0437	59					
0438	2C					
0439	20					
043A	59					
043B	4F					
043C	55					
043D	20					
043E	4C					
043F	4F					
0440	53					
0441	45					
0442	2E					
0443	04				FCB	4
0444	59			YUR	FCC	;YOUR THIRD CARD IS: ;
0445	4F					
0446	55					
0447	52					
0448	20					
0449	54					
044A	48					
044B	49					
044C	52					
044D	44					
044E	20					
044F	43					

LOCN B1 B2 B3

0450 41

0451 52

0452 44

0453 20

0454 49

0455 53

0456 3A

0457 20

0458 04

0459 43

045A 4F

045B 4E

045C 47

045D 52

045E 41

045F 54

0460 55

0461 4C

0462 41

0463 54

0464 49

0465 4F

0466 4E

0467 53

0468 21

0469 07

046A 04

046B 59

046C 4F

046D 55

046E 20

046F 4A

0470 55

0471 53

0472 54

0473 20

0474 42

0475 52

0476 4F

0477 4B

0478 45

0479 20

047A 54

047B 4B

047C 45

047D 20

047E 42

047F 41

0480 4E

0481 4B

0482 2E

0483 04

0484 59

0485 4F

0486 55

CONG

FCB

4

FCC

;CONGRATULATIONS!;

FCB

7.4

FCC

;YOU JUST BROKE THE BANK.;

WIN

FCB

4

FCC

;YOU WIN!;

LOCN B1 B2 B3  
 0487 20  
 0488 57  
 0489 49  
 048A 4E  
 048B 21  
 048C 04

FCB 4  
 END

## SYMBOL TABLE:

ADVTBL 0380	BEGIN 027D	BET 0005	BETLFT 0302	CARD1 0007
CARD2 0008	CHEPLA 029B	CNXT1 0268	CNXT2 026D	CNXT3 0278
CONG 0459	CRDTBL 0401	DONT 0419	ENDBET 0310	ENUF 032B
ERROR 02F4	GETBET 02DD	GETDIG 02E8	GOTTOK 0388	HICRD 02D7
INCH 020E	MON 0216	MONEY 0003	MONLFT 02AA	NO 02A7
NOTENF 0320	NXTBET 02BB	NXTCRD 0336	OK 0300	OUTCH 0206
OUTDL 024A	OUTNUM 024E	OUTS 0204	PCRLF 0218	PDATA 0220
PDNXT 021F	PLA 03D9	PNXT 0228	PNXT1 026A	PNXT2 0275
PRTCRD 0375	PRTCR1 038B	PRTMON 0257	PSTR 0229	PTCRD 02D9
PTEMP 0002	P2 021C	RANDOM 0233	RNDM 0000	R1 0235
SAVMON 0289	SELCRD 0391	SOR 0433	ST 039B	START 0200
THE 03E6	TOOBAD 034B	TSTLOW 031A	WHAT 0406	WIN 04B4
WINNER 0360	YOU 03B2	YOUR 03C1	YUR 0444	

## OBJECT CODE:

```

#10 0200 D8 4C 7D 02 A9 20 86 02 20 A0 1E A6 02 60 86 02 0574
#10 0210 20 5A 1E A6 02 60 00 1C A2 00 F0 04 20 06 02 E8 0484
#10 0220 BD 9B 03 C9 04 D0 F5 60 E8 8A 48 20 18 02 68 AA 0785
#10 0230 4C 20 02 A9 08 48 A5 00 2A 45 00 2A 2A 26 01 26 035E
#10 0240 00 68 18 69 FF D0 EE A5 00 60 4A 4A 4A 4A 29 0F 065D
#10 0250 09 30 20 06 02 38 60 A2 17 20 29 02 18 A5 03 F0 040F
#10 0260 0C 29 F0 F0 03 20 4A 02 A5 03 20 4E 02 A9 F0 25 05CC
#10 0270 04 B0 02 F0 03 20 4A 02 A5 04 4C 4E 02 20 18 02 0416
#10 0280 20 28 02 A9 00 85 04 A9 01 85 03 20 57 02 A5 03 0461
#10 0290 D0 18 A5 04 D0 14 A2 26 20 29 02 A2 3E 20 29 02 0555
#10 02A0 20 0E 02 C9 4E D0 D6 6C 16 02 A5 03 C9 20 90 0B 064F
#10 02B0 A2 BE 20 29 02 20 28 02 4C 9B 02 A2 48 20 29 02 04D8
#10 02C0 20 91 03 85 07 20 75 03 C5 07 B0 0B 48 A5 07 85 05AA
#10 02D0 08 68 85 07 4C D9 02 85 08 20 75 03 48 A2 6B 20 059F
#10 02E0 29 02 A9 00 85 05 85 06 20 0E 02 38 E9 30 30 04 0490
#10 02F0 C9 0A 90 0C C9 DD F0 18 A9 3F 20 06 02 4C DD 02 075A
#10 0300 A2 04 06 06 26 05 CA D0 F9 05 06 85 06 4C E8 02 054F
#10 0310 A5 03 C5 05 F0 04 90 08 B0 11 A5 04 C5 06 B0 0B 0611
#10 0320 A2 7E 20 29 02 20 57 02 4C DD 02 A5 05 D0 07 A5 0568
#10 0330 06 D0 03 4C BB 02 A2 A9 20 29 02 68 48 20 75 03 0503
#10 0340 68 C5 07 F0 06 90 04 C5 08 90 15 A2 98 20 29 02 0608
#10 0350 A5 04 38 F8 E5 06 85 04 A5 03 E5 05 D8 4C 89 02 06F1
#10 0360 A2 E9 20 29 02 A5 04 F8 18 65 06 85 04 A5 03 65 0603
#10 0370 05 D8 4C 89 02 18 69 32 C9 3A 90 0F A2 00 E9 39 0650
#10 0380 78 F9 01 F0 03 F8 D0 F8 B0 01 04 70 04 02 70 04 0666

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#10 0390 02 20 33 02 29 0F C9 0D B0 F7 60 0D 0A 00 00 00 0426
#10 03A0 00 04 41 43 45 59 2D 44 55 43 45 59 20 36 35 30 043B
#10 03B0 32 04 59 4F 55 20 4E 4F 57 20 48 41 56 45 20 24 0492
#10 03C0 04 59 4F 55 52 20 4D 4F 4E 45 59 20 49 53 20 41 04EB
#10 03D0 4C 4C 20 47 4F 4E 45 21 04 50 4C 41 59 20 41 47 04C7
#10 03E0 41 49 4E 3F 20 04 0A 59 4F 55 52 20 46 49 52 53 04DB
#10 03F0 54 20 32 20 43 41 52 44 53 20 41 52 45 3A 20 20 04A8
#10 0400 04 54 4A 51 4B 41 57 48 41 54 20 49 53 20 59 4F 044B
#10 0410 55 52 20 42 45 54 3F 20 04 59 4F 55 20 44 4F 4E 0427
#10 0420 27 54 20 48 41 56 45 20 54 48 41 54 20 4D 55 43 0449
#10 0430 48 21 04 53 4F 52 52 59 2C 20 59 4F 55 20 4C 4F 0454
#10 0440 53 45 2E 04 59 4F 55 52 20 54 48 49 52 44 20 43 046B
#10 0450 41 52 44 20 49 53 3A 20 04 43 4F 4E 47 52 41 54 0463
#10 0460 55 4C 41 54 49 4F 4E 53 21 07 04 59 4F 55 20 4A 0476
#10 0470 55 53 54 20 42 52 4F 4B 45 20 54 48 45 20 42 41 04B7
#0D 0480 4E 4B 2E 04 59 4F 55 20 57 49 4E 21 04 038C

#00 0029 0029

```



ACEY-DUCEY  
YOU NOW HAVE \$100

YOUR FIRST 2 CARDS ARE: 9 8  
WHAT IS YOUR BET?

YOUR FIRST 2 CARDS ARE: J 7  
WHAT IS YOUR BET? 5  
YOUR THIRD CARD IS: 4  
SORRY, YOU LOSE.  
YOU NOW HAVE \$95

YOUR FIRST 2 CARDS ARE: J 7  
WHAT IS YOUR BET?

YOUR FIRST 2 CARDS ARE: A K  
WHAT IS YOUR BET?

YOUR FIRST 2 CARDS ARE: J 6  
WHAT IS YOUR BET? 50  
YOUR THIRD CARD IS: 8  
YOU WIN!  
YOU NOW HAVE \$145

YOUR FIRST 2 CARDS ARE: 9 3  
WHAT IS YOUR BET? 500  
YOU DON'T HAVE THAT MUCH!  
YOU NOW HAVE \$145  
WHAT IS YOUR BET? 50  
YOUR THIRD CARD IS: 6  
YOU WIN!  
YOU NOW HAVE \$195

YOUR FIRST 2 CARDS ARE: K 3  
WHAT IS YOUR BET? 190  
YOUR THIRD CARD IS: T  
YOU WIN!  
YOU NOW HAVE \$385

YOUR FIRST 2 CARDS ARE: 4 2  
WHAT IS YOUR BET?

YOUR FIRST 2 CARDS ARE: A J  
WHAT IS YOUR BET?

YOUR FIRST 2 CARDS ARE: 5 4  
WHAT IS YOUR BET? 385  
YOUR THIRD CARD IS: 0  
YOU WIN!  
YOU NOW HAVE \$770

YOUR FIRST 2 CARDS ARE: 7 4  
WHAT IS YOUR BET? 770  
YOUR THIRD CARD IS: 3  
SORRY, YOU LOSE.  
YOU NOW HAVE \$0  
YOUR MONEY IS ALL GONE!