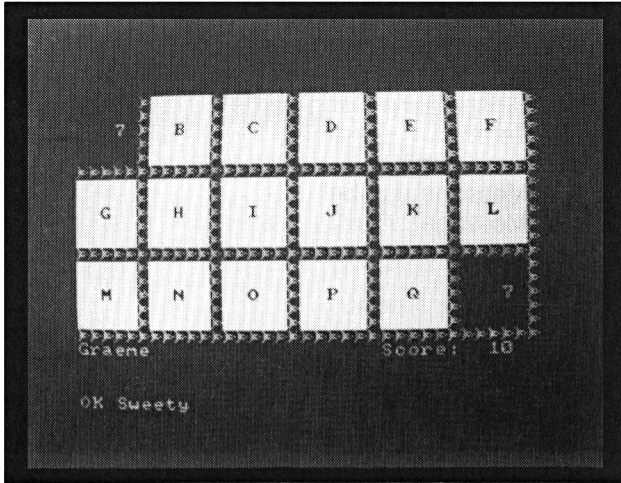


# CONCENTRATION



## CLASSIFICATION: Memory game

Challenge your opponent to a tough brain battle! You select two cards from 18 and, if they have the same number on their opposite sides you have a match. Otherwise, they are turned face down again and a chance is given to your opponent.

May the best memory win!

Use the corresponding letter of the alphabet to select the card you wish to examine.

## PROGRAMMING SUGGESTIONS

For an easier game, use a smaller range of numbers on the backs of the cards.

For a harder game, instead of having two sets of numbers from 1 to 9, have three sets of numbers from 1 to 6 and make each player choose three cards.

The display would look great with some more colouring for the cards!

## **PROGRAM**

### **Variables**

PLAYER\$(2)	Player names
SCORE(2)	Player's score
CPLR	Current player number
LASTCARD	Last card examined
CARDX(18), CARDY(18)	Co-ordinates of all cards
FLIPPED(18)	Which cards are facing up
CARD\$, BACK\$	Strings for printing cards
I, J	Temps
CN	Card number
MN	Message number
MSG\$(4)	Messages
NUMBER(18)	The numbers behind each card

### **Program Structure**

Lines	Function/Activity
10 — 270	Initialise Front screen
280 — 480	Editor control
490 — 560	Flip card
570 — 790	Cards matched
800 — 880	Reset card
890 — 930	Update name and score
940 — 990	Print message
1000 — 1070	Game over

CONCENTRATION

Initialise game

```

10  MODE 1 : INK 0, 1 : INK 1, 26 : INK 2, 9 : INK 3, 24
20  DIM CARDX( 18 ), CARDY( 18 ), FLIPPED( 18 ), NUMBERS( 1
    8 )
30  FOR I = 1 TO 9
40  J = INT( RND( 1 ) * 18 ) + 1 : IF NUMBERS( J ) <> 0 THE
    N 40 ELSE NUMBERS( J ) = 1
50  K = INT( RND( 1 ) * 18 ) + 1 : IF NUMBERS( K ) <> 0 THE
    N 50 ELSE NUMBERS( K ) = 1
60  NEXT
70  FOR I = 1 TO 18 : FLIPPED( I ) = 0 : NEXT
80  FOR I = 1 TO 6 : CARDX( I ) = I * 6 - 5 : CARDY( I ) =
    1 : NEXT
90  FOR I = 7 TO 12 : CARDX( I ) = ( I - 6 ) * 6 - 5 : CARD
    Y( I ) = 7 : NEXT
100 FOR I = 13 TO 18 : CARDX( I ) = ( I - 12 ) * 6 - 5 : CA
    RDY( I ) = 13 : NEXT
110 CARD$ = STRING$( 5, 143 ) : BACK$ = STRING$( 5, 206 )
120 PAPER 0 : CLS : BORDER 1
130 PEN 1 : PRINT TAB( 13 ); "CONCENTRATION"
140 LOCATE 1, 10 : INPUT "Name_▲for_▲player_▲one"; X$ : IF X$
    = "" THEN X$ = "NUTCASE"
150 IF LEN( X$ ) > 23 THEN 140
160 PLAYER$( 1 ) = X$
170 LOCATE 1, 13 : INPUT "Name_▲for_▲player_▲two"; X$ : IF X$
    = "" THEN X$ = "FRUIT_▲CAKE"
180 IF LEN( X$ ) > 23 THEN 170
190 PLAYER$( 2 ) = X$
200 LOCATE 1, 17 : PRINT "OK_▲'"; PLAYER$( 1 ); " _▲AND_▲'"; P
    LAYER$( 2 ); " _"
210 LOCATE 10, 23 : PRINT "Press_▲a_▲key_▲to_▲begin"
220 IF INKEY$ = "" THEN 220
230 MSG$( 1 ) = "Please_▲select_▲first_▲card" : MSG$( 2 ) = "O
    K_▲Sweety"
240 MSG$( 3 ) = "Now_▲select_▲a_▲second_▲card" : MSG$( 4 ) = "S
    ORRY,_▲THEY_▲ARE_▲NOT_▲A_▲MATCH_▲!"
250 CLS
260 FOR CN = 1 TO 18 : GOSUB 810 : NEXT
270 CPLR = 2

```

Editor/Control

```

280  :
290  IF CPLR = 1 THEN CPLR = 2 : GOSUB 900 ELSE CPLR = 1 : G
    OSUB 900
300  MN = 1 : GOSUB 950
310  X$ = INKEY$ : IF X$ = "" THEN 310
320  IF ( X$ < "A" AND X$ > "R" ) AND ( X$ < "a" AND X$ > "r
    " ) THEN 300
330  IF X$ > "R" THEN LASTCARD = ASC( X$ ) - 96 ELSE LASTCAR
    D = ASC( X$ ) - 64
340  IF FLIPPED( LASTCARD ) = 1 THEN 300 ELSE FLIPPED( LASTC
    ARD ) = 1 : CN = LASTCARD : GOSUB 500
350  MN = 2 : GOSUB 950
360  FOR I = 1 TO 1000 : NEXT

```

```

370 MN = 3 : GOSUB 950
380 X$ = INKEY$ : IF X$ = "" THEN 380
390 IF ( X$ < "A" AND X$ > "R" ) AND ( X$ < "a" AND X$ > "r
" ) THEN 370
400 IF X$ > "R" THEN CN = ASC( X$ ) - 96 ELSE CN = ASC( X$
) - 64
410 IF FLIPPED( CN ) = 1 OR LASTCARD = CN THEN 370
420 FLIPPED( CN ) = 1 : GOSUB 500
430 MN = 2 : GOSUB 950
440 FOR I = 1 TO 1000 : NEXT
450 IF NUMBERS( CN ) = NUMBERS( LASTCARD ) THEN GOSUB 580 :
GOTO 290
460 MN = 4 : GOSUB 950
470 GOSUB 810 : FLIPPED( CN ) = 0 : CN = LASTCARD : GOSUB 8
10 : FLIPPED( CN ) = 0 : FOR I = 1 TO 1000 : NEXT
480 GOTO 290

```

Flip card

```

490 :
500 PRINT CHR$( 7 ) : PEN 2
510 FOR I = 1 TO 5 : LOCATE CARDX( CN ), CARDY( CN ) + I -
1
520 PRINT BACK$
530 NEXT
540 PAPER 2 : PEN 3 : LOCATE CARDX( CN ) + 2, CARDY( CN ) +
2
550 PRINT USING "##" : NUMBERS( CN )
560 PAPER 0 : RETURN

```

Cards matched

```

570 :
580 SCORE( CPLR ) = SCORE( CPLR ) + 10 : GOSUB 900 : FOR I
= 1 TO 18
590 FOR J = 1 TO 5
600 LOCATE CARDX( I ) + 5, CARDY( I ) + J - 1
610 PEN 3 : PRINT CHR$( 224 )
620 SOUND 1, 4000 - 220 * I + 40 * J, 7, 15
630 NEXT
640 FOR J = 1 TO 6
650 LOCATE CARDX( I ) + J - 1, CARDY( I ) + 5
660 PRINT CHR$( 224 )
670 NEXT : NEXT
680 FOR I = 18 TO 1 STEP -1
690 FOR J = 1 TO 5
700 LOCATE CARDX( I ) + 5, CARDY( I ) + J - 1
710 PRINT "▲"
720 SOUND 1, 220 * I - 40 * J, 7, 15
730 NEXT
740 FOR J = 1 TO 6
750 LOCATE CARDX( I ) + J - 1, CARDY( I ) + 5
760 PRINT "▲"
770 NEXT : NEXT
780 IF SCORE( 1 ) + SCORE( 2 ) = 90 THEN 1010
790 RETURN

```

Rest card

```
800 :  
810 PEN 1  
820 FOR I = 1 TO 5  
830 LOCATE CARDX( CN ), CARDY( CN ) + I - 1  
840 PRINT CARD$  
850 NEXT  
860 PAPER 1 : PEN 2 : LOCATE CARDX( CN ) + 2, CARDY( CN ) +  
2  
870 PRINT CHR$( 64 + CN )  
880 PAPER 0 : RETURN
```

Update name and score

```
890 :  
900 LOCATE 1, 19 : PEN 3 : PRINT SPACE$( 23 ) : LOCATE 1, 1  
9  
910 PRINT PLAYER$( CPLR )  
920 LOCATE 25, 19 : PRINT "Score :▲"; SCORE( CPLR )  
930 RETURN
```

Print message

```
940 :  
950 PEN 3 : LOCATE 1, 23  
960 PRINT SPACE$( 35 )  
970 LOCATE 1, 23  
980 PRINT MSG$( MN )  
990 RETURN
```

Game over

```
1000 :  
1010 CLS : PRINT SPACE$( 16 ); "GAME_▲OVER"  
1020 IF SCORE( 1 ) > SCORE( 2 ) THEN X$ = PLAYER$( 1 ) ELSE  
X$ = PLAYER$( 2 )  
1030 LOCATE 1, 10 : PRINT "CONGRATULATIONS_▲TO_▲"; X$  
1040 LOCATE 1, 13 : PRINT PLAYER$( 1 ); "▲SCORED_▲"; SCORE( 1  
)  
1050 LOCATE 1, 16 : PRINT PLAYER$( 2 ); "▲SCORED_▲"; SCORE( 2  
)  
1060 LOCATE 6, 22 : PRINT "PRESS_▲A_▲KEY_▲FOR_▲ANOTHER_▲GAME"  
1070 IF INKEY$ = "" THEN 1070 ELSE RUN
```

# ChexSum Tables

10 = 1408	290 = 1864	2190 = 2872
20 = 3168	300 = 4105	2200 = 323
25 = 1013	310 = 4145	2210 = 353
27 = 5199	320 = 3387	2230 = 2430
30 = 5173	330 = 1735	2250 = 201
32 = 176	340 = 928	2290 = 0
35 = 2416	350 = 1428	3000 = 234
40 = 4007	360 = 4141	3010 = 1009
50 = 4382	370 = 930	3020 = 2720
60 = 4439	380 = 6043	3030 = 636
65 = 2739	390 = 432	3040 = 176
70 = 549	990 = 0	3050 = 2992
80 = 1953	1000 = 819	3060 = 1181
90 = 4728	1010 = 3698	3070 = 434
95 = 1467	1020 = 627	3990 = 0
100 = 1146	1030 = 176	4000 = 1476
110 = 4958	1040 = 2994	4010 = 1342
115 = 1487	1050 = 1769	4020 = 2368
120 = 1147	1060 = 434	4030 = 201
130 = 3088	1990 = 0	4990 = 0
140 = 2443	2000 = 4013	5000 = 545
150 = 1301	2010 = 1010	5010 = 641
160 = 4659	2020 = 2840	5020 = 308
165 = 5640	2030 = 1048	5030 = 962
170 = 138	2040 = 2365	5040 = 201
180 = 1667	2050 = 176	8990 = 0
190 = 701	2070 = 979	9000 = 1550
200 = 0	2080 = 2872	9010 = 4442
210 = 3571	2090 = 811	9020 = 2273
220 = 927	2110 = 353	9025 = 2589
230 = 2059	2120 = 1523	9027 = 2594
240 = 4310	2130 = 978	9030 = 2501
245 = 5035	2140 = 2872	9040 = 1652
247 = 6086	2150 = 323	
250 = 960	2160 = 1920	
260 = 1396	2170 = 176	TOTAL = 202596
270 = 929	2180 = 1011	