The TI-99/4A in BITS & BYTES

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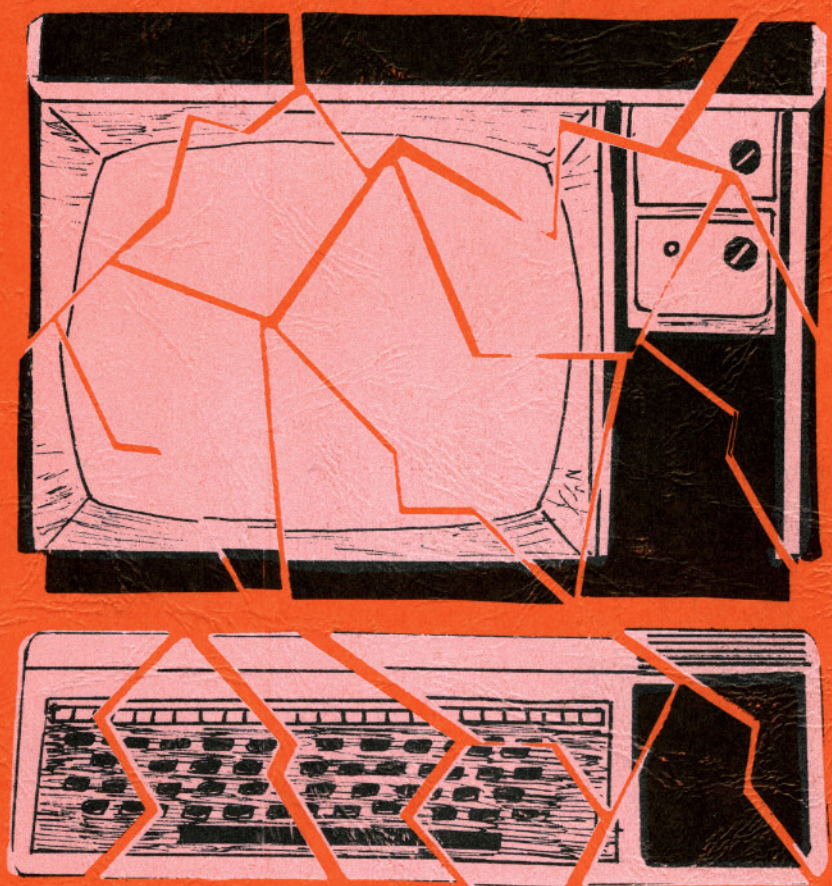
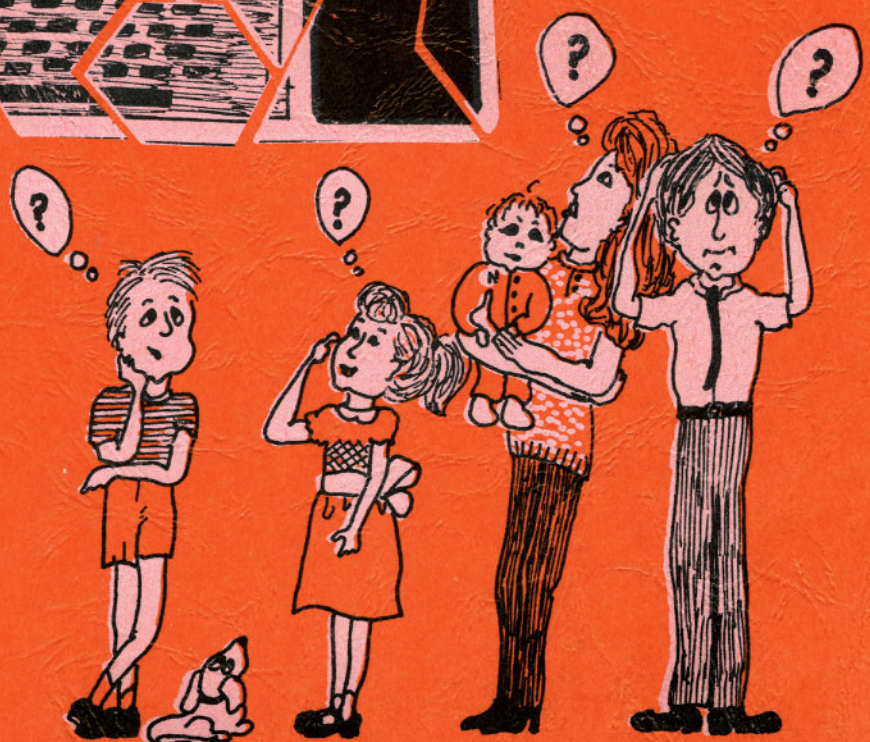


seem complicated? this easy to follow book of programs, tips and other info brings it all together for you.



The TI-99/4A in BITS & BYTES

The
TI-99/4A
in
BITS & BYTES

Assembled By
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Dedicated to the memory of

Nicholas Gabriel Wartman

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PREFACE

We thank you for buying this book!
The people responsible for the preparation of this book are as diversified in their background as you, our readers, are in yours. They, as you, all share at least one common, devoted interest -Computer Programming! The ideas that these individuals have developed are certainly some of the very ideas that you've had. Here they are already done for you. That's nice, but the main thing to consider in finding that someone has developed and is selling an idea that you had, means that you must have some pretty good ideas! We want this book to encourage and motivate you to pursue them.

Now let me introduce the individuals responsible for this book.

ACKNOWLEDGEMENTS

First and foremost there is my wife Pat and my son Nino. They have been patient and supportive through it all, even in face of my workaholic tendencies. Then there is my close friend and associate, Bob Wartman, and I could not forget his family—wife Pat, and sons Sean, Todd and Nicholas. Bob's family has also endured his long hours of dedication to his computer and the completion of this project. Simply stated, this book would not be at the quality level it is were it not for Bob. He deserves special recognition for his totally unselfish efforts. Thanks Bob!

All of the other members of our programming team have been incredible too! They have listened to and belived in my idea which began some time ago. They've patiently watched several deadlines pass, but they all stuck it out. I appreciate it more than they could ever realize. They are in alphabetical order:

Tom Banchy
Don Busch
Mark Cowan
James Glenn
Jack Gulick
Richard Proctor
Brian Taylor
Phil Taylor
Ed York

You will get to know each of them in some way once you begin working with one of their programs. I'm sure that you will appreciate their work as much as I have! Special thanks to Joe Wehby, Jim Schwaller and Dan Hall. Their help has been invaluable.

Finally, let me say it has truly been a pleasure preparing this book, knowing so many people would get enjoyment from it. We want to do more projects such as this, and we'd like to know what kind of programs and information you're interested in. Send us your comments and suggestions: We'll welcome your constructive criticism as well as your favorable notes. After all, books should be written for the benefit of the reader, and that's what we want to do. Please let us know what we can do for you!

Sincerely yours,

Remo A. Loreto
Publisher

PROGRAMMING COMMANDS MADE SIMPLE

CALL COLOR

CALL COLOR can be a very powerful command if you you use it to its limits. This command always takes the following format: CALL COLOR(CHARACTER SET,FOREGROUND COLOR,BACKGROUND COLOR). The character set refers to the set number for which the character in question is located. The foreground color refers to the color of the character itself. The background color refers to the color in the background. Note: If the foreground and background colors are the same then the character(s) will appear as a solid block of that color. The examples below will illustrate the use of CALL COLOR.

Example 1:

```
100 REM CALL COLOR #1
110 CALL CLEAR
120 CALL SCREEN(5)
130 FOR A=1 TO 8
140 CALL COLOR(A,5,5)
150 NEXT A
160 PRINT "THESE WORDS SHOULD APPEAR AS"::
170 PRINT "IF THEY WERE PLACED ON THE"::
180 PRINT "SCREEN ONE AT A TIME.":::::::::
190 FOR A=1 TO 8
200 CALL COLOR(A,16,5)
210 NEXT A
220 GOTO 220
```

Example 2:

```
100 REM CALL COLOR #2
110 CALL CLEAR
120 CALL SCREEN(2)
130 FOR A=1 TO 50
140 RANDOMIZE
150 CALL HCHAR(INT(24*RND)+1,INT(32*RND)+1,42)
160 CALL COLOR(2,16,2)
170 CALL COLOR(2,2,2)
180 GOTO 160
```

CALL GCHAR

CALL GCHAR is probably one of the least explained commands. This command allows you to read a character from anywhere on the screen. In some respects it performs like a CALL KEY command in that it scans the screen instead of the keyboard. When a CALL GCHAR is encountered, a particular row and column position is read by the computer and the ASCII value of the character at that location is returned. The format for this command is always CALL GCHAR(ROW NUMBER,COLUMN NUMBER,NUMERIC VARIABLE). The following example will illustrate the use of the CALL GCHAR command.

Example 1:

```
100 REM CALL GCHAR #1
110 CALL CLEAR
120 FOR A=1 TO 8
130 CALL COLOR(A,16,13)
140 NEXT A
150 CALL CHAR(96,"FFFFFFFFFFFFFFFF")
160 CALL CHAR(104,"FFFFFFFFFFFFFFFF")
170 CALL COLOR(9,7,7)
180 CALL COLOR(10,5,5)
190 FOR B=8 TO 17
200 FOR C=12 TO 21
210 CALL HCHAR(B,C,104)
220 NEXT C
230 NEXT B
240 FOR D=1 TO 100
250 RANDOMIZE
260 CALL HCHAR(INT(10*RND)+8,INT(10*RND)+12,96)
270 NEXT D
280 FOR F=8 TO 17
290 FOR G=12 TO 21
300 CALL GCHAR(F,G,H)
310 IF H=96 THEN 360
320 IF H=104 THEN 390
330 NEXT G
340 NEXT F
350 GOTO 420
360 I=I+1
370 CALL SOUND(-50,220,0)
380 GOTO 330
390 J=J+1
400 CALL SOUND(-50,880,0)
410 GOTO 330
420 PRINT "THERE ARE EXACTLY";I;"RED"::
430 PRINT "BLOCKS AND";J;"BLUE BLOCKS."
440 GOTO 440
```

Example 2:

```
100 REM CALL GCHAR #2
110 CALL CLEAR
120 FOR A=8 TO 17
130 FOR B=12 TO 21
140 RANDOMIZE
150 CALL HCHAR(A,B,INT(26*RND)+65)
160 NEXT B
170 NEXT A
180 C=INT(10*RND)+8
190 D=INT(10*RND)+12
200 CALL GCHAR(C,D,F)
210 PRINT "THE CHARACTER AT ROW";C;"":
220 PRINT "AND COLUMN";D;"IS ";CHR$(F);"."
230 GOTO 230
```

CALL JOYST

CALL JOYST allows you to input information to the computer based on the position of the lever on the joysticks. This command takes the following format: CALL JOYST(KEY UNIT,X-RETURN,Y-RETURN). The key unit refers to which joystick is to be active. A key unit of "1" results in joystick 1 being activated. A key unit of "2" results in joystick 2 being activated. Note: You have a choice of having either one or both joysticks activated in your program. The x-return and y-return must be numeric variables. The computer assigns an integer value of -4, +4 or 0 to each of these variables, based on the position of the joystick at that time. You may then use these values in your program by referring to the variable names. The following examples will illustrate the use of the CALL JOYST command.

Example 1:

```
100 REM   CALL JOYST #1
110 A=16
120 B=12
130 CALL CLEAR
140 CALL SCREEN(16)
150 CALL CHAR(96,"FFFFFFFFFFFFFFFF")
160 CALL COLOR(9,2,16)
170 CALL JOYST(1,C,D)
180 CALL KEY(1,F,G)
190 IF F<>18 THEN 240
200 H=H+1
210 IF H<16 THEN 230
220 H=1
230 CALL COLOR(9,H,H)
240 A=A+C/4
250 B=B-D/4
260 A=INT(32*((A-1)/32-INT((A-1)/32)))+1
270 B=INT(24*((B-1)/24-INT((B-1)/32)))+1
280 CALL HCHAR(B,A,96)
290 GOTO 170
```

Example 2:

```
100 REM   CALL JOYST #2
110 CALL CLEAR
120 CALL JOYST(1,A,B)
130 IF (A=0)*(B=0) THEN 140 ELSE 160
140 CALL SOUND(-1000,30000,0)
150 GOTO 120
160 IF (A=0)*(B=4) THEN 170 ELSE 190
170 CALL SOUND(-1000,262,0)
180 GOTO 120
190 IF (A=4)*(B=4) THEN 200 ELSE 220
200 CALL SOUND(-1000,294,0)
210 GOTO 120
220 IF (A=4)*(B=0) THEN 230 ELSE 250
230 CALL SOUND(-1000,330,0)
240 GOTO 120
250 IF (A=4)*(B=-4) THEN 260 ELSE 280
260 CALL SOUND(-1000,349,0)
270 GOTO 120
280 IF (A=0)*(B=-4) THEN 290 ELSE 310
290 CALL SOUND(-1000,392,0)
300 GOTO 120
310 IF (A=-4)*(B=-4) THEN 320 ELSE 340
320 CALL SOUND(-1000,440,0)
330 GOTO 120
340 IF (A=-4)*(B=0) THEN 350 ELSE 370
350 CALL SOUND(-1000,494,0)
360 GOTO 120
370 IF (A=-4)*(B=4) THEN 380 ELSE 120
380 CALL SOUND(-1000,524,0)
390 GOTO 120
```

CALL KEY

CALL KEY is a very useful and powerful command which limits which key(s) are to be pressed. This is one way to avoid user errors and make your program "idiot proof". The CALL KEY statement always takes the following format: CALL KEY(KEY UNIT,RETURN VARIABLE,STATUS VARIABLE). The key unit refers to which keyboard is to be the input device. A key unit of "0" results in the entire keyboard being scanned for input. A key unit of "1" results in the entire left half of the keyboard being scanned for input. A key unit of "2" results in the right side of the keyboard being scanned for input. The return variable refers to which key will be pressed and that value must be numeric. The status variable refers to the status of the command. A "1" indicates that a new key was pressed since the last performance. A "0" indicates that no key has been pressed. A "-1" indicates that the same key was pressed during the performance as was pressed during the last performance. After the computer scans the keyboard it then sets the return and status variables accordingly. The computer either rescans the keyboard or it passes control to another section of the program. Remember that when a key is pressed the value returned is numeric. The examples below illustrate the use of the CALL KEY command.

Example 1:

```
100 REM CALL KEY - ALPHABETIC
110 CALL CLEAR
120 CALL KEY(0,A,B)
130 IF B=0 THEN 120
140 IF A=78 THEN 180
150 IF A<>89 THEN 120
160 PRINT "YOU PRESSED THE LETTER Y!"::
170 GOTO 120
180 PRINT "YOU PRESSED THE LETTER N!"::
190 GOTO 120
```

Example 2:

```
100 REM CALL KEY - NUMERIC #1
110 CALL CLEAR
120 CALL KEY(0,A,B)
130 IF A=49 THEN 180
140 IF A=50 THEN 200
150 IF A<>51 THEN 120
160 PRINT "YOU PRESSED THE NUMBER 3 KEY"::
170 GOTO 120
180 PRINT "YOU PRESSED THE NUMBER 1 KEY"::
190 GOTO 120
200 PRINT "YOU PRESSED THE NUMBER 2 KEY"
```

Example 3:

```
100 REM CALL KEY - NUMERIC #2
110 CALL CLEAR
120 CALL KEY(0,A,B)
130 IF (A<49)+(A>51) THEN 120
140 ON A-48 GOTO 150,170,190
150 PRINT "YOU PRESSED THE NUMBER 1 KEY"::
160 GOTO 120
170 PRINT "YOU PRESSED THE NUMBER 2 KEY"::
180 GOTO 120
190 PRINT "YOU PRESSED THE NUMBER 3 KEY"::
200 GOTO 120
```

CALL HCHAR AND CALL VCHAR

CALL HCHAR and CALL VCHAR are two very useful commands that share the same parameters but go in different directions. The format CALL HCHAR is CALL HCHAR(ROW,COLUMN,CHARACTER CODE,NUMBER OF REPETITIONS) and the format for CALL VCHAR is CALL VCHAR(ROW,COLUMN,CHARACTER CODE,REPETITIONS). As you can see the only difference is that one goes vertically while the other goes horizontaly. The row can be any integer between 1 and 24 while the column can be any integer between 1 and 32. The character code can be any interger between 32 and 159 while the number of repetitions can range, in a practical sense, between 1 and 768. The following example will illustrate the use of both CALL HCHAR and CALL VCHAR.

Example 1:

```
100 REM CALL HCHAR #1
110 REM AND
120 REM CALL VCHAR #1
130 CALL CLEAR
140 CALL SCREEN(2)
150 CALL CHAR(96,"FFFFFFFFFFFFFFFF")
160 CALL CHAR(104,"FFFFFFFFFFFFFFFF")
170 CALL COLOR(9,5,5)
180 CALL COLOR(10,7,7)
190 FOR A=1 TO 24
200 FOR B=1 32
210 CALL HCHAR(A,B,96)
220 NEXT B
230 NEXT A
240 FOR C=1 TO 32
250 FOR D=1 TO 24
260 CALL VCHAR(D,C,104)
270 NEXT D
280 NEXT C
290 FOR F=1 TO 24
300 CALL HCHAR(F,1,96,32)
310 NEXT F
320 FOR G=1 TO 32
330 CALL VCHAR(1,G,104,24)
340 NEXT G
350 GOTO 190
```

Example 2:

```
100 CALL HCHAR #2
110 AND
120 CALL VCHAR #2
130 CALL CLEAR
140 A$="TEXAS INSTRUMENTS"
150 FOR A=1 TO LEN(A$)
160 CALL HCHAR(12,6+A,ASC(SEG$(A$,A,1)))
170 NEXT A
180 FOR B=1 TO LEN(A$)
190 CALL VCHAR(3+B,15,ASC(SEG$(A$,B,1)))
200 NEXT B
210 GOTO 210
```

DIM

DIM is a statement that is used when refering to arrays. An array is an orderly arrangement of items with some common factor. The DIM statement takes the following format: DIM array name(integer 1,integer 2, integer 3). The array must have a name and that name may be any variable name. The number of integers separated by commas following the array name determines how many dimensions the array has. The value of the integers determine the number of elements in each dimension. Note: The DIM statement must appear in the program at a lower numbered line than any reference to the array. If you do not dimension an array then the maximum number of elements will be 11, beginning with 0 and ending with 10. If you wish to eliminate 0 then you must use the statement OPTION BASE 1. Note: OPTION BASE 1 will set the lower limit of all arrays to 1. The following examples will illustrate the use of the DIM statement and its use with arrays.

Example 1:

```
100 REM DIM #1
110 CALL CLEAR
120 FOR A=1 TO 8
130 READ B(A)
140 NEXT A
150 DATA 262,294,330,349,392,440,494,524
160 PRINT "        MUSICAL NOTES        "::
170 FOR C=1 TO 8
180 READ A$,B$
190 PRINT :"PRESS ";C;" FOR ";A$;" ";B$
200 NEXT C
210 DATA C,LOW C,D,,E,,F,,G,,A,,B,,C,MIDDLE C
220 CALL KEY(0,D,F)
230 IF F<1 THEN 220
240 IF (D<49)+(D>56) THEN 220
250 CALL SOUND(-1000,B(D-48),0)
260 RESTORE
270 GOTO 220
```

Example 2:

```
100 REM DIM #2
110 CALL CLEAR
120 DIM A$(20),B$(20),C$(20),D$(20),F$(20)
130 PRINT "THIS PROGRAM WILL ALLOW YOU"::"TO STORE UP TO TWENTY NAMES,"::
140 PRINT "ADDRESSES AND PHONE NUMBERS."::"THE LIMIT MAY BE CHANGED TO"::
150 PRINT "SUIT YOUR NEEDS. NOTE: YOU"::"MAY NOT USE COMMAS!"::
160 "PRINT "HOW MANY NAMES DO YOU WISH"::
170 INPUT "TO STORE? ":A
180 CALL CLEAR
190 IF (A<1)+(A>20) THEN 130
200 FOR B=1 TO A
210 PRINT "  THIS IS ENTRY NUMBER";B
220 PRINT :"NAME:"
230 INPUT "                              ":A$(B)
240 PRINT :"ADDRESS:"
250 INPUT "                              ":B$(B)
260 PRINT :"CITY/STATE:"
270 INPUT "                              ":C$(B)
280 PRINT :"ZIP CODE:"
290 INPUT "                              ":D$(B)
```

```
300 PRINT :"TELEPHONE NUMBER:"
310 INPUT "                                    ":F$(B)
320 PRINT :" PRESS ANY KEY TO CONTINUE."
330 CALL KEY(0,C,D)
340 IF D=0 THEN 330
350 CALL CLEAR
360 NEXT B
370 CALL CLEAR
380 FOR F=1 TO A
390 PRINT "       ENTRY NUMBER";F;"       "
400 PRINT " ";::A$(F);" ";::B$(F);" ";::C$(F);" ";::D$(F);" ";::F$(F)
410 PRINT :::::" PRESS ANY KEY TO CONTINUE."
420 CALL KEY(0,G,H)
430 IF H=0 THEN 420
440 CALL CLEAR
450 NEXT F
```

FOR-NEXT-STEP

FOR-NEXT-STEP can be a powerful programming tool if it is used to its potential. This statement instructs the computer to set a variable's lower and upper limit, and increment that variable by some value. If the increment is not specified then the computer will automatically set it to 1. The loop will be completed when the lower limit and the upper limit are equal. If you have one loop within another loop then it is considered to be "nested". The following examples will illustrate the use of a single and nested loop.

Example 1:

```
100 REM FOR-NEXT-STEP #1
110 CALL CLEAR
120 CALL SCREEN(8)
130 A$="TEXAS INSTRUMENTS HOME COMPUTER."
140 FOR A=1 TO LEN(A$)
150 CALL HCHAR(12,A,ASC(SEG$(A$,A,1)))
160 NEXT A
170 GOTO 170
```

Example 2:

```
100 REM FOR-NEXT-STEP #2
110 CALL CLEAR
120 CALL SCREEN(8)
130 CALL CHAR(96,"FFFFFFFFFFFFFFFF")
140 FOR A=1 TO 24
150 FOR B=1 TO 32
160 CALL HCHAR(A,B,96)
170 NEXT B
180 NEXT A
```

Example 3:

```
100 REM FOR-NEXT-STEP #3
110 CALL CLEAR
120 CALL SCREEN(2)
130 FOR A=1 TO 8
140 CALL COLOR(A,16,2)
150 NEXT A
160 FOR B=1 TO 32
170 READ C
180 CALL HCHAR(12,B,C)
190 NEXT B
200 GOTO 200
210 DATA 84,69,88,65,83,32,73,78,83,84,82,85,77,69,78,84,83,32
220 DATA 72,79,77,69,32,67,79,77,80,85,84,69,82,46
```

Example 4:

```
100 REM FOR-NEXT-STEP #4
110 CALL CLEAR
120 A=110
130 B=2^(1/12)
140 FOR C=12 TO 1 STEP -1
150 D=A*B^C
160 CALL SOUND(500,D,0)
170 NEXT C
180 CALL SOUND(500,110,0)
190 A=825
200 FOR C=12 TO 1 STEP -1
210 D=A*B^C
220 CALL SOUND(500,22000,30,22000,30,D,30,-4,0)
230 NEXT C
240 CALL SOUND(500,22000,30,22000,30,825,30,-4,0)
```

GOSUB AND GOTO

GOSUB and GOTO are two statements that are similar in that they both transfer control within the program. The GOSUB statement is used with the RETURN statement to allow you to transfer control to a subroutine, complete the steps in the subroutine, and return to the next program line following the GOSUB statement. The computer automatically saves the next line number of the main program to insure that it can return to that point when it encounters a RETURN statement at the end of the subroutine. The GOTO statement allows you to transfer control within the main program. Note: Both GOSUB and GOTO are unconditional jumps in that they will automatically transfer control to the line specified. However, GOSUB needs a RETURN statement to complete its function where GOTO does not. The most common use of a subroutine is to perform a process several times without having to repeat the identical lines of code. The examples below will illustrate the contrast between GOSUB and GOTO.

Example 1:

```
100 REM  GOSUB
110 CALL CLEAR
120 CALL SCREEN(5)
130 GOSUB 440
140 PRINT TAB(6);"GEOMETRIC FORMULAS"::
150 PRINT "PRESS"::"1 AREA OF A CIRCLE"::"2 AREA OF A RECTANGLE"::"3 VOLUME OF A
 SPHERE"::
160 PRINT "4 VOLUME OF A CYLINDER"::"5 VOLUME OF A CONE"::
170 GOSUB 480
180 CALL KEY(0,A,B)
190 IF (A<49)+(A>53)THEN 180
200 CALL CLEAR
210 ON A-48 GOSUB 240,280,320,360,400
220 CALL CLEAR
230 GOTO 140
240 PRINT "THE FORMULA FOR THE AREA OF"::"A CIRCLE IS:"::
250 PRINT "AREA=3.1415*R^2"::::::::
260 GOSUB 520
270 RETURN
280 PRINT "THE FORMULA FOR THE AREA OF"::"A RECTANGLE IS:"::
290 PRINT "AREA=A*B"::::::::
300 GOSUB 520
310 RETURN
320 PRINT "THE FORMULA FOR THE VOLUME"::"OF A SPHERE IS:"::
330 PRINT "VOLUME=4/3*3.1415*R^3"::::::::
340 GOSUB 520
350 RETURN
360 PRINT "THE FORMULA FOR THE VOLUME"::"OF A CYLINDER IS:"::
370 PRINT "VOLUME=3.1415*R^2*H"::::::::
380 GOSUB 520
390 RETURN
400 PRINT "THE FORMULA FOR THE VOLUME"::"OF A CONE IS:"::
410 PRINT "VOLUME=1/3*3.1415*R^2*H"::::::::
420 GOSUB 520
430 RETURN
440 FOR C=1 TO 14
450 CALL COLOR(C,5,5)
460 NEXT C
470 RETURN
480 FOR D=1 TO 14
490 CALL COLOR(D,16,5)
```

```
500 NEXT D
510 RETURN
520 PRINT "  PRESS ENTER TO CONTINUE."
530 CALL KEY(0,F,G)
540 IF F<>13 THEN 530
550 RETURN
```

Example 2:

```
100 REM  GOTO
110 CALL CLEAR
120 CALL SCREEN(5)
130 GOTO 390
140 PRINT TAB(6);"GEOMETRIC FORMULAS"::
150 PRINT "PRESS"::"1 AREA OF A CIRCLE"::"2 AREA OF A RECTANGLE"::"3 VOLUME OF A
 SPHERE"::
160 PRINT "4 VOLUME OF A CYLINDER"::"5 VOLUME OF A CONE"::
170 GOTO 430
180 CALL KEY(0,A,B)
190 IF (A<49)+(A>53)THEN 180
200 CALL CLEAR
210 ON A-48 GOTO 240,270,300,330,360
220 CALL CLEAR
230 GOTO 140
240 PRINT "THE FORMULA FOR THE AREA OF"::"A CIRCLE IS:"::
250 PRINT "AREA=3.1415*R^2":::::::
260 GOTO 470
270 PRINT "THE FORMULA FOR THE AREA OF"::"A RECTANGLE IS:"::
280 PRINT "AREA=A*B":::::::
290 GOTO 470
300 PRINT "THE FORMULA FOR THE VOLUME"::"OF A SPHERE IS:"::
310 PRINT "VOLUME=4/3*3.1415*R^3":::::::
320 GOTO 470
330 PRINT "THE FORMULA FOR THE VOLUME"::"OF A CYLINDER IS:"::
340 PRINT "VOLUME=3.1415*R^2*H":::::::
350 GOTO 470
360 PRINT "THE FORMULA FOR THE VOLUME"::"OF A CONE IS:"::
370 PRINT "VOLUME=1/3*3.1415*R^2*H":::::::
380 GOTO 470
390 FOR C=1 TO 14
400 CALL COLOR(C,5,5)
410 NEXT C
420 GOTO 140
430 FOR D=1 TO 14
440 CALL COLOR(D,16,5)
450 NEXT D
460 GOTO 180
470 PRINT "  PRESS ENTER TO CONTINUE."
480 CALL KEY(0,F,G)
490 IF F<>13 THEN 480
500 GOTO 110
```

PRINT

PRINT is probably one of the most used commands in computer languages. You may print detailed instructions, useful messages, game scores and even your very own name! After you have decided on what and where to print, you must then decide on how. You must enclose your message in its own set of quotation marks and seperate each message with one or more print separators. The print separators consists of either a colon, comma or semicolon. A colon instructs the computer to print the the message following it on the next line. The comma instructs the computer to tabulate and begin printing at either column 1 or 17 depending on the length of the message. The semicolon instructs the computer to print messages together without a space. Note: The use of multiple colons will instruct the computer to skip several lines. Remember, that you must place the print separators outside of the quotation marks otherwise the computer will assume they are part of the message and will include them as part of your message to be printed. The following examples will illustrate the use of print separators.

Example 1:

```
100 REM PRINT - COLONS
110 CALL CLEAR
120 PRINT "NOW IS THE TIME FOR ALL GOOD"::
130 PRINT "MEN TO COME TO THE AID OF"::
140 PRINT "THEIR COUNTRY."::::::
```

Example 2:

```
100 REM PRINT - COMMAS
110 CALL CLEAR
120 PRINT TAB(5);"C O L O R  C O D E S"::
130 PRINT "TRANSPARENT","MEDIUM RED"::
140 PRINT "BLACK","LIGHT RED"::
150 PRINT "MEDIUM GREEN","DARK YELLOW"::
160 PRINT "LIGHT GREEN","LIGHT YELLOW"::
170 PRINT "DARK BLUE","DARK GREEN"::
180 PRINT "LIGHT BLUE","MAGENTA"::
190 PRINT "DARK RED","GRAY"::
200 PRINT "CYAN","WHITE"::::
```

Example 3:

```
100 REM PRINT - SEMICOLONS
110 CALL CLEAR
120 PRINT "NOW IS THE TIME FOR ";"ALL GOOD"::
130 PRINT "MEN TO COME TO THE ";"AID OF"::
140 PRINT "THEIR ";"COUNTRY"::::::
```

Example 4:

```
100 REM PRINT - MIXED
110 CALL CLEAR
120 PRINT "TWINKLE TWINKLE LITTLE STAR,"::"HOW I WONDER ";"WHAT YOU ARE,"::
130 PRINT "UP ABOVE THE WORLD SO HIGH,"::"LIKE ";"A DIAMOND IN THE SKY,"::
140 PRINT "TWINKLE TWINKLE LITTLE STAR,"::"HOW I WONDER ";"WHAT YOU ARE!"
```

READ-DATA-RESTORE

READ-DATA-RESTORE are three very useful and powerful statements that are used together. The READ statement takes the following format: READ variable list. An example would be as follows: READ A,B,C,D. The DATA statement takes the following format: DATA data list. An example would be as follows: DATA 1,2,3,4. Note: Variable names and the variables themselves must be separated by a comma. The computer would interpret the two previous examples as follows: The computer will attempt to read four values from a data list to be assigned to the four variables in the variable list. Thus A would equal 1, B would equal 2, C would equal 3 and D would equal 4. As the computer reads a value to be assigned to a variable, a pointer, located inside the computers' memory, will then point to the last data item that was read. In our previous example the pointer would be over the fourth data item. The computer will leave the pointer there under the assumption that there will be more data items for it to read. However, if you wish to read the same values again later in the program, then you must use a RESTORE statement to instruct the computer to move the pointer back to the beginning of the variable list. This will enable you read the data items again. If the pointer is not moved back to beginning of the variable list and you attempt to read the values again, then the message "DATA ERROR" is displayed on the screen and the program stops running. Note: If you instruct the computer to read numeric values or string contants then you must be sure the computer has a numeric value or a string contant to read. Remember that numeric values are different from string constants. The following examples will illustrate the use of the READ-DATA-RESTORE statements.

Example 1:

```
100 REM READ-DATA #1
110 CALL CHAR(96,"FF8181818181FF")
120 CALL CHAR(97,"FFFFFFFFFFFFFFFF")
130 CALL CLEAR
140 PRINT "     PATTERN-IDENTIFIER"::"      CONVERSION TABLE"::
150 PRINT "PATTERN";" BINARY";" HEXADECIMAL"::
160 FOR A=1 TO 16
170 READ A$,B$
180 PRINT TAB(10);A$;TAB(21);B$
190 NEXT A
200 DATA 0000,0,0001,1,0010,2,0011,3,0100,4,0101,5,0110,6,0111,7,1000,8
210 DATA 1001,9,1010,A,1011,B,1100,C,1101,D,1110,E,1111,F
220 FOR B=1 TO 32
230 READ C,D
240 CALL HCHAR(C,D,96)
250 NEXT B
260 FOR F=1 TO 32
270 READ G,H
280 CALL HCHAR(G,H,97)
290 NEXT F
300 GOTO 300
310 DATA 8,3,8,4,8,5,8,6,9,3,9,4,9,5,10,3,10,4,10,6,11,3,11,4,12,3,12,5,12,6
320 DATA 13,3,13,5,14,3,14,6,15,3,16,4,16,5,16,6,17,4,17,5,18,4,18,6,19,4
330 DATA 20,5,20,6,21,5,22,6,9,6,10,5,11,5,11,6,12,4,13,4,13,6,14,4,14,5
340 DATA 15,4,15,5,15,6,16,3,17,3,17,6,18,3,18,5,19,3,19,5,19,6,20,3,20,4
350 DATA 21,3,21,4,21,6,22,3,22,4,22,5,23,3,23,4,23,5,23,6
```

Example 2:

```
100 REM READ-DATA #2
110 CALL CLEAR
120 PRINT "    THE CROMATIC SCALE"::::::::::::" PRESS ANY KEY TO BEGIN"
130 CALL KEY(0,A,B)
140 IF B=0 THEN 130
150 FOR C=1 TO 27
160 READ D
170 CALL SOUND(500,D,0)
180 NEXT C
190 RESTORE
200 GOTO 130
210 DATA 131,139,147,156,165,175,185,196,208,220,233,247,262,30000
220 DATA 262,247,233,220,208,196,185,175,165,156,147,139,131
```

FLOWCHARTING

A good builder would not attempt to construct a building without a blueprint. The blueprint is a very useful tool, and like most tools, requires study and practice to master.

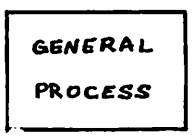
The Flowchart is a computer programmers' blueprint. It is just what it's name implies: a chart that demostrates the flow of a program. The Flowchart for a rather long and intricate program can be drawn up in a relatively short time. Once constructed, the flowcharts various units can be isolated and the programming for each unit written and joined to adjacent units.

A major use of the Flowchart is to solve program problems. It's much easier to isolate the general area of a problem and troubleshoot it, rather than troubleshoot the entire program.

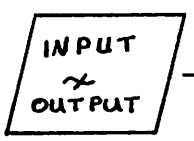
ANSI Flowchart Symbols

— Used to begin and end a program:
START, END

— Subroutines:
GOSUB



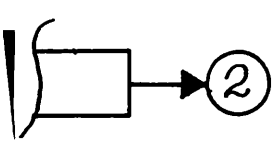
— FOR/NEXT, LET

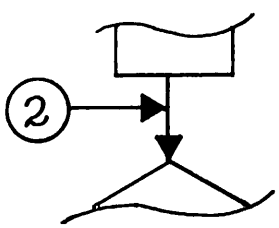


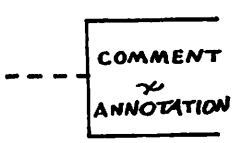
— Data into or out of a computer:
INPUT, READ, PRINT, DISPLAY, CALL HCHAR, CALL KEY, CALL

— IF xxx THEN yyy

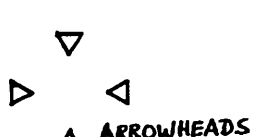
— Connects one portion of the flowchart to another:







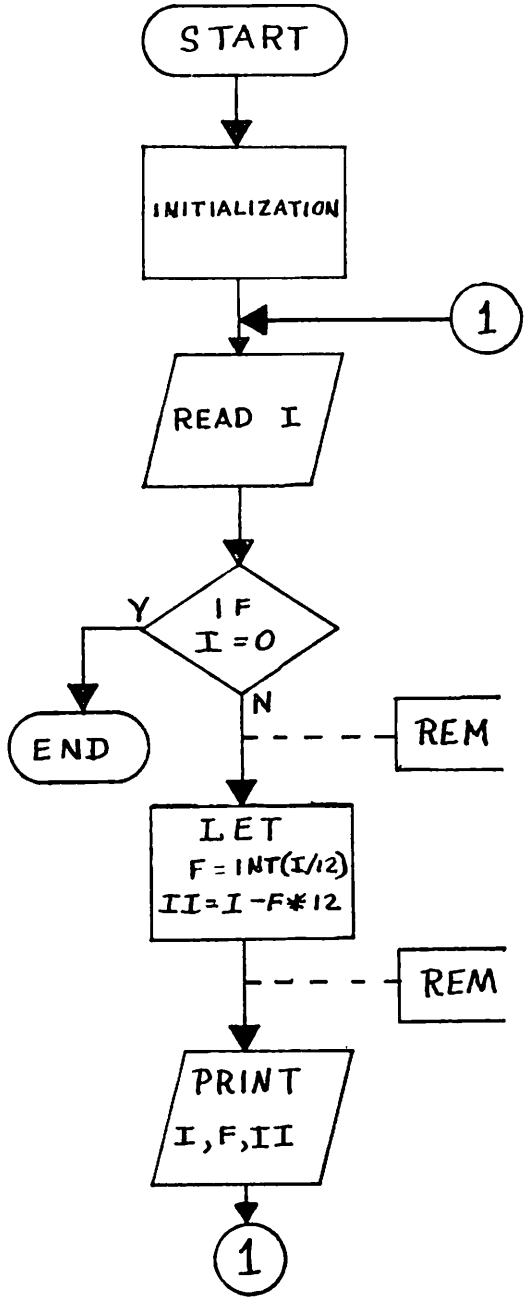
— Additional discriptive comments:
REM



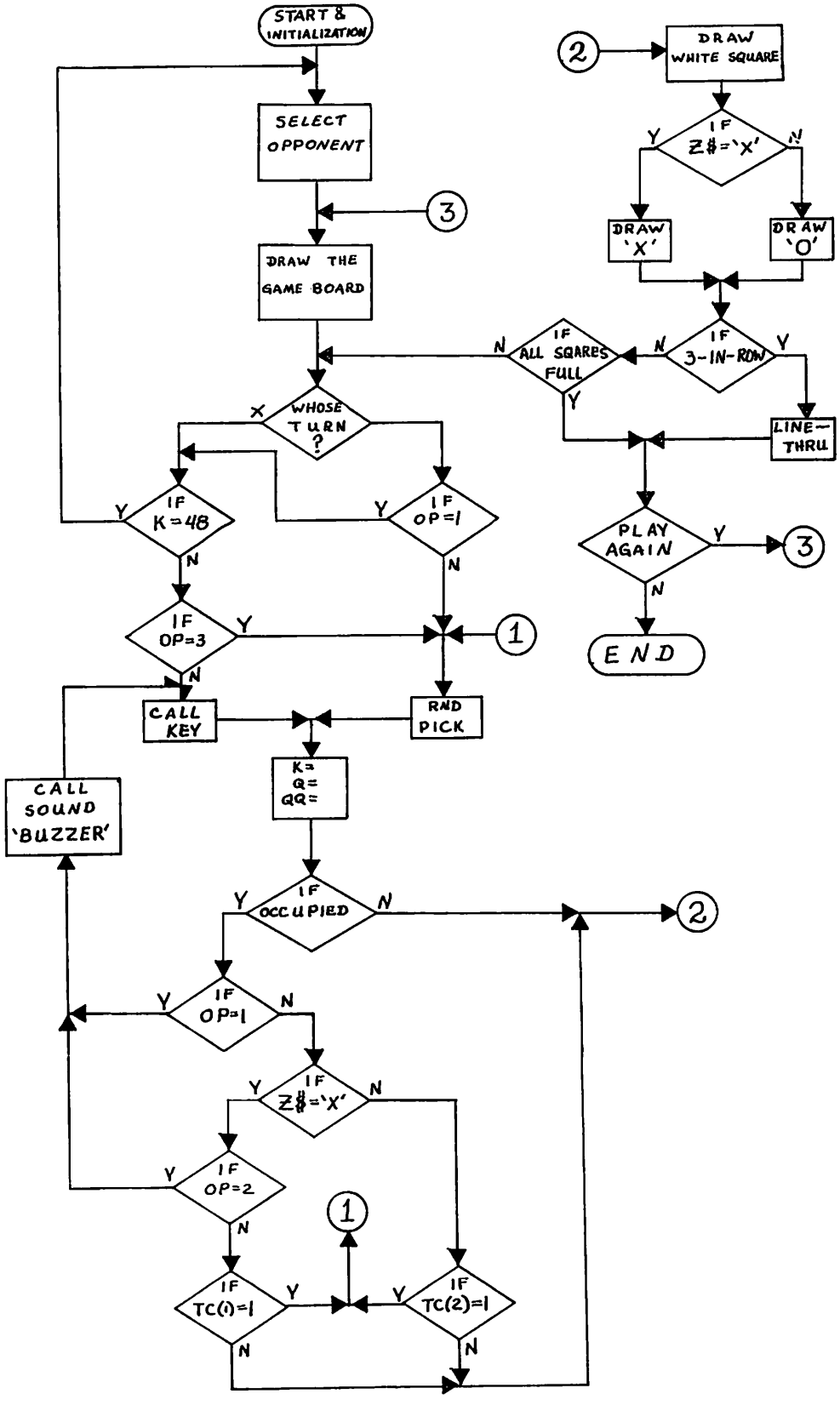
— Indicate direction of data-flow.

The following program not only converts inches to feet, but it is also a good example of a Flowchart.

```
100 CALL CLEAR
110 F$="FEET"
120 I$="INCHES"
130 READ I
140 IF I=0 THEN 220
150 REM**FEET&INCHES**
160 F=INT(I/12)
170 II=I-F*12
180 REM**PRINT RESULTS**
190 PRINT I;TAB(6);I$;"=";F;
TAB(17);F$;II;TAB(23);I$: :
200 GOTO 130
210 PRINT : : : :
220 END
230 DATA 7,26,79,652,17,720,
0
```



The next Flowchart demonstrates how a much longer program can, through flowcharting be easily understood. The program for this chart is on page 74.



HINTS & TIPS

Memory Test:

Have you ever wanted to check both the size of your program and the amount of memory remaining after you have ran your program? Well you can by completing the following steps:

Step 1:

Insert the following two lines as the first two lines of your program.

```
1 A=A+8
2 GOSUB 1
```

Step 2:

Now type in RUN, press the ENTER key and wait. You should get the following error message on the screen: MEMORY FULL IN 1.

Step 3:

Now type in, without a line number, the following and press the ENTER key.

```
PRINT 14544-A:A
```

The computer should return two values. The top number represents the amount of memory used while the bottom number the amount of memory remaining. Remember that these two lines should only be added whenever you wish to test for memory. Note: You can REM these two lines so that you will have the capability to test the memory at any time by simply removing the REM statements!

Rounding Off:

Have you ever wanted tor round off numbers and did not know how to do it in a program? Well it is easy once you know the secret. The following example will illustrate the process:

```
100 CALL CLEAR
110 A=123.456789
120 PRINT A
130 A=INT(A*100+.5)/100
140 PRINT A
```

After you run this program you should get the following results:

```
123.456789
123.46
```

If you want to round off to three places then use 1000 instead of 100 or if you want to round off to four places use 10000 instead of 100. Try it!

Negative Numbers:

Have you ever wanted to generate random numbers from say -10 to 10? Well it is an easy task to accomplish once you know the secret. The following example will illustrate the process:

```
100 CALL CLEAR
110 RANDOMIZE
120 FOR A=1 TO 15
130 B=(-1)^(INT(11*RND))*(INT(11*RND))
140 PRINT B;
150 NEXT A
```

All you have to do in order to specify the range of numbers is to change the number 11, in line 130, to any number you desire. To change the number of numbers to be generated you need to cange the number 15, in line 120, to equal the amount you wish.

Display At:

Are there times when you would like to print something on the screen without having it scroll up the screen? Well you can and it is easier than you think! Here is how that can be done without Extended BASIC. You need to establish three parameters before you can get started. First you need to decide what you want to print. Second you need to decide where you want to print. Third you need the subroutine to accomplish this task. Here is an example to illustrate just how easy it is to reach your goal.

```
100 CALL CLEAR
110 A=12
120 B=1
130 A$="TEXAS INSTRUMENTS HOME COMPUTER"
140 GOSUB 160
150 GOTO 150
160 FOR C=1 TO LEN(A$)
170 CALL HCHAR(A,B,ASC(SEG$(A$,C,1)))
180 B=B+1
190 NEXT C
200 RETURN
```

Input:

Would you like to eliminate the question mark that appears when you use an input statement? Well this can be done very easily. The use of a blank space the length of the screen will solve this problem. The following example will illustrate how a blank line can make all the difference!

```
100 CALL CLEAR
110 PRINT "PLEASE ENTER YOU NAME:"
120 A$="      (28 spaces here)      "
130 INPUT A$:B$
140 GOTO 140
```

This should eliminate the question mark and produce the following results when the program is run.

```
PLEASE ENTER YOUR NAME:

YOUR INPUT WILL APPEAR HERE
```

Call Key:

Have you ever wanted to enter a Call Key statement that would only take one input at a time no matter how long you held a particular key down? Well it is possible. Here is an example that may help:

```
100 CALL CLEAR
110 CALL KEY(0,A,B)
120 IF B<1 THEN 110
130 PRINT A
140 GOTO 110
```

By restricting the status to a +1, you can control the input more easily. This should eliminate the problem of the repeating key.

Save Memory:

Have you ever wanted to trim your programs so that they use the least amount of memory? Well you can! One way you can save memory is to use a non-numeric character in place of a numeric character. A non-numeric character uses only 2 bytes of memory where a numeric character uses 4 bytes. An example of a non-numeric character would be an "Ø", where an example of a numeric character would be a "1". The following example will illustrate the use:

```
100 CALL CLEAR
110 Ø=1
120 FOR A=Ø TO 100
130 PRINT A
140 NEXT A
```

Another way you can save memory, and be efficient at the same time, is to use short variable names and start with the beginning of the alphabet. Still another way to save memory is to eliminate all remark lines.

Logical Operators:

Have you ever seen the term "logical operator(s)" but just could not seem to really understand what they are and how they are used? Well, it is not an easy concept to grasp! The first thing to learn about the relational operator(s) is that when the computer evaluates the expression it assigns a -1 to it if it is true and a 0 if it is false. Basically, there are two logical operators and they are AND and OR. The following example will illustrate the AND operator.

```
100 CALL CLEAR
110 A=1
120 B=2
130 IF (A=1)+(B=2)=-2 THEN 140 ELSE 160
140 PRINT "THE AND OPERATOR TEST PASSED"::
150 GOTO 170
160 PRINT "THE AND OPERATOR TEST FAILED"::
170 END
```

The above example should print "THE AND OPERATOR TEST PASSED" because A does equal 1 and B does equal 2. Remember that since both expressions are true then the sum of -1 plus -1 does equal -2. Note: You may change line 130 to read as follows and still yield the same results:

```
130 IF (A=1)*(B=2) THEN 140 ELSE 160
```

The following example will illustrate the OR operator.

```
100 CALL CLEAR
110 A=1
120 B=2
130 IF (A=1)+(B=3)=-1 THEN 140 ELSE 160
140 PRINT "THE OR OPERATOR TEST PASSED"
150 GOTO 170
160 PRINT "THE OR OPERATOR REST FAILED"
170 END
```

The above example should print "THE OR OPERATOR TEST PASSED" beacuse A does equal 1 and B does not equal 3. Remember that since only one expression is true and the other one is false then the sum of -1 plus 0 does equal -1. Note: See CALL JOYST and CALL KEY for further examples.

Animated Graphics:

Have you ever wanted to add some moving graphics to your program but really did not understand how? Well the trick is a simple one and the following example will illustrate one technique.

```
100 CALL CLEAR
110 CALL SCREEN(2)
120 CALL CHAR(96,"FFFFFFFFFFFFFFFF")
130 CALL COLOR(9,16,2)
140 FOR A=1 TO 32
150 CALL HCHAR(1,A,96)
160 CALL HCHAR(1,A,32)
170 NEXT A
180 FOR B=1 TO 24
190 CALL VCHAR(B,32,96)
200 CALL VCHAR(B,32,32)
210 NEXT B
220 FOR C=32 TO 1 STEP -1
230 CALL HCHAR(24,C,96)
240 CALL HCHAR(24,C,32)
250 NEXT C
260 FOR D=24 TO 1 STEP -1
270 CALL VCHAR(D,1,96)
280 CALL VCHAR(D,1,32)
290 NEXT D
300 GOTO 140
```

Subroutines:

If you look at your program and notice that you are doing a lot of repetitive procedures such as PRESS ANY KEY TO CONTINUE or TRY AGAIN? (Y/N) then you are not taking advantage of the use of subroutines. Not only will using subroutines save memory, reduce the amount of time it takes to type or retype the program in to the computer but it will help tremendously in showing good programming logic, as well as, help with debugging your program if it is needed.

Saving and Loading Programs:

Saving a program on to a cassette tape requires that a program has been entered into the memory of the computer. Once this condition has been met and you are sure that the program in question is the one you wish to save, then we can proceed with the appropriate steps. First you must type in SAVE CS1 and press the ENTER key. Second you must rewind the cassette tape to the exact position you wish to begin recording your program and then press the ENTER key. Third you must press record, which usually results in the simultaneous pressing of the play and record buttons, and then press the ENTER key. The instructions will always be displayed on the screen provided the first step has been executed.

Loading a program from a cassette tape requires that a program has been previously saved from the computer. Once you have selected the program that you wish to load into the memory of the computer, then you can proceed with the appropriate steps. First you type in OLD CS1 and press the ENTER key. Second you must rewind the cassette tape to the exact position where the program begins. Third you must press play and the press the ENTER key. These instructions will always be displayed on the screen providing the first step has been executed.

If you encounter an error message that reads * ERROR DETECTED IN DATA then this is an indication that the volume setting on the recorder was not loud enough. If you encounter an error message that reads * ERROR DETECTED IN DATA then this is an indication that the volume setting on recorder was too loud. Therefore, by adjusting the volume setting on the recorder according to the error message that is displayed on the screen, you should be able to achieve the exact volume setting that is right for loading in or checking a program on your recorder. Note: Volume settings may vary from both cassette to cassette and recorder to recorder.

Odd and Even Numbers:

Have you ever tried to get the computer to interpret a number as either even or odd? Well it can be done quite easily one you know the secret. The following example will illustrate how this goal can be achieved.

```
100 CALL CLEAR
110 PRINT "PLEASE ENTER YOUR NUMBER AND"::
120 PRINT "I WILL TELL YOU WHETHER IT"::
130 PRINT "IS AN ODD NUMBER OR AN EVEN"::
140 PRINT "NUMBER. WHAT IS YOUR NUMBER"::
150 INPUT "PLEASE? ":A
160 IF A/2=INT(A/2) THEN 170 ELSE 190
170 PRINT :"THE NUMBER";A;"IS AN"::"EVEN NUMBER.":: 
180 GOTO 110
190 IF A/2<>INT(A/2) THEN 200
200 PRINT :"THE NUMBER";A;"IS AN"::"ODD NUMBER.":: 
210 GOTO 110
```

THE FLAG OF THE UNITED STATES WITH OUR NATIONAL ANTHEM

Our beautiful Flag unfolds right before your eyes, and once it is completed, the National Anthem will bring you to your feet! The programming perfection in this work makes it the best of it's kind available. Us this program to begin all gaming contests in your home.

```
100 REM ********************
110 REM *UNITED STATES FLAG*
120 REM *       AND        *
130 REM * NATIONAL ANTHEM  *
140 REM *     TI BASIC     *
150 REM *BY RICHARD PROCTOR*
160 REM *   DAYTON OHIO    *
170 REM * COPYRIGHT 1983   *
180 REM ********************
190 CALL CLEAR
200 RANDOMIZE
210 CALL SCREEN(15)
220 DATA 4,7,15,THE,9,8,UNIT
ED STATES FLAG,13,15,AND,16,
9,NATIONAL ANTHEM
230 GOSUB 1940
240 CALL CHAR(42,"5414325435
44345A")
250 FOR I=3 TO 30
260 CALL HCHAR(1,I,42)
270 NEXT I
280 FOR I=1 TO 24
290 CALL VCHAR(I,30,42)
300 NEXT I
310 FOR I=30 TO 3 STEP -1
320 CALL HCHAR(24,I,42)
330 NEXT I
340 FOR I=24 TO 1 STEP -1
350 CALL VCHAR(I,3,42)
360 NEXT I
370 DEF XX=INT(13*RND+2)
380 FOR Z=1 TO 15
390 CALL COLOR(2,XX,1)
400 CALL COLOR(2,1,XX)
410 NEXT Z
420 REM   CREATE FLAG STARS
& STRIPES
430 FOR C=9 TO 14
440 CALL COLOR(C,16,5)
450 NEXT C
460 CALL CHAR(40,"")
470 CALL CHAR(48,"")
480 CALL CHAR(96,"000002020F
070708")
490 CALL CHAR(97,"0000000080
000084")
500 CALL CHAR(98,"000010107C
383844")
510 CALL CHAR(99,"0000000003
010122")
520 CALL CHAR(100,"00008080E
0C0C021")
530 CALL CHAR(101,"00008080E
0C0C020")
540 CALL CHAR(102,"000000000
002020F")
550 CALL CHAR(103,"041F0E0E1
1000080")
560 CALL CHAR(104,"000000000
010107C")
570 CALL CHAR(105,"20F870708
8000003")
580 CALL CHAR(106,"010703030
48080E0")
590 CALL CHAR(107,"00C080804
002020F")
600 CALL CHAR(108,"000000000
08080E0")
610 CALL CHAR(109,"070708")
620 CALL CHAR(110,"000084041
F0E0E11")
630 CALL CHAR(111,"383844")
640 CALL CHAR(112,"01012220F
8707088")
650 CALL CHAR(113,"C0C021010
7030304")
660 CALL CHAR(114,"07070800C
0808040")
670 CALL CHAR(115,"C0C02")
680 CALL CHAR(116,"02020F070
708")
690 CALL CHAR(117,"000080000
0800404")
700 CALL CHAR(118,"10107C383
844")
710 CALL CHAR(119,"000003010
1022020")
720 CALL CHAR(120,"8080E0C0C
0200101")
730 CALL CHAR(121,"8080E0C0C
02")
740 CALL CHAR(122,"000000000
2020F07")
750 CALL CHAR(123,"1F0E0E110
0008")
760 CALL CHAR(124,"000000001
0107C38")
```

```
770 CALL CHAR(125,"F87070880
0000301")
780 CALL CHAR(126,"070303048
080E0C0")
790 CALL CHAR(127,"C08080400
2020F07")
800 CALL CHAR(128,"000000008
080E0C0")
810 CALL CHAR(129,"0708")
820 CALL CHAR(130,"008004041
F0E0E11")
830 CALL CHAR(131,"01022020F
8707088")
840 CALL CHAR(132,"C02001010
7030304")
850 CALL CHAR(133,"07080000C
0808040")
860 CALL CHAR(134,"C02")
870 CALL CHAR(135,"000080000
08")
880 CALL CHAR(136,"000003010
102")
890 CALL CHAR(137,"3844")
900 CALL CLEAR
910 FOR C=5 TO 8
920 CALL COLOR(C,6,15)
930 NEXT C
940 DATA 1,4,12,OLD GLORY
950 GOSUB 1940
960 REM  PLACE FLAG STARS
970 FOR R=7 TO 13
980 FOR C=4 TO 13
990 READ A
1000 CALL HCHAR(R,C,A)
1010 NEXT C
1020 NEXT R
1030 DATA 96,97,98,99,100,96
,97,98,99,101,102,103,104
1040 DATA 105,106,107,103,10
4,105,108,109,110,111,112
1050 DATA 113,114,110,111,11
2,115,116,117,118,119,120,11
6
1060 DATA 117,118,119,121,12
2,123,124,125,126,127,123
1070 DATA 124,125,128,129,13
0,137,131,132,133,130,137
1080 DATA 131,134,116,135,11
8,136,121,116,135,118,136,12
1
1090 REM  CREATE FLAG STRIPE
S
1100 CALL COLOR(2,7,7)
1110 CALL COLOR(3,16,16)
1120 FOR X=14 TO 28
1130 CALL VCHAR(7,X,40)
1140 CALL VCHAR(8,X,48)
1150 CALL VCHAR(9,X,40)
1160 CALL VCHAR(10,X,48)
1170 CALL VCHAR(11,X,40)
1180 CALL VCHAR(12,X,48)
1190 CALL VCHAR(13,X,40)
1200 NEXT X
1210 FOR Y=4 TO 28
1220 CALL VCHAR(14,Y,48)
1230 CALL VCHAR(15,Y,40)
1240 CALL VCHAR(16,Y,48)
1250 CALL VCHAR(17,Y,40)
1260 CALL VCHAR(18,Y,48)
1270 CALL VCHAR(19,Y,40)
1280 NEXT Y
1290 DATA 2,21,6,LADIES AND
 GENTLEMEN,23,7,OUR NATIONAL
 ANTHEM
1300 GOSUB 1940
1310 FOR I=1 TO 2
1320 CALL SOUND(600,349,8,17
5,8)
1330 CALL SOUND(200,294,8,14
7,8)
1340 CALL SOUND(800,233,8,11
7,8)
1350 CALL SOUND(800,294,8,23
3,8)
1360 CALL SOUND(800,349,8,26
2,8,220,8)
1370 CALL SOUND(1600,466,8,2
94,8,196,8)
1380 CALL SOUND(600,587,8,22
0,8,185,8)
1390 CALL SOUND(200,523,8,22
0,8,185,8)
1400 CALL SOUND(800,466,8,29
4,8,196,8)
1410 CALL SOUND(800,294,8,23
3,8,196,8)
1420 CALL SOUND(800,330,8,26
2,8,233,8)
1430 CALL SOUND(1600,349,8,2
62,8,220,8)
1440 CALL SOUND(400,349,8,17
5,8)
1450 CALL SOUND(400,349,8,17
5,8)
1460 CALL SOUND(1200,587,8,3
49,8,117,8)
1470 CALL SOUND(400,523,8,34
9,8,220,8)
```

```
1480 CALL SOUND(800,466,8,34
9,8,147,8)
1490 CALL SOUND(1600,440,8,3
49,8,262,8)
1500 CALL SOUND(400,392,8,34
9,8,262,8)
1510 CALL SOUND(400,440,8,34
9,8,262,8)
1520 CALL SOUND(800,466,8,34
9,8,147,8)
1530 CALL SOUND(800,466,8,23
3,8)
1540 CALL SOUND(800,349,8,17
5,8)
1550 CALL SOUND(800,294,8,14
7,8)
1560 CALL SOUND(800,233,8,11
7,8)
1570 NEXT I
1580 FOR S=1 TO 23
1590 READ D,N1,N2,N3
1600 CALL SOUND(D*400,N1,13,
N2,13,N3,13)
1610 NEXT S
1620 DATA 1,587,466,233,1,58
7,466,233,2,587,466,233
1630 DATA 2,622,523,262,2,69
8,587,294,4,698,587,294,1,62
2,523,262
1640 DATA 1,587,466,294,2,52
3,440,220,2,587,466,233
1650 DATA 2,622,523,262,4,62
2,523,262,2,622,349,220,3,58
7,349,117
1660 DATA 1,523,349,220,2,46
6,349,147,4,440,349,262
1670 DATA 1,392,349,156,1,44
0,349,156,2,466,349,147,2,29
4,233,196
1680 DATA 2,330,262,233,4,34
9,262,220
1690 CALL SOUND(800,349,6,17
5,6)
1700 FOR S=1 TO 14
1710 READ D,N1,N2,N3
1720 CALL SOUND(D*400,N1,6,N
2,6,N3,6)
1730 NEXT S
1740 DATA 2,466,294,117,2,46
6,311,131,1,466,349,147
1750 DATA 1,440,349,147,2,39
2,311,156,2,392,311,156,2,39
2,349,247
1760 DATA 2,523,311,131,1,62
2,196,131,1,587,349,147
1770 DATA 1,523,392,156,1,46
6,392,165,2,466,349,294,4,44
0,349,220
1780 FOR S=1 TO 13
1790 READ D,N1,V1,N2,V2,N3,V
3
1800 CALL SOUND(D*400,N1,V1,
N2,V2,N3,V3)
1810 NEXT S
1820 DATA 1,349,6,175,6,175,
30,1,349,6,175,6,156,6,3
1830 DATA 466,5,349,5,147,5,
1,523,4,349,4,175,4
1840 DATA 1,587,3,349,3,233,
3,1,622,2,466,2,262,2,4
1850 DATA 698,0,466,0,294,0,
1,466,6,392,6,294,6,1,523,6
1860 DATA 330,6,196,6,3,587,
6,349,6,233,6,1,622,6
1870 DATA 392,6,175,6,2.5,52
3,6,311,6,175,6,5,466,6,294,
6,117,6
1880 PRINT
1890 PRINT "PRESS ANY KEY WH
EN FINISHED"
1900 CALL KEY(0,K,S)
1910 IF S=0 THEN 1900
1920 CALL CLEAR
1930 END
1940 READ NMBR
1950 FOR I=1 TO NMBR
1960 READ ROW,COL,T$
1970 FOR J=1 TO LEN(T$)
1980 CALL HCHAR(ROW,COL+J,AS
C(SEG$(T$,J,1)))
1990 NEXT J
2000 NEXT I
2010 RETURN
```

MAZE BOGGLE

A very unique game in which a maze is created and the players' challenge is to begin in the lower left and continue through the maze filling in as much of the maze as possible. The screen changes colors to show your progression. You must be careful not to "Lock" yourself in, for that ends the game. You must accumulate enough points to continue to the next of the five levels. This game was created by a 9 year old, but it will be very challenging to players of all ages. Joysticks optional

```
100 REM******************
110 REM*  MAZE BOGGLE    *
120 REM* EXTENDED BASIC *
130 REM*  BRIAN TAYLOR   *
140 REM*HOLLAND,MICHIGAN*
150 REM* COPYRIGHT 1983 *
160 REM******************
170 REM**INITIALIZATION**
180 CALL CLEAR :: CALL SCREE
N(12):: DISPLAY AT(10,10):"M
AZE BOGGLE" :: GOSUB 760
190 CALL CLEAR :: :: INPUT "
WANT INSTRUCTIONS? (Y/N) ":Z
$ :: IF Z$="Y" THEN 580
200 CALL CLEAR :: CALL CHAR(
35,"FFFFFFFFFFFFFFFF")
210 CALL CHAR(42,"66187E993C
DB")
220 FOR C=3 TO 9 :: CALL COL
OR(C,9,12):: NEXT C :: CALL
COLOR(1,7,12,2,6,6)
230 A$(1)=" ##  #   ###  #
 ### ###   ##    # ##   ##
  #   ##       ##
 "
240 A$(2)=" ### ##     ####
 #  #    ##    #  ###
###   ####  # ##    ##  # "
250 A$(3)=" ### ####  ###  #
### ###      ####    ##  ##
 ####  ####       ##  ####
 #"
260 A$(4)="  ###  ####  ###
####  ###  ##   ####  ####
###   ##     ####  ###   ###
"       |   |
270 A$(5)=" #### ###  ###  #
 # ###  ###  # #  ###  ## ##
#     ###     #   ##  ## ###
##"
280 REM**PROGRAM RUN**
290 CALL CLEAR :: S=0 :: SS=
5 :: BP=500 :: M=0 :: SL=-10
00
300 CALL HCHAR(24,1,35,64)::
 CALL VCHAR(1,31,35,96)
310 M=M+1 :: SL=SL+2000+M*10
00
320 CALL SPRITE(#1,42,2,177,
17)
330 DISPLAY AT(2,1): :A$(M)&
A$(M):A$(M)&A$(M):A$(M)&A$(M
):A$(M):: Y=23 :: X=3
340 S=S+SS :: DISPLAY AT(2,1
):S
350 CALL JOYST(1,C,R):: R=-S
GN(R):: C=SGN(C)
360 IF R OR C THEN 390 ELSE
CALL KEY(1,C,R):: IF C=18 TH
EN 420
370 R=(C>3 AND C<7)-(C=0 OR
C=15 OR C=14)
380 C=(C=2 OR C=4 OR C=15)-(
C=3 OR C=6 OR C=14)
390 CALL GCHAR(Y+R,X+C,CH)::
 IF CH>34 THEN 350
400 Y=Y+R :: X=X+C :: CALL S
OUND(-90,-2,4):: CALL LOCATE
(#1,Y*8-7,X*8-7)
410 CALL HCHAR(Y,X,40):: GOT
O 340
420 CALL CLEAR :: CALL DELSP
RITE(ALL):: S=S-SS*2 :: DISP
LAY AT(3,6):"SCORE: ";S
430 IF M=5 THEN 550 :: IF S<
SL THEN 510
440 FOR N=1 TO 4 :: FOR I=1
TO 25 :: CALL SOUND(-100,300
+25*I,3):: NEXT I
450 FOR I=1 TO 24 :: CALL SO
UND(-300,1000-I*30,0):: NEXT
 I :: NEXT N
460 IF M=5 THEN 550 :: S=S+B
P :: SS=SS+5
470 DISPLAY AT(5,6):"BONUS P
OINTS: ";BP :: DISPLAY AT(7,
6):"TOTAL SCORE: ";S
480 BP=BP+500*INT(15/(10/M))
490 DISPLAY AT(20,4):"PROCEE
DING TO MAZE ";M+1 :: FOR D=
1 TO 1500 :: NEXT D
500 GOTO 300
```

```
510 RESTORE :: FOR B=1 TO 11
 :: READ D,F :: CALL SOUND(D
*100,F,0):: NEXT B
520 INPUT "ENTER 0 TO PLAY A
GAIN! ":Z$ :: IF Z$="0" THEN
 290 :: CALL CLEAR
530 GOTO 560
540 DATA 5,250,5,250,2,250,5
,250,5,300,2,280,5,280,2,250
,5,250,2,240,5,250
550 PRINT "YOU ARE INDEED A
MASTER BUG!": : : :
560 FOR D=1 TO 1500 :: NEXT
D :: END
570 REM**INSTRUCTIONS**
580 CALL CLEAR :: PRINT "***
 MAZE BOGGLE *** IS A":"MAZE
 GAME CONTAINING (5)"
590 PRINT "PROGRESSIVE GAME
LEVELS.": :
600 PRINT "AS YOU ATTEMPT TO
 GUIDE YOUR":"BUG THROUGH EA
CH MAZE, HE"
610 PRINT "WILL LEAVE A TRAI
L OF BLUE":"SLIME. YOU MUST
FILL IN AS"
620 PRINT "MUCH OF THE MAZE
AS POSSIBLE":"WITHOUT GOING
THROUGH WALLS"
630 PRINT "OR GETTING TRAPPE
D BY THE":"SLIME.": :
640 PRINT "IF YOUR BUG GETS
TRAPPED OR":"YOU HAVE FILLED
 IN AS MUCH"
650 PRINT "OF THE MAZE AS PO
SSIBLE,":"PRESS THE FIRE BUT
TON OR Q"
660 PRINT "TO REVEAL YOUR SC
ORE.": :
670 INPUT "  PRESS ENTER TO
CONTINUE ":Z$ :: CALL CLEAR
680 PRINT "YOU MUST REACH TH
E FOLLOWING":"SCORES FOR ADV
ANCEMENT:": :
690 PRINT "1ST MAZE:  2,000
POINTS":"2ND MAZE:  6,000 PO
INTS"
700 PRINT "3RD MAZE: 11,000
POINTS":"4TH MAZE: 17,000 PO
INTS": :
710 PRINT "YOU MAY MOVE YOUR
 BUG VER-":"TICALLY, HORIZON
TALLY, OR"
720 PRINT "DIAGONALLY WITH T
HE JOYSTICK":"OR THE E,X,S,D
,W,R,Z&C KEYS.": :
730 PRINT "CHECK ALPHA LOCK!
": : : :
740 PRINT TAB(10);"GOOD LUCK
!": : : :
750 INPUT "    PRESS ENTER T
O BEGIN":Z$ :: CALL CLEAR ::
 GOTO 200
760 FOR N=1 TO 4 :: FOR I=1
TO 25 :: CALL SOUND(-100,300
+25*I,3):: NEXT I
770 FOR I=1 TO 24 :: CALL SO
UND(-300,1000-(I*30),0):: NE
XT I :: NEXT N :: RETURN
```

WORD SEARCH

This program will convert you from a magazine to a computer word game addict! Make your selection by picking the matching coordinates. The spot will change color to make it easy to see your pick. Cancel it if you wish to try another guess. This game can be used as an Educational Aid or played just for fun.

```
100 REM ****************
110 REM * WORD SEARCH  *
120 REM *   TI BASIC   *
130 REM * BY J. GULICK *
140 REM *FT.MITCHELL,KY*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 CALL CLEAR
180 REM **INSTRUCTIONS**
190 PRINT TAB(10);"WORD SEAR
CH":::"  YOU WILL BE ASKED F
OR TEN"
200 PRINT "WORDS WHICH WILL
BE USED BY THE COMPUTER TO F
ORM A WORD"
210 PRINT "SEARCH PUZZLE."::
"  YOU CAN MARK A LETTER IN"
220 PRINT "THE PUZZLE BY PRE
SSING THE  TWO KEYS <1-F> WH
ICH MARK"
230 PRINT "ITS PLACE IN THE
GRID."::
240 PRINT :"     HIT <ENTER>
 TO BEGIN":::
```

```
250 CALL KEY(0,X,S)
260 IF X<>13 THEN 250
270 REM **INITIALIZATION**
280 CALL CLEAR
290 DIM W$(10,10),Q$(10),A$(
15,15),B$(15,15)
300 RANDOMIZE
310 HEX$="123456789ABCDEF"
320 CALL COLOR(9,1,2)
330 CALL COLOR(10,1,2)
340 CALL COLOR(11,1,2)
350 CALL COLOR(12,1,2)
360 REM ** INPUT WORDS **
370 FOR X=1 TO 10
380 PRINT "INPUT WORD #";X;
390 INPUT Q$(X)
400 IF LEN(Q$(X))<11 THEN 43
0
410 PRINT "Word Too Long. Ma
ximum":"Length Is Ten Letter
s."
420 GOTO 380
430 FOR Q=1 TO LEN(Q$(X))
440 W$(X,Q)=SEG$(Q$(X),Q,1)
450 IF (ASC(W$(X,Q))>64)+(AS
C(W$(X,Q))<91)=-2 THEN 480
460 PRINT "Illegal Character
 In Word.":"CAPITAL Letters
Only."
470 GOTO 380
480 NEXT Q
490 NEXT X
500 PRINT "PLEASE WAIT":::::
::::
510 REM ** FORMAT WORDS **
520 FOR X=1 TO 10
530 ON INT(RND*8)+1 GOTO 101
0,1070,1130,1190,1250,1310,1
370,1430
540 FOR Q=0 TO LEN(Q$(X))-1
550 A$(HP+Q*HD,VP+Q*VD)=W$(X
,Q+1)
560 NEXT Q
570 NEXT X
580 REM ** DISPLAY PUZZLE **
590 CALL CLEAR
600 FOR X=1 TO 15
610 FOR Y=1 TO 15
620 B$(X,Y)=A$(X,Y)
630 IF A$(X,Y)<>"" THEN 670
640 B$(X,Y)=CHR$(INT(RND*26)
+65)
650 A$(X,Y)="."
660 GOTO 680
670 A$(X,Y)=CHR$(ASC(B$(X,Y)
)+32)
680 PRINT B$(X,Y);
690 NEXT Y
700 PRINT " ";SEG$(HEX$,X,1)
;" ";Q$((X-2)*(X>2)*(X<13))
710 NEXT X
720 PRINT :HEX$:::"HIT <1-F>
 FOR MARKING ( , )":"  OR <Q
> FOR THE ANSWER":::
730 CALL KEY(0,X,Q)
740 IF X=81 THEN 890
750 IF (X>48)*(X<71)=0 THEN
730
760 IF (X>57)*(X<65)THEN 730
770 CALL HCHAR(20,26,X)
780 CALL KEY(0,Y,S)
790 IF S<>1 THEN 780
800 IF (Y>48)*(Y<71)=0 THEN
780
810 IF (Y>57)*(Y<65)THEN 780
820 CALL HCHAR(20,28,Y)
830 CALL GCHAR(POS(HEX$,CHR$
(X),1),POS(HEX$,CHR$(Y),1)+2
,Q)
840 P=(Q>96)+SGN((Q>96)+1)
850 CALL HCHAR(POS(HEX$,CHR$
(X),1),POS(HEX$,CHR$(Y),1)+2
,Q+32*(P))
860 CALL HCHAR(20,26,32)
870 CALL HCHAR(20,28,32)
880 GOTO 730
890 REM ** DISPLAY ANSWER **
900 FOR X=1 TO 15
910 FOR Y=1 TO 15
920 CALL HCHAR(X,Y+2,ASC(A$(
X,Y)))
930 NEXT Y
940 NEXT X
950 PRINT "DO YOU WISH TO PL
AY AGAIN?";
960 CALL KEY(0,X,Y)
970 IF X=89 THEN 1550
980 IF X=78 THEN 1620
990 GOTO 960
1000 REM ** WORD DOWN **
1010 HD=0
1020 VD=1
1030 HP=INT(RND*15)+1
1040 VP=INT(RND*(15-LEN(Q$(X
)))+1
1050 GOTO 1480
1060 REM ** WORD DOWN-LEFT *
```

```
1070 HD=-1
1080 VD=1
1090 HP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1100 VP=INT(RND*(15-LEN(Q$(X
))))+1
1110 GOTO 1480
1120 REM ** WORD LEFT **
1130 HD=-1
1140 VD=0
1150 HP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1160 VP=INT(RND*15)+1
1170 GOTO 1480
1180 REM ** WORD UP-LEFT **
1190 HD=-1
1200 VD=-1
1210 HP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1220 VP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1230 GOTO 1480
1240 REM ** WORD UP **
1250 HD=0
1260 VD=-1
1270 HP=INT(RND*15)+1
1280 VP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1290 GOTO 1480
1300 REM ** WORD UP-RIGHT **
1310 HD=1
1320 VD=-1
1330 HP=INT(RND*(15-LEN(Q$(X
))))+1
1340 VP=INT(RND*(16-LEN(Q$(X
))))+LEN(Q$(X))
1350 GOTO 1480
1360 REM ** WORD RIGHT **
1370 HD=1
1380 VD=0
1390 HP=INT(RND*(15-LEN(Q$(X
))))+1
1400 VP=INT(RND*15)+1
1410 GOTO 1480
1420 REM ** WORD DOWN-RIGHT
1430 HD=1
1440 VD=1
1450 HP=INT(RND*(15-LEN(Q$(X
))))+1
1460 VP=INT(RND*(15-LEN(Q$(X
))))+1
1470 GOTO 1480
1480 REM ** CHECK WORD **
1490 REM ** PLACEMENT. **
1500 FOR M=0 TO LEN(Q$(X))-1
1510 IF A$(HP+M*HD,VP+M*VD)=
"" THEN 1530
1520 IF A$(HP+M*HD,VP+M*VD)<
>W$(X,M+1)THEN 530
1530 NEXT M
1540 GOTO 540
1550 CALL CLEAR
1560 FOR X=1 TO 15
1570 FOR Y=1 TO 15
1580 A$(X,Y),B$(X,Y)=""
1590 NEXT Y
1600 NEXT X
1610 GOTO 280
1620 END
```

BASEBALL TRIVIA QUIZ

Test your knowledge of facts about Baseball from it's professional beginning right up to present. Two skill levels are available; the "Easy" multiple choice and the "Hard", fill in the answer. 25 randomly selected questions determine whether you are truly a Baseball Trivia Expert or not. The program is easily written so that you can add more of your own questions.

```
100 REM ****************
110 REM *   BASEBALL   *
120 REM * TRIVIA QUIZ  *
130 REM *   TI BASIC   *
140 REM * BY DON BUSCH *
150 REM *CINCINNATI,OH.*
160 REM *COPYRIGHT 1983*
170 REM ****************
180 REM *INITIALIZATION*
190 OPTION BASE 1
200 RANDOMIZE
210 RESTORE
220 DIM Q$(42),AN$(42),Q(42)
230 REM **INTRODUCTION**
240 CALL CLEAR
250 CALL SCREEN(15)
260 PRINT "    BASEBALL TRIV
IA QUIZ":"    -------- -----
- ----"
270 PRINT "THIS QUIZ CONTAIN
S FACTS"
```

```
280 PRINT "FROM BASEBALL'S P
ROFESSIONALBEGINNING TO THE
PRESENT"
290 PRINT "DAY. YOU WILL BE
ASKED"
300 PRINT "TWENTY-FIVE RANDO
MLY CHOSEN QUESTIONS. YOU WI
LL RECEIVE"
310 PRINT "FOUR POINTS FOR E
ACH CORRECT"
320 PRINT "ANSWER, WITH A MA
XIMUM SCOREOF ONE HUNDRED."
330 PRINT : : :"     HIT ANY
KEY TO BEGIN": : : : : : : :
340 CALL KEY(0,KEY,STA)
350 IF STA=0 THEN 340
360 REM **SKILL LEVEL**
370 CALL CLEAR
380 INPUT "SKILL LEVEL, 1 OR
 2:":SK
390 IF (SK<>1)+(SK<>2)=-2 TH
EN 370
400 CALL CLEAR
410 REM **READ Q&A**
420 FOR A=1 TO 42
430 READ Q$(A),AN$(A)
440 NEXT A
450 REM **RANDOM CHOICE**
460 FOR X=1 TO 25
470 QU=INT(RND*42)+1
480 FOR RN=1 TO X
490 IF Q(RN)=QU THEN 470
500 NEXT RN
510 Q(X)=QU
520 PRINT :STR$(X)&". "&Q$(Q
U);
530 IF SK=2 THEN 790
540 PRINT "?"
550 PRINT :"YOUR CHOICES ARE
": :
560 REM **FAKE ANSWERS**
570 FOR W=1 TO 2
580 FA=INT(RND*42)+1
590 FK$(W)=AN$(FA)
600 IF (FK$(W)=AN$(QU))+(FK$
(W)=KF$(1))+(FK$(W)=KF$(2))=
-1 THEN 580
610 KF$(W)=FK$(W)
620 NEXT W
630 KF$(1)=""
640 KF$(2)=""
650 REM **PRINT CHOICES**
660 FOR PR=1 TO 3
670 PI=INT(RND*3)+1
```

```
680 IF (PI=RP(1))+(PI=RP(2))
=-1 THEN 670
690 RP(PR)=PI
700 IF PI<>3 THEN 730
710 PRINT AN$(QU)
720 GOTO 740
730 PRINT FK$(PI)
740 NEXT PR
750 RP(1)=0
760 RP(2)=0
770 PRINT
780 REM *CORRECT ANSWER ?*
790 INPUT C$
```

```
800 IF C$=AN$(QU)THEN 880
810 REM *INCORRECT LOOP*
820 CALL SOUND(1000,-3,20,11
0,2)
830 PRINT :"THAT IS INCORREC
T.": :AN$(QU);" IS THE":"COR
RECT ANSWER."
840 FOR DELAY=1 TO 300
850 NEXT DELAY
860 GOTO 940
870 REM *CORRECT LOOP*
880 CALL SOUND(1000,-5,12)
890 PRINT :"THAT IS CORRECT.
"
900 CO=CO+1
910 FOR DELAY=1 TO 300
920 NEXT DELAY
930 REM **NEXT QUESTION**
940 PRINT :"--*--*--*--*--*-
-*--*--*--"
950 NEXT X
960 REM **ENDING**
970 PRINT "--*--*--*--*--*--
*--*--*--":"--*--*--*--*--*-
-*--*--*--": : :
980 PRINT "YOU HAVE EARNED A
 SCORE OF":CO*4;" POINTS.":
: :
990 PRINT "--*--*--*--*--*--
*--*--*--":"--*--*--*--*--*-
-*--*--*--"
1000 PRINT "--*--*--*--*--*-
-*--*--*--": : :
1010 FOR SOU=30 TO 1 STEP -1
1020 CALL SOUND(50,-7,SOU)
1030 NEXT SOU
1040 CALL SOUND(1000,-7,0)
1050 CALL SCREEN(2)
1060 FOR DELAY=1 TO 300
1070 NEXT DELAY
1080 CALL SCREEN(15)
1090 PRINT " HIT ANY KEY TO
PLAY AGAIN"
1100 CALL KEY(0,KEY,STA)
1110 IF STA=0 THEN 1100
1120 FOR D=1 TO 42
1130 Q(D)=0
1140 NEXT D
1150 GOTO 190
1160 REM **DATA FOR Q&A**
1170 DATA "WHO HAS PITCHED I
N THE   MOST GAMES","HOYT WI
LHELM"
1180 DATA "WHO HAS THE MOST
CAREER  SAVES","ROLLIE FINGE
RS"
1190 DATA "WHO PITCHED THE M
OST     CONSECUTIVE SHUTOUTS
","DON DRYSDALE"
1200 DATA "WHO HAD THE LOWES
T BAT-  TING AVERAGE TO WIN
A BAT-  TING TITLE"
1210 DATA "CARL YASTRZEMSKI"
1220 DATA "WHO WAS THE MANAG
ER OF   THE 1969 NEW YORK ME
TS","GIL HODGES"
1230 DATA "WHO HAD THE HIGHE
ST BAT- TING AVERAGE NOT TO
WIN A   BATTING TITLE"
1240 DATA "JOE JACKSON"
1250 DATA "WHO WAS THE ONLY
PLAYER  TO BE THE MOST VALUA
BLE     PLAYER IN BOTH THE N
ATIONAL & AMERICAN LEAGUES"
1260 DATA "FRANK ROBINSON"
1270 DATA "WHO HAD THE MOST
BASE    HITS IN ONE SEASON I
N MAJOR LEAGUE HISTORY"
1280 DATA "GEORGE SISLER"
1290 DATA "WHO IS THE ONLY P
ITCHER  TO HAVE WON FOUR CY
YOUNG   AWARDS"
1300 DATA "STEVE CARLTON"
1310 DATA "WHICH PITCHER HAS
 THE    LOWEST CAREER EARNED
 RUN    AVERAGE"
1320 DATA "ED WALSH"
1330 DATA "WHO HAD THE HIGHE
ST      CAREER BATTING AVERA
GE IN   MAJOR LEAGUE HISTORY
","TY COBB"
1340 DATA "WHO HAD THE HIGHE
ST ONE- SEASON BATTING AVERA
GE IN   AMERICAN LEAGUE HIST
ORY","NAP LAJOIE"
1350 DATA "WHICH PITCHER HAD
 THE    MOST STRIKEOUTS IN O
NE      SEASON IN BASEBALL H
ISTORY","NOLAN RYAN"
1360 DATA "WHO WAS THE YOUNG
EST     PLAYER EVER TO WIN A
 BAT-   TING CHAMPIONSHIP","
AL KALINE"
1370 DATA "WHO HAD THE MOST
HITS IN AMERICAN LEAGUE HIST
ORY","TY COBB"
```

```
1380 DATA "WHO HAD THE MOST
CAREER  STOLEN BASES IN MAJO
R       LEAGUE HISTORY SINCE
 1900","LOU BROCK"
1390 DATA "WHO HAD THE HIGHE
ST ONE- SEASON BATTING AVERA
GE IN   MAJOR LEAGUE HISTORY
 SINCE   1900"
1400 DATA "ROGERS HORNSBY"
1410 DATA "WHO HIT THE MOST
HOME    RUNS IN AMERICAN LEA
GUE     HISTORY"
1420 DATA "BABE RUTH"
1430 DATA "WHO HAD THE MOST
RUNS    BATTED IN (RBI'S) IN
 ONE    GAME"
1440 DATA "JIM BOTTOMLEY"
1450 DATA "WHO HAD THE MOST
DOUBLES IN ONE SEASON","EARL
 WEBB"
1460 DATA "WHO HAD THE MOST
CAREER  RUNS BATTED IN (RBI'
S)","HANK AARON"
1470 DATA "WHO WAS WALKED TH
E MOST  TIMES IN HIS CAREER"
,"BABE RUTH"
1480 DATA "WHO PLAYED IN THE
 MOST   CONSECUTIVE GAMES IN
 HIS    CAREER"
1490 DATA "LOU GEHRIG"
1500 DATA "WHO WAS THE MOST
        VALUABLE PLAYER IN 1
927,    WHEN BABE RUTH HIT 6
0 HOME  RUNS","LOU GEHRIG"
1510 DATA "WHO HIT THE MOST
HOME    RUNS IN ONE SEASON I
N MAJOR LEAGUE HISTORY"
1520 DATA "ROGER MARIS"
1530 DATA "WHO HAD THE HIGHE
ST ONE- SEASON RUNS BATTED I
N TOTAL IN AMERICAN LEAGUE H
ISTORY","LOU GEHRIG"
1540 DATA "WHO HAD THE HIGHE
ST ONE- SEASON RUNS BATTED I
N TOTAL IN MAJOR LEAGUE HIST
ORY","HACK WILSON"
1550 DATA "WHO HIT THE MOST
CAREER  HOME RUNS IN MAJOR L
EAGUE   HISTORY"
1560 DATA "HANK AARON"
1570 DATA "WHICH PITCHER HAD
 THE    MOST CAREER WINS IN
MAJOR   LEAGUE HISTORY"
1580 DATA "CY YOUNG"
1590 DATA "WHICH PITCHER HAD
 THE    MOST CAREER LOSSES I
N MAJOR LEAGUE HISTORY"
1600 DATA "CY YOUNG"
1610 DATA "WHO PITCHED IN TH
E MOST  INNINGS IN HIS CAREE
R IN    MAJOR LEAGUE HISTORY
","CY YOUNG"
1620 DATA "WHO HAD THE LOWES
T ONE-  SEASON EARNED RUN AV
ERAGE   IN  NATIONAL LEAGUE
HISTORY SINCE 1900"
1630 DATA "MORDECAI BROWN"
1640 DATA "WHO HAD THE MOST
CAREER  SHUT-OUTS IN MAJOR L
EAGUE   HISTORY"
1650 DATA "WALTER JOHNSON"
1660 DATA "WHO IS THE ONLY P
ITCHER  TO PITCH CONSECUTIVE
 NO-HIT GAMES"
1670 DATA "JOHNNY VANDERMEER
"
1680 DATA "WHO MADE THE MOST
 OUTS   IN HIS CAREER","PETE
 ROSE"
1690 DATA "WHO HAD THE MOST
CAREER  HITS IN NATIONAL LEA
GUE     HISTORY"
1700 DATA "PETE ROSE"
1710 DATA "WHO STOLE HOME TH
E MOST  TIMES IN HIS CAREER"
,"TY COBB"
1720 DATA "WHO STOLE HOME TH
E MOST  TIMES IN ONE SEASON
IN MAJORLEAGUE HISTORY"
1730 DATA "ROD CAREW"
1740 DATA "WHO HAD THE LONGE
ST      CONSECUTIVE-GAME HIT
TING    STREAK IN MAJOR LEAG
UE HIS- TORY","JOE DIMAGGIO"
1750 DATA "WHO SCORED THE MO
ST RUNS IN HIS CAREER IN MAJ
OR      LEAGUE HISTORY"
1760 DATA "TY COBB"
1770 DATA "WHICH MANAGER MAN
AGED    THE MOST YEARS IN HI
S       CAREER"
1780 DATA "CONNIE MACK"
1790 DATA "WHO WAS HIT BY PI
TCHES   THE MOST TIMES IN MA
JOR     LEAGUE HISTORY"
1800 DATA "RON HUNT"
```

NOVEL T I

A game or a vocabulary exercise? Actually it's both! It has unlimited variations, and since your participation controls input, it can be personalized to create the most outlandish story imaginable! Everyone will love this one.

```
100 REM ******************
110 REM *    novelTI      *
120 REM *   TI BASIC      *
130 REM * BY TOM BANCHY   *
140 REM *CINCINNATI,OHIO *
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 REM **INITIALIZATION**
180 CALL CLEAR
190 DIM Q$(16),S$(16)
200 RANDOMIZE
210 CALL SCREEN(15)
220 REM **DATA FOR INPUT**
230 DATA "A NOUN ","A PLURAL
 NOUN ","AN ADJECTIVE ","AN
ADVERB "
240 DATA "A PAST TENSE VERB
","AN EXCLAMATION "
250 DATA "A NUMBER ","A PERS
ON ","A PERSON IN THE ROOM
        "
260 DATA "A FAMOUS PERSON ",
"A PLACE "
270 DATA "A FAMOUS BUILDING
            ","AN OCCUPATION
 "
280 DATA "AN ANIMAL ","A LIQ
UID ","A FOOD "
290 FOR N=1 TO 16
300 READ S$(N)
310 NEXT N
320 REM **INSTRUCTIONS**
330 PRINT "THE OBJECT OF THI
S GAME IS  TO CREATE STRANGE
 AND OFTEN"
340 PRINT "FUNNY PASSAGES BY
 SUBSTI- "
350 PRINT "TUTING WORDS OF A
 CERTAIN   KIND (ADJECTIVE,A
DVERB,NOUN,"
360 PRINT "ETC.) WITHOUT KNO
WING THE "
370 PRINT "CONTEXT OF THE SE
NTENCE THATTHEY WILL END UP
IN. YOU"
380 PRINT "WILL BE ASKED TO
GIVE A   "
390 PRINT "SERIES OF WORDS O
F A SPECI- FIC TYPE AND THE
COMPUTER"
400 PRINT "WILL FILL THEM IN
TO THE "
410 PRINT "PARTIALLY COMPLET
ED PASSAGE AND SHOW THE FINA
L PRODUCT"
420 PRINT "ON THE SCREEN. HA
VE FUN!!"
430 PRINT ::"PRESS ANY KEY T
O START"
440 CALL KEY(0,K,S)
450 IF S=0 THEN 440
460 CALL CLEAR
470 R=INT(RND*5+1)
480 PRINT "PLEASE GIVE WORDS
 OF THE    FOLLOWING TYPE"
490 ON R GOTO 630,950,1270,1
530,1840
500 PRINT "HERE ARE THE RESU
LTS:"
510 FOR T=1 TO 500
520 NEXT T
530 CALL CLEAR
540 RETURN
550 PRINT "******************
***********"
560 PRINT "  PRESS [Q] TO QU
IT OR ANY  OTHER KEY TO TRY
AGAIN WITH"
570 PRINT "ANOTHER PASSAGE"
580 CALL KEY(0,K,S)
590 IF S=0 THEN 580
600 IF K<>81 THEN 460
610 END
620 REM **1ST PASSAGE**
630 RESTORE 640
640 DATA 14,8,13,8,1,11,15,3
,1,3,1,1,8,4,0
650 GOSUB 2090
660 GOSUB 500
670 PRINT "    ANOTHER HORRO
R FLICK "::
680 PRINT "LAST NIGHT I SAW
A MOVIE ON"::"T.V. THAT REAL
LY GAVE ME"::
```

```
690 PRINT Q$(1);" PIMPLES !
IT STARRED"
700 PRINT :Q$(2);" AS A MAD
";Q$(3)::"WHO FINDS OUT HOW
TO CREATE"::
710 PRINT "ROACHES 10 FEET T
ALL."
720 PRINT :"THE SCIENTIST HA
S A STRANGE"::"HELPER,PLAYED
 BY ";Q$(4);"."
730 GOSUB 2170
740 PRINT "HE GETS ANGRY BEC
AUSE THE"
750 PRINT :"SCIENTIST KEEPS
POUNDING HIM"::"ON THE HEAD
WITH A ";Q$(5);".":::
760 PRINT "SO HE SETS THE RO
ACHES FREE."
770 PRINT :"IMMEDIATELY THEY
 BEGIN TO"::"EAT UP ";Q$(6);
". THE ARMY"::
780 PRINT "TRIES TO STOP THE
M BY SPRAY-"
790 PRINT :"ING THEM WITH ";
Q$(7);".":::"BUT THAT DOESN'T
 KILL ANY OF"::
800 PRINT "THOSE ";Q$(8);" R
OACHES."
810 GOSUB 2170
820 PRINT "THEY GO RIGHT ON
AND EAT"::"INDIANA. THEN THE
 ARMY DROPS"::
830 PRINT "AN ATOM-";Q$(9);"
 ON THEM"
840 PRINT :"AND THIS KILLS A
LL OF THEM"::"BUT ONE ENORMO
US ROACH, WHO"::
850 PRINT "GRABS THE ";Q$(10
)
860 PRINT :"SCIENTIST AND JU
MPS INTO A"::"DEEP CHASM."
870 GOSUB 2170
880 PRINT "THEN THE STRANGE"
::"HELPER TAKES OFF HIS COST
UME"
890 PRINT :"AND SAYS, 'I WAS
 REALLY A "::Q$(11);" FOR TH
E C.I.A'"::
900 PRINT "AND HE MARRIES TH
E "
910 PRINT :"SCIENTIST'S BEAU
TIFUL"::Q$(12);" WHO IS PLAY
ED BY"::
920 PRINT Q$(13);" AND THEY
LIVE"::Q$(14);" EVER AFTER."
930 GOTO 550
940 REM **2ND PASSAGE**
950 RESTORE 960
960 DATA 7,1,1,1,3,1,16,1,3,
1,2,1,2,1,0
970 GOSUB 2090
980 GOSUB 500
990 PRINT "    MODERN SUPERS
TITIONS"::
1000 PRINT "WHEN I WAS A KID
 ";Q$(1)::"YEARS AGO, WE BEL
IEVED"::
1010 PRINT "IN SUPERSTITIONS
 LIKE:"
1020 PRINT :"'IT'S ALWAYS BA
D LUCK TO"::"OPEN A(N) ";Q$(
2);" INDOORS.'"::
1030 PRINT "AND 'IF YOUR ";Q
$(3);" ITCHES"
1040 PRINT :",THAT MEANS A "
;Q$(4)::"WILL VISIT SOON.'AN
D'YOU'LL"::
1050 PRINT "HAVE ";Q$(5);" L
UCK IF YOU"
1060 PRINT :"FIND A FOUR-LEA
F-";Q$(6);".'"
1070 GOSUB 2170
1080 PRINT "WE ALSO BELIEVED
 THAT IF YOU"::"SPILLED ";Q$
(7);" AT THE"
1090 PRINT :"TABLE, YOU MUST
 THROW SOME"::"OVER YOUR LEF
T ";Q$(8);" AND"::
1100 PRINT "THAT IF YOUR ";Q
$(9);" TOE"
1110 PRINT :"HURT-RAIN WAS O
N THE WAY. WE"::"BELIEVED TH
AT IF YOU BROKE A"::
1120 PRINT Q$(10);", YOU WOU
LD HAVE"
1130 PRINT :"7 YEARS OF BAD
";Q$(11);"."
1140 GOSUB 2170
1150 PRINT "KIDS TODAY HAVE
MODERNIZED"::"SUPERSTITIONS
LIKE:'IT'S"::
1160 PRINT "BAD LUCK TO PLAY
 ON THE "
1170 PRINT :"RAILROAD TRACKS
 RIGHT BEFORE"::"A ";Q$(12);
" COMES IN.'AND"::
```

```
1180 PRINT "'DON'T THROW ";Q
$(13);" AT"
1190 PRINT :"POLICE OFFICERS
.' BUT REALLY"::"THERE'S ONL
Y ONE SUPERSTI-"::
1200 PRINT "TION I STILL BEL
IEVE IN."
1210 GOSUB 2170
1220 PRINT "WHENEVER I SAY S
OMETHING"::"ABOUT MY HEALTH,
 I ALWAYS"::
1230 PRINT "REMEMBER TO KNOC
K ON A PIECE"
1240 PRINT :"OF ";Q$(14);"."
1250 GOTO 550
1260 REM **3RD PASSAGE**
1270 RESTORE 1280
1280 DATA 2,12,3,9,3,9,7,4,3
,1,1,1,1,4,6,3
1290 GOSUB 2090
1300 GOSUB 500
1310 PRINT "        THE TITLE
 BOUT        "::
1320 PRINT "GOOD EVENING, BO
XING"::Q$(1);". I'M TALKING
TO"::
1330 PRINT "YOU FROM THE RIN
GSIDE AT THE"
1340 PRINT :"FAMOUS ";Q$(2);
" AND"
1350 PRINT :"BRINGING YOU ON
-THE-SPOT"::"COVERAGE OF THE
 ";Q$(3)::
1360 PRINT "MATCH BETWEEN RO
CKY"
1370 PRINT :Q$(4);" AND THE
";Q$(5)::"WEIGHT CHAMPION, K
ILLER"::Q$(6);"."
1380 GOSUB 2170
1390 PRINT "AS THE BELL RING
S"
1400 PRINT :"FOR ROUND ";Q$(
7);",ROCKY"::"GOES ";Q$(8);"
 TO THE"::
1410 PRINT "MIDDLE OF THE RI
NG AND"
1420 PRINT :"THROWS A(AN) ";
Q$(9);" LEFT"::"TO KILLER'S
";Q$(10);"."
1430 GOSUB 2170
1440 PRINT :"BUT KILLER STOP
S THE PUNCH"::"WITH HIS ";Q$
(11);" AND HITS"::
1450 PRINT "ROCKY RIGHT ON T
HE ";Q$(12)
1460 PRINT :"WITH A SENSATIO
NAL UPPERCUT"::"THAT KNOCKS
HIM FLAT ON HIS"::
1470 PRINT Q$(13);". THE REF
EREE IS"
1480 PRINT :"COUNTING AND TH
E CROWD IS"::"YELLING ";Q$(1
4);", ";Q$(15);"!"::
1490 PRINT "WHAT A ";Q$(16);
" MATCH THIS"
1500 PRINT :"HAS BEEN."
1510 GOTO 550
1520 REM **4TH PASSAGE**
1530 RESTORE 1540
1540 DATA 1,1,2,2,3,1,1,3,2,
2,1,1,5,3,2,8
1550 GOSUB 2090
1560 GOSUB 500
1570 PRINT "    A POEM FOR C
HRISTMAS"::
1580 PRINT "'TWAS THE NIGHT
BEFORE"::"CHRISTMAS AND ALL
THROUGH"::
1590 PRINT "THE ";Q$(1);",NO
T A CREATURE"
1600 PRINT :"WAS STIRRING, N
OT EVEN A(N)"::Q$(2);". THE
";Q$(15);" WERE"::
1610 PRINT "HUNG BY THE FIRE
PLACE WITH"
1620 PRINT :"CARE,IN HOPE TH
AT ";Q$(16)::"SOON WOULD BE
THERE."
1630 GOSUB 2170
1640 PRINT "THE ";Q$(4);" WE
RE TUCKED,"
1650 PRINT :"ALL SNUG IN THE
IR ";Q$(4)::",WHILE VISIONS
OF ";Q$(5);"-"::
1660 PRINT "PLUMS DANCED IN
THEIR HEADS."
1670 PRINT :"THEN UP ON THE
";Q$(6);","::"THERE AROSE SU
CH A CLATTER,I"::
1680 PRINT "SPRANG FROM MY "
;Q$(7);" TO"
1690 PRINT :"SEE WHAT WAS TH
E MATTER."
1700 GOSUB 2170
1710 PRINT "IT WAS ST. NICHO
LAS,WITH HIS"::"LITTLE ";Q$(
8);" BELLY,"::
```

```
1720 PRINT "THAT SHOOK WHEN
HE LAUGHED,"
1730 PRINT :"LIKE A BOWL FUL
L OF ";Q$(9)::". HE SPOKE NO
T A WORD,BUT"::
1740 PRINT "WENT STRAIGHT TO
 HIS WORK "
1750 PRINT :"AND FILLED ALL
THE ";Q$(10)::", THEN TURNED
 WITH A JERK."
1760 GOSUB 2170
1770 PRINT :"THEN LAYING HIS
 ";Q$(11)
1780 PRINT :"ASIDE OF HIS NO
SE, AND GIV-"::"ING A NOD, U
P THE ";Q$(12)::
1790 PRINT "HE ROSE. AND I H
EARD HIM"
1800 PRINT :"EXCLAIM, AS HE
";Q$(13)::"OUT OF SIGHT, '";
Q$(14)::
1810 PRINT "CHRISTMAS TO ALL
, AND TO ALL"::"A GOOD NIGHT
!'"
1820 GOTO 550
1830 REM **5TH PASSAGE**
1840 RESTORE 1850
1850 DATA 2,1,3,2,3,1,3,10,2
,1,0
1860 GOSUB 2090
1870 GOSUB 500
1880 PRINT "LINCOLN'S GETTYS
BURG ADDRESS"::
1890 PRINT "FOUR SCORE AND S
EVEN YEARS"::"AGO,OUR ";Q$(1
);" BROUGHT"::
1900 PRINT "FORTH ON THIS ";
Q$(2);" A"
1910 PRINT :Q$(3);" NATION C
ONCEIVED IN"::"LIBERTY AND D
EDICATED TO THE"::
1920 PRINT "PROPOSITION THAT
 ALL"
1930 PRINT :Q$(4);" ARE CREA
TED ";Q$(5);"."
1940 GOSUB 2170
1950 PRINT "NOW WE ARE ENGAG
ED IN A"::"GREAT CIVIL WAR T
ESTING"
1960 PRINT :"WHETHER THAT ";
Q$(6);" OR"::"ANY ";Q$(6);"
SO CONCEIVED"::
1970 PRINT "AND SO DEDICATED
 CAN LONG"
1980 PRINT :"ENDURE. IT IS R
ATHER FOR US"::"TO BE HERE D
EDICATED TO THE"::
1990 PRINT Q$(7);" TASK REMA
INING "
2000 PRINT :"BEFORE US..."
2010 GOSUB 2170
2020 PRINT "SO THAT THIS NAT
ION UNDER "::Q$(8);" SHALL H
AVE"::
2030 PRINT "A NEW BIRTH OF F
REEDOM"
2040 PRINT :"AND THAT GOVERN
MENT OF THE"::Q$(9);",BY THE
 ";Q$(9);",AND"::
2050 PRINT "FOR THE ";Q$(9);
" SHALL NOT"
2060 PRINT :"PERISH FROM THE
 ";Q$(10);"."
2070 GOTO 550
2080 REM **INPUT WORDS**
2090 FOR N=1 TO 16
2100 READ R
2110 IF R=0 THEN 2150
2120 INPUT S$(R):Q$(N)
2130 CALL CLEAR
2140 NEXT N
2150 RETURN
2160 REM **TO CONTINUE**
2170 PRINT :"*PRESS ANY KEY
TO CONTINUE*"
2180 CALL KEY(0,K,S)
2190 IF S=0 THEN 2180
2200 CALL CLEAR
2210 RETURN
```

BASIC MAGNIFY

Did you ever wonder what an enlarged version of a single square character would look like? Easy to do in Extended Basic - but in Basic? With this program you can! As an added bonus, you can also produce the character's shadow a very interesting program.

```
100 REM ******************
110 REM * BASIC MAGNIFY *
120 REM *    TI BASIC     *
130 REM *BY BOB WARTMAN *
140 REM * PARK HILLS,KY.*
150 REM *COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 REM **INITIALIZATION**
190 DIM Q(16)
200 CALL CHAR(152,"FFFFFFFFF
FFFFFFF")
210 CALL CHAR(153,"183C7EFFF
F7E3C18")
220 M$="BASIC MAGNIFY"
230 REM **COVER SCREEN**
240 FOR H=12 TO 16
250 CALL COLOR(H,1,1)
260 NEXT H
270 CALL SCREEN(16)
280 FOR A=5 TO 27
290 CALL HCHAR(A-4,A,152)
300 CALL HCHAR(28-A,A,152)
310 NEXT A
320 CALL HCHAR(12,5,153,23)
330 CALL VCHAR(1,16,153,24)
340 FOR N=9 TO 15
350 CALL HCHAR(N,13,120,7)
360 NEXT N
370 FOR N=10 TO 14
380 CALL HCHAR(N,14,128,5)
390 NEXT N
400 FOR N=11 TO 13
410 CALL HCHAR(N,15,136,3)
420 NEXT N
430 CALL HCHAR(12,16,144)
440 M=100
450 FOR H=15 TO 12 STEP -1
460 M=M*(H/6)
470 V=2+((H-10)*3)
480 CALL SOUND(350,M,V,M+20,
V,M+40,V)
490 CALL COLOR(H,7,7)
500 NEXT H
510 FOR H=15 TO 12 STEP -1
520 CALL COLOR(H,1,1)
530 NEXT H
540 CALL SOUND(230,-5,0)
550 FOR N=1 TO 13
560 CALL HCHAR(12,9+N,ASC(SE
G$(M$,N,1)))
570 CALL COLOR(16,7,1)
580 CALL SOUND(20,-5,3+2*N)
590 CALL COLOR(16,12,1)
600 NEXT N
610 INPUT "   PRESS 'ENTER'
TO START":W$
620 REM **PROGRAM RUN**
630 CALL CLEAR
640 CALL COLOR(14,1,1)
650 CALL COLOR(15,1,1)
660 PRINT " ENTER THE HEXADE
CIMAL CODE ":" WITHOUT QUOTE
S":
670 INPUT A$
680 CALL CLEAR
690 CALL COLOR(13,2,1)
700 CALL CHAR(128,A$)
710 CALL HCHAR(4,4,128)
720 FOR I=1 TO LEN(A$)
730 CALL HCHAR(4,6+I,ASC(SEG
$(A$,I,1)))
740 NEXT I
750 FOR I=1 TO LEN(A$)
760 Q(I)=ASC(SEG$(A$,I,1))
770 NEXT I
780 FOR S=1 TO 2
790 A=1
800 B=15
810 C=12-S
820 R=10-S
830 Z=142+S
840 FOR I=A TO B STEP 2
850 R=R+1
860 IF Q(I)>64 THEN 880
870 ON Q(I)-47 GOTO 1180,890
,910,930,950,970,990,1010,10
30,1050
880 ON Q(I)-64 GOTO 1070,109
0,1110,1130,1150,1170,
890 CALL HCHAR(R,C+3,Z)
900 GOTO 1180
910 CALL HCHAR(R,C+2,Z)
920 GOTO 1180
```

```
930 CALL HCHAR(R,C+2,Z,2)
940 GOTO 1180
950 CALL HCHAR(R,C+1,Z)
960 GOTO 1180
970 CALL HCHAR(R,C+1,Z)
980 GOTO 890
990 CALL HCHAR(R,C+1,Z,2)
1000 GOTO 1180
1010 CALL HCHAR(R,C+1,Z,3)
1020 GOTO 1180
1030 CALL HCHAR(R,C,Z)
1040 GOTO 1180
1050 CALL HCHAR(R,C,Z)
1060 GOTO 890
1070 CALL HCHAR(R,C,Z)
1080 GOTO 910
1090 CALL HCHAR(R,C,Z)
1100 GOTO 930
1110 CALL HCHAR(R,C,Z,2)
1120 GOTO 1180
1130 CALL HCHAR(R,C,Z,2)
1140 GOTO 890
1150 CALL HCHAR(R,C,Z,3)
1160 GOTO 1180
1170 CALL HCHAR(R,C,Z,4)
1180 NEXT I
1190 IF A=2 THEN 1250
1200 A=2
1210 B=16
1220 C=16-S
1230 R=10-S
1240 GOTO 840
1250 NEXT S
1260 PRINT "PRESS 'ENTER' FO
R SHADOW":" & ANY OTHER KEY
TO CONTINUE"
1270 CALL COLOR(15,7,7)
1280 CALL KEY(0,K,S)
1290 IF S=0 THEN 1280
1300 IF K<>13 THEN 630
1310 CALL COLOR(14,15,15)
1320 GOTO 1280
```

MESSAGE BOARD

Watch your message creep (or speed) across the middle of the screen from right to left, just like those special weather bulletins do on TV. The rest of the screen produces a neon sign effect, making this a very attention grabing program!

```
100 REM*******************
110 REM*  MESSAGE BOARD  *
120 REM*TI EXTENDED BASIC*
130 REM*   BY  ED YORK   *
140 REM*WEST CHESTER,OHIO*
150 REM* COPYRIGHT  1983 *
160 REM*******************
170 CALL CLEAR :: CALL SCREE
N(5):: FOR A=0 TO 8 :: CALL
COLOR(A,16,5)
180 NEXT A :: CALL COLOR(9,5
,5):: CALL HCHAR(1,1,96,320)
190 CALL HCHAR(14,1,96,352):
: DISPLAY AT(12,1):"       M
ESSAGE BOARD"
200 FOR B=1 TO 5 :: GOSUB 40
0 :: CALL COLOR(9,C,5):: FOR
 D=1 TO 8
210 A$=A$&"FF" :: CALL CHAR(
96,A$):: NEXT D :: FOR E=16
TO 1 STEP -2
220 A$=SEG$(A$,1,E):: CALL C
HAR(96,A$):: NEXT E :: NEXT
B :: CALL CLEAR
230 DISPLAY AT(2,8):"MESSAGE
 BOARD": :"THIS PROGRAM WAS
DESIGNED TO"
240 DISPLAY AT(6,1):"ALLOW Y
OU TO ENTER MESAGES": :"ON T
HE SCREEN AND HAVE THEM"
250 DISPLAY AT(10,1):"SCROLL
ED ACROSS THE CENTER"
260 DISPLAY AT(12,1):"OF THE
 SCREEN. YOU MAY VARY"
270 DISPLAY AT(14,1):"THE SP
EED AT WHICH THE MESS-": :"A
GE WILL BE SCROLLED."
280 DISPLAY AT(24,3):"PRESS
ENTER TO CONTINUE." :: CALL
KEY(0,F,G)
290 IF F<>13 THEN 280 ELSE C
ALL CLEAR :: B$="..........
................."
```

```
300 C$=" " :: H=2 :: FOR I=1
 TO 7 :: ACCEPT AT(H,1)SIZE(
27):D$(I)
310 H=H+2 :: D$(I)=D$(I)&C$
:: E$=E$&D$(I):: NEXT I :: E
$=B$&E$&B$
320 DISPLAY AT(16,1):"WHAT S
PEED DO YOU WISH THE": :"MES
SAGE TO BE SCROLLED: 25"
330 ACCEPT AT(18,25)SIZE(-2)
:J :: IF J<1 THEN 320 :: CAL
L CLEAR
340 FOR K=1 TO (LEN(E$)-28):
: DISPLAY AT(12,1):SEG$(E$,K
,28):: FOR L=1 TO J
350 NEXT L :: NEXT K :: CALL
 CHAR(96,RPT$("0",16))
360 CALL HCHAR(1,1,96,320)::
 CALL HCHAR(14,1,96,352)
370 FOR M=1 TO 8 :: F$=F$&"F
F" :: CALL CHAR(96,F$):: NEX
T M
380 FOR N=16 TO 1 STEP -2 ::
 F$=SEG$(F$,1,N):: CALL CHAR
(96,F$):: NEXT N
390 GOTO 340
400 RANDOMIZE :: C=INT(14*RN
D)+2 :: IF C=5 THEN 400 ELSE
 RETURN
```

INSTANT COMPOSER

Follow the simple directions and you'll be creating interesting (if somewhat unusual) musical compositions in no time. Imagine your keyboard as a set of piano keys, and you're on your way to composing your first hit song!

The following is a list of the keyboard usuage for this program.

FCTN 1=Play Song
FCTN 2=List Song
FCTN 3=Delete Last Note
FCTN 5=Edit Notes
FCTN 6=Change Duration
FCTN 7=Change Time
FCTN 8=Erase Song
FCTN E=Raise Octave
FCTN X=Lower Octave

A=A
W=A#B♭
S=B
D=C
R=C#D♭
F=D
T=D#E♭
G=E
H=F
U=F#G♭
J=G
I=G#A♭

W		R	T		U	I
A	S	D	F	G	H	J

Edit Notes - First list the song (FCTN 2) and determine which # note is to be changed. Then activate editor (FCTN 5) and enter the note #. Now you can change the note, duration and/or octave.

Change duration - (FCTN 6) enter a number from 1 to 450. This will control the duration of each individual note as you enter it.

```
100 REM ****************
110 REM * MUSIC MAKER  *
120 REM *  TI BASIC    *
130 REM *JAMES P. GLENN*
140 REM * FLORENCE, KY.*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 REM *INITIALIZATION*
180 CALL CLEAR
190 CALL CHAR(129,"202030282
42830")
200 PRINT TAB(10);"Music Mak
er"::::::::
210 DIM FREQ(4,14),KEE(96),N
OTE$(13),FREEK(300),DR(300),
HOLD(300)
220 REM **NOTES&NOTATIONS**
230 FOR X=1 TO 12
240 READ KY$,NOTE$(X)
250 KEE(ASC(KY$))=X
260 NEXT X
270 KEE(32)=13
280 NOTE$(13)="PAUSE"
290 REM *ASSIGN FREQUENCIES*
300 FOR X=1 TO 4
310 FOR Y=1 TO 12
```

```
320 READ FREQ(X,Y)
330 NEXT Y
340 FREQ(X,Y)=44733
350 NEXT X
360 DUR=100
370 DELAY=100
380 OC=1
390 TOTAL=0
400 FLAG=1
410 PRINT TAB(7);"START COMP
OSING"::::
420 PRINT ::TAB(12);"READY":
:
430 REM **BEGIN PROG**
440 CALL KEY(3,K,S)
450 IF S<>1 THEN 440
460 REM *TEST FOR FCTN KEYS*
470 IF ((K>64)+(K=32))=-1 TH
EN 1030
480 IF K>48 THEN 660
490 IF K>14 THEN 440
500 ON K GOSUB 710,440,1120,
900,440,360,850,440,440,610,
610,530,440,1180
510 IF FLAG=1 THEN 440 ELSE
1290
520 REM **CHANGE DELAY**
530 PRINT ::"CURRENT DELAY:"
;DELAY
540 PRINT "ENTER NEW DELAY":
"    (1 - 450)"
550 INPUT "      ":DELAY
560 IF (DELAY<1)+(DELAY>450)
=-1 THEN 550
570 K=49
580 GOSUB 660
590 RETURN
600 REM **SET OCTAVE**
610 OC=OC-(K=11)+(K=10)
620 OC=OC-(OC=0)+(OC=5)
630 PRINT "OCTAVE =";OC
640 IF FLAG<>1 THEN 440
650 RETURN
660 REM *DURATION(100-900)*
670 DUR=(K-48)*DELAY
680 PRINT "DURATION =";DUR
690 GOTO 440
700 REM **CHANGE DURATION**
710 COUNTER=0
720 PRINT ::"SEARCH AND CHAN
GE DURATION"
730 INPUT "ENTER SEARCH DURA
TION: ":SEARCH
740 INPUT "ENTER NEW DURATIO
N: ":NEW_DUR
750 PRINT "      SEARCHING"
760 FOR X=1 TO TOTAL
770 PRINT DR(X)
780 IF DR(X)<>SEARCH THEN 81
0
790 DR(X)=NEW_DUR
800 COUNTER=COUNTER+1
810 NEXT X
820 PRINT "SEARCHING COMPLET
ED":COUNTER;" TOTAL CHANGES"
::"READY"::
830 RETURN
840 REM **DELETE LAST NOTE**
850 IF TOTAL=0 THEN 880
860 PRINT "DELETING:";TOTAL
870 TOTAL=TOTAL-1
880 RETURN
890 REM **LIST SONG**
900 CALL CLEAR
910 PRINT " #";TAB(8);"NOTE"
;TAB(15);"DUR";TAB(22);"FREQ
"
920 FOR X=FLAG TO TOTAL
930 PRINT X;TAB(8);NOTE$(HOL
D(X));TAB(14);DR(X);TAB(21);
FREEK(X)
940 CALL KEY(3,K,S)
950 REM ** PAUSE OR QUIT**
960 IF (S=1)+(K=81)=-2 THEN
990
970 IF S<>0 THEN 940
980 NEXT X
990 IF FLAG<>1 THEN 1010
1000 PRINT ::"** END LIST **
":TAB(9);"PROCEDE":::
1010 RETURN
1020 REM **ARRAY&PLAY NOTE**
1030 PS=KEE(K)
1040 IF PS=0 THEN 440
1050 TOTAL=TOTAL+1
1060 HOLD(TOTAL)=PS
1070 FREEK(TOTAL)=FREQ(OC,PS
)
1080 DR(TOTAL)=DUR
1090 CALL SOUND(DUR,FREEK(TO
TAL),0)
1100 PRINT TAB(10);"NOTE";TO
TAL;" = ";NOTE$(PS)
1110 GOTO 510
1120 REM **PLAY SONG**
1130 FOR X=1 TO TOTAL
1140 CALL SOUND(DR(X),FREEK(
X),0)
1150 NEXT X
1160 RETURN
```

```
1170 REM **EDIT NOTES**
1180 IF FLAG<>1 THEN 440
1190 PRINT ::"EDITOR ACTIVE"
:"NOTE TO BE CHANGED";
1200 HOLD_T=TOTAL
1210 INPUT TOT
1220 IF TOT=81 THEN 1300
1230 TOTAL=TOT
1240 FLAG=TOTAL
1250 GOSUB 910
1260 TOTAL=TOTAL-1
1270 PRINT ::"ENTER NEW NOTE
"::
1280 GOTO 440
1290 TOTAL=HOLD_T
1300 FLAG=1
1310 GOTO 420
```

```
1320 REM **DATA FOR NOTES**
1330 DATA A,A,W,"A#,B_",S,B
1340 DATA D,C,R,"C#,D_",F,D
1350 DATA T,"D#,E_",G,E,H,F
1360 DATA U,"F#,G_",J,G
1370 DATA I,"G#,A_"
1380 DATA 110,117,123,131,13
9,147,156,165,175,185,196
1390 DATA 208,220,233,247,26
2,277,294,311,330,349,370
 400 DATA 392,415,440,466,49
4,523,554,587,622,659,698
1410 DATA 740,784,831,880,93
2,988,1047,1109,1175,1245
1420 DATA 1319,1397,1480,156
8,1661,1760
1430 END
```

BILL FILING SYSTEM

This program will print out a monthly update of your bills including the balance status. Ease of data input & program operation are big advantages in this program. When you are asked a question, the possible answers appear in the lower left hand corner of the monitor. Depressing the CTRL Key and a Number Key (1-4) will input your answer.

```
100 REM******************
110 REM*BILL FILING SYST*
120 REM* EXTENDED BASIC *
130 REM*   MARK COWAN    *
140 REM* CENTERVILLE,OH.*
150 REM* COPYRIGHT 1983 *
160 REM******************
170 REM**INSTRUCTIONS**
180 !THIS PROGRAM IS A BILL
FILING SYSTEM THAT IS VERY U
SER  FRIENDLY
190 !IT STORES ALL BILLS ON
THE CASSETTE AND OPTIONALLY
200 !PRINTS THEM OUT ON AN I
MPACT PRINTER (PIO)
210 !IT ALSO ALLOWS THE USER
 TO RECORD PAYMENTS AND PRIN
T A SUMMARY CHART
220 !OF THAT DAY'S TRANSACTI
ONS
230 DATE_ST$="NO DATA STORED
" :: NO_BILL=0 :: OPTION BAS
E 1 :: DIM D$(3,30)
240 !OPEN #5:"PIO"
250 !ALL DATA PRINTED ON IMP
ACT PRINTER TO PARALLEL PORT
 OF RS232 CARD
```

```
260 DISPLAY AT(1,1)ERASE ALL
:RPT$("*",28):"   BILLS FILI
NG SYSTEM":RPT$("*",28)
270 DISPLAY AT(22,1):"ENTER
TODAY'S DATE?" :: ACCEPT AT(
24,1)BEEP:DATE$
280 DISPLAY AT(22,1):RPT$("
",28)
290 DISPLAY AT(1,1)ERASE ALL
:"*********MAIN MENUE*******
**"
300 RESTORE 350 :: P=3
310 FOR MEN=1 TO 6
320 READ A$ :: DISPLAY AT(P,
1):MEN;A$:
330 P=P+2
340 NEXT MEN
350 DATA LIST BILLS,RECORD T
RANSACTIONS,REVISE BILL LIST
360 DATA STORE BILLS,RETRIEV
E BILLS,QUIT
370 DISPLAY AT(22,1)BEEP:"SE
LECT OPERATION DESIRED?":"(T
HEN PRESS [ENTER])"
380 ACCEPT AT(24,1)VALIDATE(
NUMERIC):OP
390 DISPLAY AT(22,1):" ":" "
 :: IF OP<1 OR OP>6 THEN 370
```

```
400 IF OP=1 THEN CALL MENUE(
"SELECT OUTPUT DEVICE","SCRE
EN-","PRINTER","","",R)
410 IF OP=1 AND R=1 THEN CAL
L LST_BILL(NO_BILL,D$(,),DAT
E_ST$,DATE$,CNTR$)
420 IF OP=1 AND R=2 THEN CAL
L PRINT_BILL(NO_BILL,D$(,),D
ATE_ST$,DATE$,CNTR$)
430 IF OP=2 THEN CALL TRANS(
D$(,),DATE_ST$,DATE$,NO_BILL
)
440 IF OP=3 THEN CALL EDIT_B
ILL(NO_BILL,D$(,))
450 IF OP=4 THEN CALL DATA_O
UT(NO_BILL,DATE_ST$,DATE$,D$
(,),CNTR$)
460 IF OP=5 THEN CALL DATA_I
N(NO_BILL,DATE_ST$,DATE$,D$(
,),CNTR$)
470 IF OP<>6 THEN 290 :: CAL
L YESNO("WANT TO STORE BILLS
?",R)
480 IF R THEN CALL DATA_OUT(
NO_BILL,DATE_ST$,DATE$,D$(,)
,CNTR$)
490 CALL YESNO("DO YOU WANT
TO QUIT?",R):: IF R=0 THEN 2
90
500 END
510 SUB DISP_INV(DISP1$,ROW1
,COL1,DISP2$,ROW2,COL2)
520 !DISP$ CANNOT BE LONGER
THAN 28 CHARACTERS
530 CALL COLOR(11,1,2,12,1,2
,13,1,2,14,1,2):: DIM CHAR$(
28)
540 DISP$=DISP1$ :: COL=COL1
 :: ROW=ROW1 :: CPNT=112
550 FOR L=1 TO 2 :: IF DISP$
="" THEN 660
560 DLEN=LEN(DISP$):: IF LEN
(DISP1$&DISP2$)>28 THEN 680
!END IF TO BIG
570 FOR I=1 TO DLEN
580 CHAR$(I)=SEG$(DISP$,I,1)
:: NEXT I
590 N_DISP$=""
600 FOR I=1 TO DLEN
610 CALL CHARPAT(ASC(CHAR$(I
)),PAT$)
620 CALL CHAR(I+CPNT,PAT$)
630 N_DISP$=N_DISP$&CHR$(I+C
PNT)
640 NEXT I
650 DISPLAY AT(ROW,COL):N_DI
SP$
660 DISP$=DISP2$ :: COL=COL2
 :: ROW=ROW2 :: CPNT=112+DLE
N+1
670 NEXT L
680 SUBEND
690 SUB YESNO(QUEST$,R)
700 R=0
710 DISPLAY AT(22,1):RPT$("
",84):: CALL DISP_INV("YES N
O",24,1,"",1,1)
720 DISPLAY AT(22,1):QUEST$
730 CALL KEY(4,KEY,ST):: IF
ST=0 THEN 730 :: IF KEY<>177
 AND KEY<>178 THEN 730
740 IF KEY=177 THEN R=1
750 DISPLAY AT(22,1):RPT$("
",84)
760 SUBEND
770 SUB CONT(MES$)
780 DISPLAY AT(22,1):RPT$("
",84)
790 CALL DISP_INV("CONTINUE"
,24,1,"",1,1):: DISPLAY AT(2
2,1):MES$
800 CALL KEY(4,KEY,ST):: IF
ST=0 THEN 800 :: IF KEY<>177
 THEN 800
810 DISPLAY AT(22,1):RPT$("
",84)
820 SUBEND
830 SUB MENUE(QUEST$,A$,B$,C
$,D$,R)
840 DISPLAY AT(23,1):" " ::
CALL DISP_INV(A$&B$&C$&D$,24
,1,"",1,1)
850 DISPLAY AT(22,1):QUEST$
860 CALL KEY(4,KEY,ST):: IF
ST=0 THEN 860
870 IF KEY<177 OR KEY>180 TH
EN 860
880 IF A$<>"" AND KEY=177 TH
EN R=1
890 IF B$<>"" AND KEY=178 TH
EN R=2
900 IF C$<>"" AND KEY=179 TH
EN R=3
910 IF D$<>"" AND KEY=180 TH
EN R=4
920 DISPLAY AT(22,1):RPT$("
",84)
930 SUBEND
```

```
940 SUB EDIT_BILL(NO_BILL,D$
(,))
950 ! SUB TO EDIT ANY PARAME
TER OF BILL FILE
960 CALL CLEAR :: DISPLAY AT
(1,1):"***********EDIT BILLS
*******"
970 DISPLAY AT(21,1):"ENTER
COMPANY":"(Q TO QUIT)"
980 ACCEPT AT(24,1)BEEP:COMP
$ :: IF COMP$="Q" THEN 1270
990 FOR I=1 TO NO_BILL
1000 IF COMP$=D$(1,I)THEN 11
80
1010 NEXT I
1020 DISPLAY AT(18,1)BEEP:RP
T$(" ",130):: DISPLAY AT(18,
1):"COMPANY NOT FOUND"
1030 CALL YESNO("INPUTTING A
 NEW BILL?",R)
1040 IF R=0 THEN 950
1050 ! NEW BILL
1060 FOR N_BILL=NO_BILL+1 TO
 25
1070 GOSUB 1280
1080 ACCEPT AT(5,10)BEEP VAL
IDATE(UALPHA):D$(1,N_BILL)
1090 ACCEPT AT(7,10)BEEP VAL
IDATE(NUMERIC):BILL :: D$(2,
N_BILL)=STR$(BILL)
1100 ACCEPT AT(9,10)BEEP VAL
IDATE(NUMERIC):BAL :: D$(3,N
_BILL)=STR$(BAL)
1110 CALL YESNO("ENTER ANOTH
ER BILL?",R)
1120 IF R=0 THEN 1170
1130 DISPLAY AT(5,1):RPT$("
",120)
1140 NEXT N_BILL
1150 N_BILL=N_BILL-1
1160 CALL CONT("NO MORE ROOM
 FOR MORE BILLS")
1170 NO_BILL=N_BILL :: SUBEX
IT
1180 ! REVISE EXISTING BILLS
1190 CALL MENUE("SELECT PARA
METER TO REVISE","COMPANY-",
"BILL-","BAL.-","ALL",R)
1200 GOSUB 1280
1210 IF R=1 OR R=4 THEN ACCE
PT AT(5,10)BEEP VALIDATE(UAL
PHA):D$(1,I)
1220 IF R=2 OR R=4 THEN ACCE
PT AT(7,10)BEEP VALIDATE(NUM
ERIC):BILL
1230 D$(2,I)=STR$(BILL)
1240 IF R=3 OR R=4 THEN ACCE
PT AT(9,10)BEEP VALIDATE(NUM
ERIC):BAL
1250 D$(3,I)=STR$(BAL)
1260 GOTO 960
1270 SUBEXIT
1280 ! SUBROUTINE TO PRINT P
ARAMETERS
1290 DISPLAY AT(5,1):RPT$("
",120)
1300 DISPLAY AT(5,1):"COMPAN
Y:" :: DISPLAY AT(7,3):"BILL
:$"
1310 DISPLAY AT(9,4):"BAL:$"
1320 RETURN
1330 SUBEND
1340 SUB LST_BILL(NO_BILL,D$
(,),DATE_ST$,DATE$,CNTR$)
1350 !LIST BILLS ON CRT
1360 CALL CLEAR :: DISPLAY A
T(1,1):"*********BILL LISTIN
G*******"
1370 DISPLAY AT(5,1):"COMPAN
Y:" :: DISPLAY AT(7,3):"BILL
:$"
1380 DISPLAY AT(9,4):"BAL:$"
1390 IF D$(1,1)<>"" THEN 141
0 :: DISPLAY AT(10,1)BEEP:"
NO BILLS STORED!!!"
1400 CALL CONT("")
1410 FOR I=1 TO NO_BILL
1420 DISPLAY AT(5,10):D$(1,I
)
1430 DISPLAY AT(7,10):USING
"###.##":VAL(D$(2,I))
1440 DISPLAY AT(9,10):USING
"####.##":VAL(D$(3,I))
1450 IF I<NO_BILL THEN 1480
1460 DISPLAY AT(12,3):"END O
F LISTING"
1470 DISPLAY AT(14,1)BEEP:"D
ATE STORED-->":DATE_ST$:"STO
RED ON--> ";CNTR$
1480 CALL CONT("")
1490 NEXT I
1500 CALL CLEAR
1510 SUBEND
1520 SUB TRANS(D$(,),DATE_ST
$,DATE$,NO_BILL)
1530 DIM TRAN(25,3):: PT=0
1540 !RECORD TRANSACTIONS AN
D OPTIONALLY PRINT ON FILE #
5 PREVIOUSLY STORED
```

```
1550 CALL CLEAR :: DISPLAY A
T(1,1):"********TRANSACTIONS
********"
1560 DISPLAY AT(21,1):"ENTER
 COMPANY'S NAME":"(Q TO QUIT
)"
1570 ACCEPT AT(24,1)BEEP:COM
P$ :: IF COMP$="Q" THEN 1770
1580 FOR I=1 TO NO_BILL
1590 IF D$(1,I)=COMP$ THEN 1
630
1600 NEXT I
1610 PRINT "NO SUCH COMPANY"
1620 CALL SOUND(2000,40000,3
0):: CALL SOUND(1,40000,30):
: GOTO 1550
1630 PT=PT+1
1640 DISPLAY AT(21,1): : :
1650 DISPLAY AT(5,1):"* ";CO
MP$ :: DISPLAY AT(22,1):"ENT
ER PAYMENT"
1660 TRAN(PT,1)=I
1670 ACCEPT AT(24,1)VALIDATE
(NUMERIC):TRAN(PT,2)
1680 DISPLAY AT(7,1):"  PAYM
ENT $";TRAN(PT,2)
1690 DISPLAY AT(22,1):"ENTER
 CHECK NUMBER"
1700 ACCEPT AT(24,1)VALIDATE
(NUMERIC):TRAN(PT,3)
1710 DISPLAY AT(9,1):"  C
K NO. ";TRAN(PT,3)
1720 CALL YESNO("IS THIS COR
RECT?",R):: IF R THEN 1740
1730 DISPLAY AT(5,1): : : ::
 GOTO 1650
1740 IF VAL(D$(3,I))<>0 THEN
 BAL=VAL(D$(3,I))-TRAN(PT,2)
ELSE 1550
1750 DISPLAY AT(12,1):"NEW B
ALANCE:$" :: DISPLAY AT(12,1
5):USING "#####.##":BAL
1760 D$(3,I)=STR$(BAL):: CAL
L CONT(""):: GOTO 1550
1770 DISPLAY AT(21,1):" " ::
 IF PT THEN CALL YESNO("PRIN
T TRANSACTIONS?",R)
1780 IF R=0 THEN SUBEXIT
1790 !PRINT #5:CHR$(12)
1800 PRINT #5:RPT$("*",80):T
AB(31);"TRANSACTION REPORT"
1810 PRINT #5:TAB(32);"DATE:
 ";DATE$:RPT$("*",80)
1820 PRINT #5:"    ";"BILL";T
AB(19);"COMPANY";TAB(42);"PA
YMENT";TAB(66);"CHECK #"
1830 PRINT #5:CHR$(10)
1840 FOR I=1 TO PT
1850 PRINT #5:"  ";I;TAB(17)
;D$(1,TRAN(I,1));TAB(40);"$"
;
1860 PRINT #5:TRAN(I,2);TAB(
65);TRAN(I,3)
1870 NEXT I
1880 PRINT #5:CHR$(12)
1890 CALL CLEAR :: SUBEND
1900 SUB PRINT_BILL(NO_BILL,
D$(,),DATE_ST$,DATE$,CNTR$)
1910 !PRINT BILLS ON PRINTER
 ON FILE #5 PREVIOUSLY DECLA
RED
1920 CALL CLEAR :: DISPLAY A
T(1,1):"********PRINT BILLS*
********"
1930 IF D$(1,1)<>"" THEN 195
0
1940 PRINT "NO BILLS STORED!
!" :: SUBEXIT
1950 PRINT #5:RPT$("*",80):T
AB(31);"BILLS LISTING"
1960 PRINT #5:"DATE: ";DATE$
:RPT$("*",80)
1970 ULON$=CHR$(27)&CHR$(88)
:: ULOFF$=CHR$(27)&CHR$(89)
1980 !PRINT #5:RPT$(CHR$(10)
,3);ULON$;"BILL";ULOFF$;TAB(
17);ULON$;"COMP";ULOFF$;
1990 !PRINT #5:TAB(44);ULON$
;"BILL";ULOFF$;TAB(61);ULON$
;"BALANCE";ULOFF$
2000 PRINT #5:"   BILL";TAB(
20);"COMPANY";TAB(47);"BILL"
;TAB(65);"BALANCE"
2010 PRINT #5:RPT$(CHR$(10),
2)
2020 FOR I=1 TO NO_BILL
2030 PRINT #5:CHR$(10);" ";I
;TAB(18);D$(1,I);TAB(45);"$"
;D$(2,I): :"$";D$(3,I)
2040 NEXT I
2050 PRINT #5:RPT$(CHR$(10),
3);"DATE STORED--> ";DATE_ST
$
2060 "STORED LOCATION--> ";C
NTR$
2070 PRINT #5:CHR$(12)
```

```
2080 SUBEND
2090 SUB DATA_IN(NO_BILL,DAT
E_ST$,DATE$,D$(,),CNTR$)
2100 !INPUT DATA FROM CASSET
T
2110 CALL CLEAR :: OPEN #2:"
CS1",SEQUENTIAL,INTERNAL,INP
UT ,FIXED 128
2120 INPUT #2:DATE_ST$,NO_BI
LL,CNTR$
2130 FOR I=1 TO NO_BILL
2140 INPUT #2:D$(1,I),D$(2,I
),D$(3,I)
2150 NEXT I
2160 CLOSE #2
2170 IF I<30 THEN 2180 :: PR
INT "DATA IS FULL!"
2180 SUBEND
```

```
2190 SUB DATA_OUT(NO_BILL,DA
TE_ST$,DATE$,D$(,),CNTR$)
2200 DATE_ST$=DATE$
2210 !THIS OUTPUTS DATA TO C
ASSETT
2220 CALL CLEAR :: PRINT "EN
TER TAPE LOCATION"
2230 INPUT "FOR STORED DATA-
-> ":CNTR$
2240 OPEN #1:"CS1",SEQUENTIA
L,INTERNAL,OUTPUT,FIXED 128
2250 PRINT #1:DATE_ST$,NO_BI
LL,CNTR$
2260 FOR I=1 TO NO_BILL
2270 PRINT #1:D$(1,I),D$(2,I
),D$(3,I)
2280 NEXT I
2290 CLOSE #1 :: PRINT
2300 SUBEND
```

DOODLE

Create your own colorful Linear Designs with this fun and easy to use program. Change colors and directions at will. Use it to simply "Doodle" or as an educational aid by designing cars, trees etc., for teaching children image recognition. Joysticks used and you can save your creations!

```
100 REM  ****************
110 REM  *    DOODLE    *
120 REM  *   TI BASIC   *
130 REM  * BY DON BUSCH *
140 REM  *CINCINNATI,OH.*
150 REM  *COPYRIGHT 1983*
160 REM  ****************
170 REM  **INITIALIZATION**
180 CALL CLEAR
190 DIM BLK(24,32),A$(24)
200 CALL SCREEN(15)
210 REM  **INSTRUCTIONS**
220 PRINT "            DOODLE
":"            ------"::
230 PRINT "THIS PROGRAM WILL
 ALLOW YOU TO DRAW WHATEVER
YOU WISH TO"
240 PRINT "DRAW ON THE SCREE
N. YOU CAN"
250 PRINT "ALSO CHANGE THE C
OLOR OF    YOUR LINE.":::
260 PRINT "HIT "&CHR$(34)&"1
"&CHR$(34)&" TO SAVE WHAT YO
U'VE"
270 PRINT "DRAWN ON TO A CAS
SETTE.":::
280 PRINT "HIT ANY KEY FOR I
NSTRUCTIONS":::::::::
```

```
290 CALL KEY(0,KEY,STA)
300 IF STA=0 THEN 290
310 CALL CLEAR
320 CALL SCREEN(15)
330 PRINT "         DRAWING K
EYS"::
340 PRINT "      E=DRAW NORTH
":"     X=DRAW SOUTH":"
D=DRAW EAST"
350 PRINT "      S=DRAW WEST"
:"     R=DRAW NORTHEAST"
360 PRINT "      W=DRAW NORTH
WEST":"     Z=DRAW SOUTHEAST
"
370 PRINT "      C=DRAW SOUTH
WEST":" H=CHANGE LINE INTO E
RASER"::
380 PRINT "          COLOR KE
YS"::"J=BLACK        K=MEDIUM
 GREEN"
390 PRINT "I=DARK BLUE   U=L
IGHT GREEN"
400 PRINT "O=LIGHT BLUE  7=D
ARK RED":"8=CYAN         9=ME
DIUM RED"
410 PRINT "0=LIGHT RED   P=D
ARK YELLOW"
```

```
420 PRINT ",=MAGENTA      .=D
ARK GREEN":"       L=LIGHT YE
LLOW"
430 PRINT :"HIT ANY KEY TO B
EGIN DRAWING"
440 CALL KEY(0,KEY,STA)
450 IF STA=0 THEN 440
460 CALL CLEAR
470 PRINT "DO YOU WISH TO RE
PRINT DATA PREVIOUSLY STORED
 ON A"
480 INPUT "CASSETTE(Y OR N)?
":STO$
490 IF SEG$(STO$,1,1)="Y" TH
EN 1310
500 CALL CLEAR
510 REM *DEFINE CHARACTERS*
520 FOR X=33 TO 138 STEP 8
530 CALL CHAR(X,"FFFFFFFFFFF
FFFFF")
540 NEXT X
550 FOR Y=1 TO 14
560 CALL COLOR(Y,Y,1)
570 NEXT Y
580 CH=41
590 CALL CHAR(40,"18183CFFFF
3C1818")
600 CALL SCREEN(15)
610 R=12
620 C=16
630 CALL HCHAR(R,C,40)
640 REM  **KEYSCAN**
650 CALL KEY(2,K1,S1)
660 CALL KEY(1,K2,S2)
670 IF (S2=0)+(S1=0)=-2 THEN
 650
680 RR=R
690 CC=C
700 REM  **MOVEMENT**
710 IF K2=19 THEN 1170
720 IF S1<>0 THEN 740
730 K1=KT
740 IF K2<>5 THEN 770
750 R=R-1
760 GOTO 1020
770 IF K2<>2 THEN 800
780 C=C-1
790 GOTO 1020
800 IF K2<>3 THEN 830
810 C=C+1
820 GOTO 1020
830 IF K2<>4 THEN 870
840 R=R-1
850 C=C-1
860 GOTO 1020
870 IF K2<>6 THEN 910
880 R=R-1
890 C=C+1
900 GOTO 1020
910 IF K2<>15 THEN 950
920 R=R+1
930 C=C-1
940 GOTO 1020
950 IF K2<>14 THEN 990
960 R=R+1
970 C=C+1
980 GOTO 1020
990 IF S1<>0 THEN 1020
1000 R=R+1
1010 REM *DETERMINE CHAR*
          *AND IT'S COLOR*
1020 IF (K1>14)+(K1<1)=-1 TH
EN 1040
1030 CH=25+(K1*8)
1040 CALL HCHAR(RR,CC,CH)
1050 KT=K1
1060 REM **WRAP-AROUND**
1070 IF R<=24 THEN 1090
1080 R=R-24
1090 IF R>=1 THEN 1110
1100 R=R+24
1110 IF C<=32 THEN 1130
1120 C=C-32
1130 IF C>=1 THEN 1150
1140 C=C+32
1150 GOTO 630
1160 REM  **CASSETTE SAVE**
1170 FOR ROW=1 TO 24
1180 FOR COL=1 TO 32
1190 CALL GCHAR(ROW,COL,BLK(
ROW,COL))
1200 A$(ROW)=A$(ROW)&CHR$(BL
K(ROW,COL))
1210 NEXT COL
1220 NEXT ROW
1230 REM  **PRINT TO TAPE**
1240 OPEN #1:"CS1",SEQUENTIA
L,INTERNAL,OUTPUT,FIXED 192
1250 FOR ROW=1 TO 24
1260 PRINT #1:A$(ROW)
1270 NEXT ROW
1280 CLOSE #1
1290 END
1300 REM **READ FROM TAPE**
1310 OPEN #2:"CS1",SEQUENTIA
L,INTERNAL,INPUT ,FIXED 192
1320 FOR ROW=1 TO 24
1330 INPUT #2:A$(ROW)
```

```
1340 NEXT ROW
1350 CLOSE #2
1360 REM  **PRINT SCREEN**
1370 CALL CLEAR
1380 FOR ROW=1 TO 24
1390 FOR COL=1 TO 32
1400 B$=SEG$(A$(ROW),COL,1)
1410 CALL HCHAR(ROW,COL,ASC(
B$))
1420 NEXT COL
1430 NEXT ROW
1440 REM  **RESET A$=0**
1450 FOR RD=1 TO 24
1460 A$(RD)=""
1470 NEXT RD
1480 GOTO 520
```

FLASHCARDS

A fantastic program that initiates early familiarization with every letter of the Alphabet, all the numbers and keyboard symbols, in addition to creating a friendly feeeling between a child and his 1st Computer experience! All the Characters are magnified for easy recognition and if you have a speech synthesizer it will even call them off! An absolutely fantastic educational tool for toddlers to grade-schoolers.

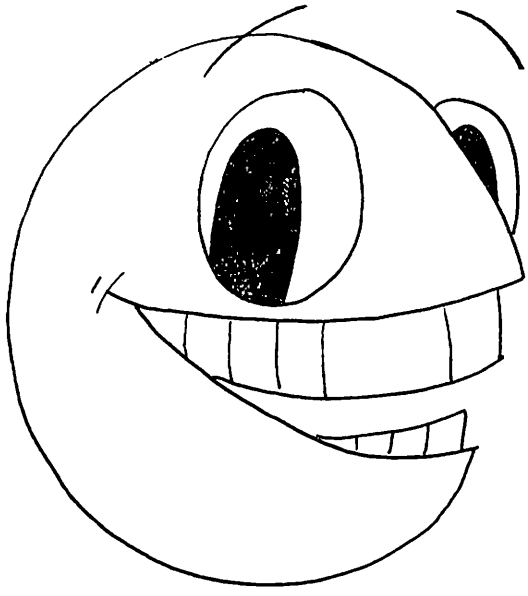
```
100 REM*****************
110 REM*  FLASH CARDS  *
120 REM*EXTENDED BASIC *
130 REM* BOB WARTMAN   *
140 REM* PARK HILLS,KY.*
150 REM*COPYRIGHT 1983 *
160 REM*****************
170 CALL CLEAR :: RANDOMIZE
:: RESTORE :: CALL MAGNIFY(2
):: DIM B(16)
180 CALL COLOR(9,16,16):: CA
LL COLOR(12,7,16)
190 CALL CHAR(123,"187E7EFFF
F7E7E18"):: Q$="PRESS ANY KE
Y TO START"
200 REM**COVER DISPLAY**
210 FOR I=1 TO 9 STEP 2 :: C
=INT(RND*14)+2 :: S=INT(RND*
25)+97
220 CALL SPRITE(#I,S,C,C*10,
1,50,50)
230 CALL KEY(0,K,L):: IF L<>
0 THEN 300
240 CALL SPRITE(#I+1,S+1,C,C
*10,1,50,-50):: NEXT I
250 IF R>1 THEN 210 :: R=1 :
: D=16
260 FOR I=19 TO 28 :: READ S
 :: CALL SPRITE(#I,S,7,R,D)
270 D=D+22 :: R=R+16 :: NEXT
 I
280 DISPLAY AT(22,2):Q$ :: C
ALL SAY(Q$):: GOTO 210
290 DATA 70,76,65,83,72,67,6
5,82,68,83
300 REM**MAIN MENU**
310 CALL DELSPRITE(ALL):: D=
0 :: DISPLAY AT(4,7)ERASE AL
L:"FLASH CARDS"
320 DISPLAY AT(9,4):"1. AUTO
 SEQUENCE" :: DISPLAY AT(11,
4):"2. PROMPT SEQUENCE"
330 DISPLAY AT(13,4):"3. PRO
MPT RANDOM" :: DISPLAY AT(15
,4):"4. PICK A CARD"
340 ACCEPT AT(20,2)BEEP VALI
DATE("1234"):CC :: IF CC=4 T
HEN 720
350 REM**DRAW CARD**
360 DISPLAY AT(22,1)ERASE AL
L:"PRESS 'ENTER' FOR MAIN ME
NU"
370 X=65 :: Y=90 :: IF CC=1
THEN 390
380 DISPLAY AT(23,1):"OR ANY
 OTHER KEY TO CONTINUE" :: I
F CC=3 THEN 680
390 FOR H=X TO Y
400 FOR CB=5 TO 18 :: CALL H
CHAR(CB,11,97,9):: NEXT CB :
: CALL CHARPAT(H,A$)
410 FOR I=1 TO 16 :: B(I)=AS
C(SEG$(A$,I,1)):: NEXT I
420 K=1 :: L=15 :: R=7 :: C=
12
430 FOR I=K TO L STEP 2 :: R
=R+1
440 IF B(I)>64 THEN 460
450 ON B(I)-47 GOTO 620,470,
480,490,500,510,520,530,540,
550
```

```
460 ON B(I)-64 GOTO 560,570,
580,590,600,610
470 CALL HCHAR(R,C+3,123)::
GOTO 620
480 CALL HCHAR(R,C+2,123)::
GOTO 620
490 CALL HCHAR(R,C+2,123,2):
: GOTO 620
500 CALL HCHAR(R,C+1,123)::
GOTO 620
510 CALL HCHAR(R,C+1,123)::
GOTO 470
520 CALL HCHAR(R,C+1,123,2):
: GOTO 620
530 CALL HCHAR(R,C+1,123,3):
: GOTO 620
540 CALL HCHAR(R,C,123):: GO
TO 620
550 CALL HCHAR(R,C,123):: GO
TO 470
560 CALL HCHAR(R,C,123):: GO
TO 480
570 CALL HCHAR(R,C,123):: GO
TO 490
580 CALL HCHAR(R,C,123,2)::
GOTO 620
590 CALL HCHAR(R,C,123,2)::
GOTO 470
600 CALL HCHAR(R,C,123,3)::
GOTO 620
610 CALL HCHAR(R,C,123,4)
620 NEXT I :: IF K=2 THEN 63
0 :: K=2 :: L=16 :: R=7 :: C
=16 :: GOTO 430
630 CALL SAY(CHR$(H)):: IF C
C=4 THEN 710 :: IF CC<>1 THE
N 670
640 FOR DELAY=1 TO 30 :: CAL
L KEY(3,K,S):: IF K=13 THEN
300
650 NEXT DELAY
660 NEXT H
670 CALL KEY(0,K,S):: IF K=1
3 THEN 300 :: IF S=0 THEN 67
0 :: IF CC=2 THEN 660
680 ON INT(RND*4)+1 GOTO 690
,700,690,690
690 H=INT(RND*26)+65 :: GOTO
 400
700 H=INT(RND*10)+48 :: GOTO
 400
710 IF D>0 THEN 740
720 DISPLAY AT(20,1)ERASE AL
L:"PRESS # OR LETTER YOU DES
IRE"
730 DISPLAY AT(21,1):"PRESS
'ENTER' FOR MAIN MENU"
740 D=1 :: CALL KEY(0,H,S)::
 IF S=0 THEN 740 :: IF H=13
THEN 300 ELSE 400
```

BYTE MAN

An excellent adaptation of the most popular video game ever written. Does anything more need to be said? The Programmer did such and excellent job that this one will really astound you! Keyboard or joysticks

```
100 REM ******************
110 REM *   BYTE MAN     *
120 REM * EXTENDED BASIC*
130 REM * BY TOM BANCHY *
140 REM *CINCINNATI,OHIO*
150 REM * COPYRIGHT 1983*
160 REM ******************
170 REM **INSTRUCTIONS**
180 DISPLAY AT(1,1)ERASE ALL
:"THE OBJECT OF 'BYTE MAN' I
S"
190 DISPLAY AT(2,1):"SIMPLE.
 YOU MOVE THE HUNGRY LITLLE
GUY AROUND THE MAZE,"
200 DISPLAY AT(4,1):"PROVIDI
NG HIM WITH DOTS TO"
210 DISPLAY AT(5,1):"GOBBLE
AND SCREENS TO CLEAR,WHILE A
T THE SAME TIME PRO-"
```



```
220 DISPLAY AT(7,1):"TECTING
 HIM FROM THE GHOSTS WHO WOU
LD LOVE TO CATCH HIM"
230 DISPLAY AT(9,1):"IN A SA
NDWICH TRAP. ONE      POINT I
S SCORED PER DOT GOB-"
240 DISPLAY AT(11,1):"BLED A
ND 500 POINTS ARE      SCORED
 FOR CLEARING A WHOLE"
250 DISPLAY AT(13,1):"SCREEN
. GOOD LUCK!!              **HI
T ANK KEY TO START**"
260 CALL KEY(0,KK,SS):: IF S
S=0 THEN 260
270 CALL CLEAR
280 REM **INITIALIZATION**
290 DIM X(2),Y(2),E(2)
300 CALL SCREEN(2):: FOR T=1
 TO 13 :: CALL COLOR(T,12,1)
:: NEXT T
310 CALL COLOR(14,6,1):: CAL
L CHAR(122,"")
320 CALL CHAR(128,RPT$("F",1
6))
330 CALL CHAR(129,"3E67E4F8F
8FC7F3E")
340 CALL CHAR(130,"3C7EFFF9F
9E7C342")
350 CALL CHAR(131,"7CE6271F1
F3FFE7C")
360 CALL CHAR(132,"42C3E79F9
FFF7E3C")
370 CALL CHAR(134,"000000181
8")
380 CALL CHAR(140,"3C7E9999F
FFFFFA5")
390 L=3
400 A=0 :: B,E(1),E(2)=1 ::
CHAR=129 :: DOT=0 :: R=16
410 C=17 :: X(1),X(2)=13 ::
Y(1)=3 :: Y(2)=30
420 REM **DRAW SCREEN**
430 RESTORE 510
440 CALL HCHAR(1,1,128,64)
450 CALL HCHAR(23,1,128,64)
460 FOR RR=1 TO 14 STEP 13 :
: FOR CC=1 TO 31 STEP 30 ::
CALL VCHAR(RR,CC,128,11)
470 CALL VCHAR(RR,CC+1,128,1
1):: NEXT CC :: NEXT RR
480 FOR DD=1 TO 9 :: READ R1
,R2,R3,R4 :: CALL HCHAR(R1,R
2,R3,R4):: NEXT DD :: CALL V
CHAR(11,13,128,4):: CALL VCH
AR(11,20,128,4)
490 FOR DD=1 TO 5 :: READ R1
,R2,R3,R4 :: CALL HCHAR(R1,R
2,R3,R4):: NEXT DD
500 REM **DATA TO DRAW**
          **SCREEN**
510 DATA 3,13,128,8,4,13,128
,8,21,13,128,8,22,13,128,8
520 DATA 6,13,128,8,7,13,128
,1,7,20,128,1,8,13,128,8
530 DATA 10,13,128,8,15,13,1
28,8,17,13,128,8
540 DATA 18,13,128,1,18,20,1
28,1,19,13,128,8
550 DATA 4,0,128,8,5,0,128,1
,5,7,128,1,6,0,128,8
560 DATA 8,0,128,8,9,0,128,1
,9,7,128,1,10,0,128,8
570 DATA 12,0,128,8,13,0,128
,8,15,0,128,8,16,0,128,1
580 DATA 16,7,128,1,17,0,128
,8,19,0,128,8,20,0,128,1
590 DATA 20,7,128,1,21,0,128
,8,5,9,16,20,10,10,10
600 FOR DD=1 TO 18 :: READ D
1,D2,D3,D4 :: FOR T=4 TO 22
STEP 18
610 CALL HCHAR(D1,T+D2,D3,D4
):: NEXT T :: NEXT DD
620 FOR CC=3 TO 30 STEP 9 ::
 CALL VCHAR(3,CC,134,20):: N
EXT CC
630 FOR T=3 TO 21 STEP 18 ::
 FOR RR=3 TO 11 STEP 4 :: CA
LL HCHAR(RR,T,134,10)
640 CALL HCHAR(RR+11,T,134,1
0):: NEXT RR :: NEXT T
650 FOR F=1 TO 4 :: READ R1
:: CALL HCHAR(R1,13,134,8)::
 NEXT F
660 CALL HCHAR(12,1,122,2)::
 CALL HCHAR(12,31,122,4):: C
ALL HCHAR(13,31,122,2)
670 DISPLAY AT(1,11):"BYTE M
AN";
680 DISPLAY AT(11,12):"SCORE
:";:: DISPLAY AT(14,14):":";
L;
690 CALL HCHAR(14,15,129)
700 CALL HCHAR(R,C,CHAR):: C
ALL HCHAR(13,3,140):: CALL H
CHAR(13,30,140)
710 GOSUB 1760
720 REM **CONTROL LOOP**
```

```
730 CALL KEY(1,K,S):: IF S<1
 OR K>5 THEN 760
740 A,B=0
750 ON (K+1)GOTO 880,760,860
,870,760,890
760 IF ((C+B)>32)+((C+B)<1)<
0 THEN CALL HCHAR(R,C,122)EL
SE 780
770 C=ABS(C+B-22):: C=C+B ::
 CALL HCHAR(R,C,CHAR):: GOTO
 1180
780 CALL GCHAR(R+A,C+B,Q)::
ON (Q-116)/6 GOTO 790,800,81
0,980
790 CALL HCHAR(R,C,122):: R=
R+A :: C=C+B :: CALL HCHAR(R
,C,CHAR):: GOTO 1180
800 A,B=0 :: CALL HCHAR(R,C,
CHAR):: GOTO 1180
810 IF A=B THEN 800
820 CALL HCHAR(R,C,122):: R=
R+A :: C=C+B
830 CALL HCHAR(R,C,CHAR):: C
ALL SOUND(-100,400,6)
840 DOT=DOT+1 :: SC=SC+1 ::
DISPLAY AT(12,12):SC;:: IF D
OT=207 THEN 910 ELSE 118
0
850 REM **CHANGE DIRECTION**
860 B=-1 :: CHAR=131 :: GOTO
 760
870 B=1 :: CHAR=129 :: GOTO
760
880 A=1 :: CHAR=130 :: GOTO
760
890 A=-1 :: CHAR=132 :: GOTO
 760
900 REM **SCREEN CLEARED**
910 FOR N=1 TO 3 :: FOR CC=1
29 TO 132
920 CALL HCHAR(R,C,CC):: CAL
L SOUND(10,1000,0)
930 CALL COLOR(12,1,16):: CA
LL COLOR(12,1,1):: NEXT CC :
: NEXT N
940 BO=BO+1
950 PRINT "GOOD JOB!!! YOU'V
E CLEARED ";BO;" BOARD";CHR$
((BO<>1)*(-51)+32)
960 SC=SC+500 :: FOR W=1 TO
800 :: NEXT W :: CALL CLEAR
:: GOTO 400
970 REM **BYTE MAN DIES BY
     TRYING TO EAT GHOST**
980 L=L-1 :: CHAR=129
990 CALL HCHAR(R,C,122):: R=
16 :: C=17 :: GOSUB 1790 ::
GOSUB 1760 :: A=0 :: B=1
1000 IF L=0 THEN 1100
1010 FOR T=1 TO 2
1020 IF E(T)=1 THEN CALL HCH
AR(X(T),Y(T),134)ELSE CALL H
CHAR(X(T),Y(T),122)
1030 NEXT T
1040 CALL GCHAR(13,3,U):: E(
1)=ABS(122-U)/12
1050 CALL GCHAR(13,30,U):: E
(2)=ABS(122-U)/12
1060 X(1),X(2)=13 :: Y(1)=3
:: Y(2)=30
1070 CALL HCHAR(13,3,140)::
CALL HCHAR(13,30,140):: DISP
LAY AT(14,15):L;
1080 GOTO 730
1090 REM **BYTE MAN LOSES**
          **3RD LIFE**
1100 DISPLAY AT(1,1)ERASE AL
L:"AHA!!! MUNCHED ONCE TOO"
1110 DISPLAY AT(2,1):"OFTEN.
YOUR PALTRY SCORE IS:    ";S
C
1120 DISPLAY AT(6,1):"HIT 'Q
' TO QUIT WHILE YOU'RE"
1130 DISPLAY AT(7,1):"AHEAD
OR HIT ANY OTHER KEY  TO TRY
 AGAIN"
1140 CALL KEY(0,K,S)
1150 IF S=0 THEN 1140
1160 IF K=81 THEN END ELSE R
UN 270
1170 REM **LOOP TO MOVE**
          **GHOSTS**
1180 READ A1,B1,A2,B2
1190 DA=DA+1 :: IF DA=136 TH
EN GOSUB 1760
1200 CALL GCHAR(X(1)+A1,Y(1)
+B1,Q1)
1210 IF Q1>128 AND Q1<133 TH
EN PP=1 :: QQ=2 :: GOTO 1310
1220 CALL GCHAR(X(2)+A2,Y(2)
+B2,Q2)
1230 IF Q2>128 AND Q2<133 TH
EN PP=2 :: QQ=1 :: GOTO 1310
1240 IF E(1)=1 THEN CALL HCH
AR(X(1),Y(1),134)ELSE CALL H
CHAR(X(1),Y(1),122)
1250 X(1)=X(1)+A1 :: Y(1)=Y(
1)+B1 :: CALL HCHAR(X(1),Y(1
),140)
```

```
1260 E(1)=ABS(122-Q1)/12
1270 IF E(2)=1 THEN CALL HCH
AR(X(2),Y(2),134)ELSE CALL H
CHAR(X(2),Y(2),122)
1280 X(2)=X(2)+A2 :: Y(2)=Y(
2)+B2 :: CALL HCHAR(X(2),Y(2
),140)
1290 E(2)=ABS(122-Q2)/12 ::
GOTO 730
1300 REM **BYTE MAN EATEN**
           **BY GHOST**
1310 L=L-1
1320 IF E(PP)=1 THEN CALL HC
HAR(X(PP),Y(PP),134)ELSE CAL
L HCHAR(X(PP),Y(PP),122)
1330 CALL HCHAR(R,C,140):: G
OSUB 1790 :: GOSUB 1760 :: I
F L=0 THEN 1100
1340 CHAR=129
1350 IF E(QQ)=1 THEN CALL HC
HAR(X(QQ),Y(QQ),134)ELSE CAL
L HCHAR(X(QQ),Y(QQ),122)
1360 CALL HCHAR(R,C,122):: R
=16 :: C=17 :: CALL GCHAR(13
,3,U)
1370 E(1)=ABS(122-U)/12
1380 X(1),X(2)=13 :: Y(1)=3
:: Y(2)=30
1390 A=0 :: B=1 :: CALL GCHA
R(13,30,U):: E(2)=ABS(122-U)
/12
1400 CALL HCHAR(13,30,140)::
 CALL HCHAR(13,3,140)
1410 DISPLAY AT(14,15):L;
1420 GOTO 730
1430 REM **DATA FOR GHOST**
         *MOVEMENT PATTERN*
1440 DATA 1,0,1,0,1,0,1,0,1,
0,1,0,1,0,1,0,1,0,1,0,1,0
1450 DATA 1,0,1,0,1,0,1,0,1,
0,1,0,1,0
1460 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1,0,1,0,-1
1470 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1
1480 DATA -1,0,-1,0,-1,0,-1,
0,0,1,0,-1,0,1,0,-1,0,1,0
1490 DATA -1,0,1,0,-1,0,-1,0
,1,0,-1,0,1,0,-1,0,1
1500 DATA 0,-1,0,1,-1,0,-1,0
,-1,0,-1,0,0,-1,0,1,0,-1,0
1510 DATA 1,0,-1,0,1,0,-1,0,
1,0,-1,0,1,0,-1,0,1
1520 DATA 0,-1,0,1,0,-1,0,1,
0,-1,0,1,-1,0,-1,0,-1,0,-1
1530 DATA 0,-1,0,-1,0,-1,0,-
1,0,0,1,0,-1,0,1,0,-1
1540 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1,0,1,0,-1
1550 DATA 0,1,0,-1,0,1,0,-1,
1,0,1,0,1,0,1,0
1560 DATA 1,0,1,0,-1,0,-1,0,
0,1,0,-1,0,1,0,-1,0,1,0,-1
1570 DATA 0,1,0,-1,0,-1,0,1,
0,-1,0,1,0,-1,0,1
1580 DATA 0,-1,0,1,-1,0,-1,0
,-1,0,-1,0,-1,0,-1,0,-1,0
1590 DATA -1,0,-1,0,-1,0,-1,
0,-1,0,-1,0,-1,0
1600 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1,0,-1,0,1
1610 DATA 0,-1,0,1,0,-1,0,1,
0,-1,0,1,1,0,1,0
1620 DATA 1,0,1,0,0,-1,0,1,0
,-1,0,1,0,-1,0,1,0,-1,0,1
1630 DATA 0,-1,0,1,0,-1,0,1,
0,-1,0,1,0,-1,0,1
1640 DATA 0,-1,0,1,-1,0,-1,0
,-1,0,-1,0,-1,0,-1,0,-1,0
1650 DATA -1,0,0,1,0,-1,0,1,
0,-1,0,1,0,-1,0,1,0,-1
1660 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1,0,1,0,-1
1670 DATA 1,0,1,0,-1,0,-1,0,
-1,0,-1,0,-1,0,-1,0
1680 DATA 0,1,0,-1,0,1,0,-1,
0,1,0,-1,0,1,0,-1,0,-1,0,1
1690 DATA 0,-1,0,1,0,-1,0,1,
0,-1,0,1,-1,0,-1,0
1700 DATA -1,0,-1,0,0,-1,0,1
,0,-1,0,1,0,-1,0,1,0,-1,0
1710 DATA 1,0,-1,0,1,0,-1,0,
1,0,-1,0,1,0,-1,0,1
1720 DATA 0,-1,0,1,1,0,1,0,1
,0,1,0,1,0,1,0,1,0,1,0,1,0
1730 DATA 1,0,1,0,1,0,1,0,1,
0,1,0,1,0
1740 DATA 1,0,1,0,1,0,1,0,1,
0,1,0
1750 REM*RESTORE DATA FOR*
       **GHOST MOVEMENT**
1760 RESTORE 1440
1770 DA=0 :: RETURN
1780 REM*SOUND ROUTINE FOR*
       **BYTE MAN'S DEATH*
1790 FOR T=300 TO 110 STEP -
5 :: CALL SOUND(-500,T,5,T+3
0,5):: NEXT T
1800 CALL SOUND(100,-6,0)
1810 RETURN
```

ARITHMETIC EXERCISE

Unique in it's use of sprites/airplanes in an exercise to drill students in any of the four Basic Math Groups; + —× ÷. There are two levels in each group, selected by the student. Ten problems are presented. If the student misses 3 or more, the Computer recycles that set. Great for helping parents determine students' weak area.

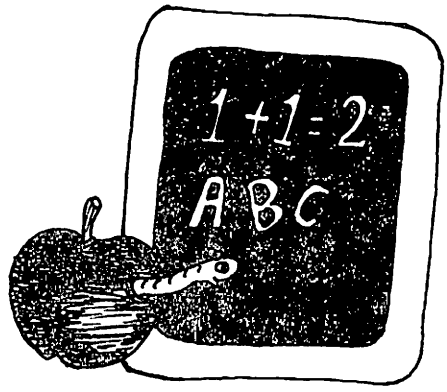
```
100 REM*****************
110 REM*  ARITHMETIC    *
120 REM*   EXERCISE     *
130 REM* EXTENDED BASIC*
140 REM*RICHARD PROCTOR*
150 REM*  DAYTON OHIO   *
160 REM* COPYRIGHT 1983*
170 REM*****************
180 CALL CLEAR :: CALL SCREE
N(16):: RANDOMIZE
190 CALL CHAR(104,"134321541
2ACDE87")
200 FOR I=3 TO 30 :: CALL HC
HAR(1,I,104):: NEXT I
210 FOR I=1 TO 24 :: CALL VC
HAR(I,30,104):: NEXT I
220 FOR I=30 TO 3 STEP -1 ::
 CALL HCHAR(24,I,104):: NEXT
 I
230 FOR I=24 TO 1 STEP -1 ::
 CALL VCHAR(I,3,104):: NEXT
I
240 DISPLAY AT(9,5)SIZE(19):
"ARITHMETIC EXERCISE"
250 DISPLAY AT(19,4)SIZE(22)
:"PRESS ANY KEY TO BEGIN"
260 DEF XX=INT(14*RND+2)
270 CALL KEY(0,K,S):: CALL C
OLOR(10,1,XX):: CALL COLOR(1
0,XX,1)
280 IF S=0 THEN 270 :: CALL
COLOR(9,3,3,11,10,5,12,2,3,1
3,2,5,14,2,5)
290 CALL CHAR(96,"",112,"000
81020C0C08")
300 CALL CHAR(113,"184010218
4424842",114,"02421481048128
42")
310 CALL CHAR(120,"000000000
00F0FFF",121,"00000F0F0FFFFF
FF")
320 CALL CHAR(122,"3F3FFFFFF
FFFFFFF",123,"FFE0FFFFFFFFFF
FF")
330 CALL CHAR(124,"F800C0C0C
0FFFFFF",125,"0000000000F0F0
FF")
340 CALL CHAR(126,"000000000
00000FF",127,"FF",128,"00000
001")
350 CALL CHAR(129,"3F7FFEFDF
F7F3F3F",130,"983878F0E0FFFF
FF")
360 CALL CHAR(131,"000000000
0F8F8F8",132,"0000000103070F
1F")
370 CALL CHAR(133,"3F7EFCFCF
8F0E0C0",134,"00000000010307
0F")
380 CALL CHAR(135,"1E3C7CF8F
0E0C080",136,"00000000000103
07")
390 CALL CHAR(137,"0E1C3870E
0C08",138,"0000000080C08")
400 CALL CHAR(139,"0000030F3
FFFFF3F",140,"000000C0FFFFFF
F8")
410 CALL CHAR(141,"060F0F1FF
FFFFF",142,"0000010005828F4F
")
420 CALL CHAR(143,"000000007
F54F762")
430 CALL CLEAR
440 DISPLAY AT(12,4):"WHAT I
S YOUR NAME? ":N$ :: ACCEPT
AT(15,6):N$
450 CALL CLEAR :: DISPLAY AT
(5,4):N$;","
460 DISPLAY AT(7,2):"WHICH W
OULD YOU LIKE TO DO?" :: DIS
PLAY AT(9,24):"PRESS"
470 DISPLAY AT(12,6):"ADDITI
ON";TAB(25);"A"
480 DISPLAY AT(14,6):"SUBTRA
CTION";TAB(25);"S"
490 DISPLAY AT(16,6):"MULTIP
LICATION";TAB(25);"M"
500 DISPLAY AT(18,6):"DIVISI
ON";TAB(25);"D"
510 CALL KEY(0,K,S):: IF K=6
5 THEN 530 :: IF K=83 THEN 7
90
520 IF K=77 THEN 1320 :: IF
K=68 THEN 1050 ELSE 510
530 CALL CLEAR :: DISPLAY AT
(3,4):N$;","
540 DISPLAY AT(5,1):"THE COM
PUTER WILL USE ONE OF"
550 DISPLAY AT(6,1):"TWO FOR
MS, EITHER"
```

```
560 DISPLAY AT(8,10):"A + B
= ?" :: DISPLAY AT(10,7):"OR
"
570 DISPLAY AT(12,13):"A" ::
 DISPLAY AT(13,11):"+ B"
580 DISPLAY AT(14,11):"___"
:: DISPLAY AT(15,13):"?"
590 DISPLAY AT(17,1):"THERE
WILL BE TEN PROBLEMS"
600 DISPLAY AT(20,2):"FOR EA
SY PROBLEMS PRESS 1"
610 DISPLAY AT(22,2):"FOR HA
RD PROBLEMS PRESS 2"
620 CALL KEY(0,K,S):: IF K=4
9 THEN 650
630 IF K<>50 THEN 620 :: C=0
 :: R=0 :: W=0 :: GOSUB 1590
640 D1=INT(8999*RND)+1000 ::
 D2=INT(8999*RND)+1000 :: GO
TO 670
650 C=0 :: R=0 :: W=0 :: GOS
UB 1590
660 D1=INT(89*RND)+10 :: D2=
INT(89*RND)+10
670 D3=D1+D2 :: C=C+1 :: Z=I
NT(2*RND)+1 :: IF Z=1 THEN 7
00
680 DISPLAY AT(11,10):D1 ::
DISPLAY AT(11,15):" +" :: DI
SPLAY AT(11,17):D2
690 DISPLAY AT(11,22):" =" :
: DISPLAY AT(11,24):" ?" ::
GOTO 720
700 DISPLAY AT(9,18):D1 :: D
ISPLAY AT(10,17):"+" :: DISP
LAY AT(10,18):D2
710 DISPLAY AT(11,17):"_____
_" :: DISPLAY AT(12,22):"?"
720 ACCEPT AT(15,16)BEEP SIZ
E(8):A :: IF A=D3 THEN 730 :
: GOSUB 1800 :: GOTO 740
730 GOSUB 1680
740 IF C>9 THEN 780
750 CALL HCHAR(9,18,32,8)::
CALL HCHAR(10,17,32,8):: CAL
L HCHAR(11,12,32,18)
760 CALL HCHAR(12,22,32,3)::
 CALL HCHAR(15,14,32,16)
770 IF K=49 THEN 660 ELSE 64
0
780 GOSUB 1870 :: IF R<8 THE
N 530 ELSE 1900
790 CALL CLEAR :: DISPLAY AT
(3,4):N$;","
800 DISPLAY AT(5,1):"THE COM
PUTER WILL USE ONE OF"
810 DISPLAY AT(6,1):"TWO FOR
MS, EITHER"
820 DISPLAY AT(8,10):"A - B
= ?" :: DISPLAY AT(10,7):"OR
"
830 DISPLAY AT(12,13):"A" ::
 DISPLAY AT(13,11):"- B"
840 DISPLAY AT(14,11):"___"
:: DISPLAY AT(15,13):"?"
850 DISPLAY AT(17,1):"THERE
WILL BE TEN PROBLEMS"
860 DISPLAY AT(20,2):"FOR EA
SY PROBLEMS PRESS 1"
870 DISPLAY AT(22,2):"F0R HA
RD PROBLEMS PRESS 2"
880 CALL KEY(0,K,S):: IF K=4
9 THEN 910
890 IF K<>50 THEN 880 :: C=0
 :: R=0 :: W=0 :: GOSUB 1590
900 D1=INT(8999*RND)+1000 ::
 D2=INT(899*RND)+100 :: GOTO
 930
910 C=0 :: R=0 :: W=0 :: GOS
UB 1590
920 D1=INT(89*RND)+10 :: D2=
INT(9*RND)+1
930 D3=D1-D2 :: C=C+1 :: Z=I
NT(2*RND)+1 :: IF Z=1 THEN 9
60
940 DISPLAY AT(11,10):D1 ::
DISPLAY AT(11,15):" -" :: DI
SPLAY AT(11,17):D2
950 DISPLAY AT(11,21):" =" :
: DISPLAY AT(11,23):" ?" ::
GOTO 980
960 DISPLAY AT(9,18):D1 :: D
ISPLAY AT(10,17):"-" :: DISP
LAY AT(10,19):D2
970 DISPLAY AT(11,17):"_____
_" :: DISPLAY AT(12,22):" ?"
980 ACCEPT AT(15,16)BEEP SIZ
E(8):A :: IF A=D3 THEN 990 :
: GOSUB 1800 :: GOTO 100
0
990 GOSUB 1680
1000 IF C>9 THEN 1040
1010 CALL HCHAR(9,19,32,8)::
 CALL HCHAR(10,18,32,10):: C
ALL HCHAR(11,12,32,18)
1020 CALL HCHAR(12,22,32,23)
:: CALL HCHAR(15,14,32,16)
1030 IF K=49 THEN 920 ELSE 9
00
```

```
1040 GOSUB 1870 :: IF R<8 TH
EN 790 ELSE 1900
1050 CALL CLEAR :: DISPLAY A
T(2,4):N$;","
1060 DISPLAY AT(4,1):"THE CO
MPUTER WILL USE ONE OF"
1070 DISPLAY AT(5,1):"TWO FO
RMS, EITHER"
1080 DISPLAY AT(8,10):"A / B
 = ?" :: DISPLAY AT(10,7):"O
R"
1090 DISPLAY AT(12,13):"__?_
_" :: DISPLAY AT(13,11):"B )
 A"
1100 DISPLAY AT(16,1):"THE C
OMPUTER IGNORES ALL"
1110 DISPLAY AT(17,1):"REMAI
NDERS AND DECIMALS"
1120 DISPLAY AT(20,1):"THERE
 WILL BE TEN PROBLEMS"
1130 DISPLAY AT(22,2):"FOR E
ASY PROBLEMS PRESS 1"
1140 DISPLAY AT(24,2):"FOR H
ARD PROBLEMS PRESS 2"
1150 CALL KEY(0,K,S):: IF K=
49 THEN 1180
1160 IF K<>50 THEN 1150 :: C
=0 :: R=0 :: W=0 :: GOSUB 15
90
1170 D1=INT(8999*RND)+1000 :
: D2=INT(89*RND)+10 :: GOTO
1200
1180 C=0 :: R=0 :: W=0 :: GO
SUB 1590
1190 D1=INT(89*RND)+10 :: D2
=INT(9*RND)+1
1200 D3=INT(D1/D2):: C=C+1 :
: Z=INT(2*RND)+1 :: IF Z=1 T
HEN 1230
1210 DISPLAY AT(11,10):D1 ::
 DISPLAY AT(11,15):" /" :: D
ISPLAY AT(11,17):D2
1220 DISPLAY AT(11,20):" ="
:: DISPLAY AT(11,22):" ?" ::
 GOTO 1250
1230 DISPLAY AT(10,21):"?" :
: DISPLAY AT(11,16):"______"
1240 DISPLAY AT(12,13):D2 ::
 DISPLAY AT(12,16):")" :: DI
SPLAY AT(12,17):D1
1250 ACCEPT AT(15,16)BEEP SI
ZE(8):A :: IF A=D3 THEN 1260
 :: GOSUB 1800 :: GOTO 1
270
1260 GOSUB 1680
1270 IF C>9 THEN 1310
1280 CALL HCHAR(10,22,32,3):
: CALL HCHAR(11,10,32,20)
1290 CALL HCHAR(12,12,32,12)
:: CALL HCHAR(15,14,32,16)
1300 IF K=49 THEN 1190 ELSE
1170
1310 GOSUB 1870 :: IF R<8 TH
EN 1050 ELSE 1900
1320 CALL CLEAR :: DISPLAY A
T(3,4):N$;","
1330 DISPLAY AT(5,1):"THE CO
MPUTER WILL USE ONE OF"
1340 DISPLAY AT(6,1):"TWO FO
RMS, EITHER"
1350 DISPLAY AT(8,10):"A X B
 = ?" :: DISPLAY AT(10,7):"O
R"
1360 DISPLAY AT(12,13):"A" :
: DISPLAY AT(13,11):"X B"
1370 DISPLAY AT(14,11):"___"
 :: DISPLAY AT(15,13):"?"
1380 DISPLAY AT(17,1):"THERE
 WILL BE TEN PROBLEMS"
1390 DISPLAY AT(20,2):"FOR E
ASY PROBLEMS PRESS 1"
1400 DISPLAY AT(22,2):"FOR H
ARD PROBLEMS PRESS 2"
1410 CALL KEY(0,K,S):: IF K=
49 THEN 1440
1420 IF K<>50 THEN 1410 :: C
=0 :: R=0 :: W=0 :: GOSUB 15
90
1430 D1=INT(899*RND)+100 ::
D2=INT(899*RND)+100 :: GOTO
1460
1440 C=0 :: R=0 :: W=0 :: GO
SUB 1590
1450 D1=INT(9*RND)+1 :: D2=I
NT(9*RND)+1
1460 D3=D1*D2 :: C=C+1 :: Z=
INT(2*RND)+1 :: IF Z=1 THEN
1490
1470 DISPLAY AT(11,10):D1 ::
 DISPLAY AT(11,14):" X" :: D
ISPLAY AT(11,16):D2
1480 DISPLAY AT(11,20):" ="
:: DISPLAY AT(11,22):" ?" ::
 GOTO 1510
1490 DISPLAY AT(9,18):D1 ::
DISPLAY AT(10,17):"X" :: DIS
PLAY AT(10,18):D2
1500 DISPLAY AT(11,17):"____
_" :: DISPLAY AT(12,21):"?"
```

```
1510 ACCEPT AT(15,16)BEEP SI
ZE(8):A :: IF A=D3 THEN 1530
1520 GOSUB 1800 :: GOTO 1540
1530 GOSUB 1680
1540 IF C>9 THEN 1580
1550 CALL HCHAR(9,19,32,8)::
 CALL HCHAR(10,18,32,10):: C
ALL HCHAR(11,12,32,18)
1560 CALL HCHAR(12,21,32,3):
: CALL HCHAR(15,14,32,16)
1570 IF K=49 THEN 1450 ELSE
1430
1580 GOSUB 1870 :: IF R<8 TH
EN 1320 ELSE 1900
1590 CALL CLEAR :: CALL SCRE
EN(5):: CALL HCHAR(23,1,96,6
4)
1600 CALL HCHAR(24,2,127,7)
1610 FOR Q=1 TO 21 :: READ X
,Y,CC :: CALL HCHAR(X,Y,CC):
: NEXT Q :: RESTORE 1620
1620 DATA 23,2,120,23,3,121,
23,4,122,23,5,123,23,6,124,2
3
1630 DATA 7,125,23,8,126,22,
3,128,22,4,129,22,5,130,22
1640 DATA 6,131,21,4,132,21,
5,133,20,5,134,20,6,135,19,6
1650 DATA 136,19,7,137,18,7,
136,18,8,137,17,8,136
1660 DATA 17,9,138
1670 RETURN
1680 CALL SPRITE(#1,139,2,13
,237,0,-10,#2,140,2,13,242,0
,-10)
1690 CALL SPRITE(#3,141,2,13
,247,0,-10)
1700 FOR M=1 TO 3 :: CALL SO
UND(350,-5,0,205,8,175,8,110
,0)
1710 CALL HCHAR(17,9,112)::
CALL HCHAR(17,9,138):: NEXT
M
1720 CALL SOUND(1625,1100,7,
232,6,125,7,-5,3):: CALL DEL
SPRITE(ALL)
1730 CALL SPRITE(#4,142,2,10
,178,25,-11,#5,143,2,14,184,
25,-11)
1740 CALL SPRITE(#6,141,2,18
,190,25,-11)
1750 FOR D=1 TO 360 :: NEXT
D
1760 CALL SOUND(750,-6,0,205
,4,175,5,112,6):: CALL DELSP
RITE(ALL)
1770 CALL HCHAR(22,14,113)::
 CALL HCHAR(22,15,114)
1780 CALL HCHAR(22,16,141)::
 FOR D=1 TO 25 :: NEXT D
1790 CALL HCHAR(22,14,142)::
 CALL HCHAR(22,15,143):: R=R
+1 :: RETURN
1800 CALL SPRITE(#1,139,2,13
,237,0,-10,#2,140,2,13,242,0
,-10)
1810 CALL SPRITE(#3,141,2,13
,247,0,-10):: FOR D=1 TO 125
 :: NEXT D
1820 FOR X=1 TO 3 :: CALL SO
UND(350,-5,0,205,8,175,8,110
,0)
1830 CALL HCHAR(17,9,112)::
CALL HCHAR(17,9,138):: NEXT
X
1840 FOR D=1 TO 1200 :: NEXT
 D :: CALL DELSPRITE(ALL)
1850 DISPLAY AT(19,10):"ANSW
ER IS" :: DISPLAY AT(19,20):
D3 :: FOR D=1 TO 750
1860 NEXT D :: CALL HCHAR(19
,10,32,20):: W=W+1 :: RETURN
1870 CALL CLEAR :: CALL SCRE
EN(16):: DISPLAY AT(6,4):"NU
MBER CORRECT ";R
1880 DISPLAY AT(8,4):"NUMBER
 INCORRECT ";W
1890 FOR T=1 TO 400 :: NEXT
T :: RETURN
1900 IF R<9.5 THEN 2000 :: D
ISPLAY AT(11,6):N$;","
1910 DISPLAY AT(13,4):"YOU D
ID GREAT"
1920 CALL SOUND(130,573,6)::
 CALL SOUND(130,659,6):: CAL
L SOUND(130,698,6)
1930 CALL SOUND(260,784,6)::
 CALL SOUND(130,659,6)
1940 CALL SOUND(650,784,6)::
 FOR D=1 TO 100 :: NEXT D
1950 CALL SOUND(130,587,3)::
 CALL SOUND(130,740,3):: CAL
L SOUND(130,784,3)
1960 CALL SOUND(260,880,3)::
 CALL SOUND(130,740,3):: CAL
L SOUND(650,880,3)
```

```
1970 FOR D=1 TO 100 :: NEXT
D :: CALL SOUND(130,659,0)
1980 CALL SOUND(130,831,0)::
 CALL SOUND(130,880,0):: CAL
L SOUND(260,988,0)
1990 CALL SOUND(130,831,0)::
 CALL SOUND(780,988,0)
2000 DISPLAY AT(18,2):"WANT
TO PLAY AGAIN? (Y/N)"
2010 CALL KEY(0,K,S):: IF K=
89 THEN 450 :: IF K<>78 THEN
 2010 :: CALL CLEAR
2020 END
```



SPELLING EXERCISE

The use of Speech truly enhances the value of and interest in this program. It will accept up to 30 words of 15 letters or less. The Computer than says the word as it prints it on the screen. The student determines how long the word appears on the screen. Then he must type in the correct spelling to recieve a graphic reward for his efforts. Youngsters (and some oldsters too!) will really benefit from this program.

```
100 REM ********************
110 REM *SPELLING EXERCISE*
120 REM *      TI BASIC     *
130 REM *  TE-2 W/SPEECH    *
140 REM * RICHARD PROCTOR  *
150 REM *    DAYTON OHIO    *
160 REM * COPYRIGHT 1983   *
170 REM ********************
180 CALL CLEAR
190 CALL SCREEN(16)
200 DIM A$(30),RS$(15)
210 L=2
220 P=3
230 OPEN #2:"SPEECH",OUTPUT
240 CALL CHAR(104,"312354762
4324534")
250 CALL CHAR(105,"FF00FF00F
F00FF00")
260 DATA 2,8,9,SPELLING EXER
CISE,18,9,INSTRUCTIONS Y/N
270 GOSUB 3080
280 GOSUB 2840
290 DEF XX=INT(14*RND+2)
300 CALL KEY(0,K,S)
310 CALL COLOR(10,XX,1)
320 CALL COLOR(10,1,XX)
330 IF K=78 THEN 450
340 IF K<>89 THEN 300
350 CALL CLEAR
360 CALL SCREEN(11)
370 PRINT "WHEN THE SCREEN D
ISPLAYS '?'TYPE A WORD THEN
PRESS ENTER":::::
380 PRINT "A MAXIMUM OF 30 W
ORDS CAN BEENTERED.  THE WOR
DS CAN BE"
390 PRINT "TO 15 LETTERS LON
G.":::::
400 PRINT "IF YOU WANT TO ST
OP BEFORE  YOU GET TO 30 WOR
DS JUST"
410 PRINT "PRESS ENTER TWICE
":::::::
420 FOR D=1 TO 4000
430 NEXT D
440 REM  PROGRAM RUN
450 CALL CLEAR
460 CALL SCREEN(16)
470 DATA 1,6,9,CHOOSE WORD L
IST
480 RESTORE 470
490 GOSUB 3080
500 CALL HCHAR(7,9,105,16)
510 DATA 6,12,7,PRESS,12,18,
TO,16,7,1,16,12,LOAD TAPE FI
LE,18,7,2
520 DATA 18,12,TYPE NEW WORD
S
530 RESTORE 510
540 GOSUB 3080
550 GOSUB 2840
560 CALL KEY(0,K,S)
570 CALL COLOR(10,XX,1)
580 CALL COLOR(10,1,XX)
590 IF K=50 THEN 690
```

```
600 IF K<>49 THEN 560
610 CALL CLEAR
620 OPEN #1:"CS1",INTERNAL,F
IXED,SEQUENTIAL,INPUT
630 INPUT #1:Q
640 FOR I=1 TO Q
650 INPUT #1:A$(I)
660 NEXT I
670 CLOSE #1
680 GOTO 750
690 CALL CLEAR
700 FOR I=1 TO 30
710 INPUT A$(I)
720 IF A$(I)="" THEN 740
730 NEXT I
740 Q=I
750 CALL CLEAR
760 DATA 1,4,7,LEVEL OF DIFF
ICULITY
770 RESTORE 760
780 GOSUB 3080
790 CALL HCHAR(5,7,105,20)
800 DATA 10,9,9,PRESS,9,19,F
OR,13,11,1,13,18,SPEEDY
810 DATA 15,11,2,15,18,FAST,
17,11,3,17,18,MEDIUM,19,11,4
,19,18,SLOW
820 RESTORE 800
830 GOSUB 3080
840 GOSUB 2840
850 CALL KEY(0,K,S)
860 CALL COLOR(10,XX,1)
870 CALL COLOR(10,1,XX)
880 IF (K<49)+(K>52)=-1 THEN
 850
890 D=((K-48)^2*K)*2
900 REM   CREATE SCENERY
910 CALL COLOR(9,7,3)
920 CALL COLOR(13,4,7)
930 CALL COLOR(14,3,1)
940 CALL COLOR(15,3,1)
950 CALL COLOR(16,3,1)
960 CALL CHAR(96,"3C7EFFFFFF
FF7E3C")
970 CALL CHAR(91,"00001F3F7F
7F383C")
980 CALL CHAR(92,"C0787CF8E0
C080C0")
990 CALL CHAR(93,"00233F1F1F
3F3330")
1000 CALL CHAR(94,"1018CCFEF
EF6D818")
1010 CALL CHAR(106,"FFFF0000
FFFF0000")
1020 CALL CHAR(129,"24315432
64363231")
1030 CALL CHAR(136,"130D1704
4B3354AB")
1040 CALL CHAR(137,"00000000
000012AD")
1050 CALL CHAR(138,"80A060A0
70A0D428")
1060 CALL CHAR(139,"DA96B860
FABC68DD")
1070 CALL CHAR(144,"EB56BDDA
6AB4C820")
1080 CALL CHAR(145,"E9BED424
00000000")
1090 CALL CHAR(146,"66B840E0
80E058FE")
1100 CALL CHAR(147,"806090F0
A8806080")
1110 CALL CHAR(148,"BD2A1157
14010000")
1120 CALL CHAR(149,"EDAD7249
A6050A01")
1130 CALL CHAR(150,"2B374A15
04020900")
1140 CALL CHAR(151,"0108031D
03190A2D")
1150 CALL CHAR(159,"FFFFFFFF
FFFFFFFF")
1160 CALL CHAR(158,"BDCAEFEF
757FE56B")
1170 CALL CHAR(157,"EFEF74B5
676EF67F")
1180 CALL CHAR(155,"806090FA
AE59F6AB")
1190 CALL CHAR(156,"0105522E
1936B7CE")
1200 CALL CHAR(152,"155F360B
17156B9D")
1210 CALL CHAR(153,"8060A0C0
A9D6DF65")
1220 CALL CHAR(154,"00000040
A4EAB4FF")
1230 CALL CLEAR
1240 REM  CREATE PICTURE
1250 CALL VCHAR(1,2,129,72)
1260 CALL VCHAR(1,30,129,72)
1270 RESTORE 1320
1280 FOR I=1 TO 31
1290 READ R,C,CC,RC
1300 CALL HCHAR(R,C,CC,RC)
1310 NEXT I
1320 DATA 23,1,159,64,1,1,15
8,6,1,25,158,7,2,1,158
```

```
1330 DATA 7,2,24,158,8,3,1,1
58,9,3,23,158,9,4,1,158,11
1340 DATA 4,24,158,9,5,1,158
,11,5,22,158,10,6,1,158
1350 DATA 9,6,21,158,11,7,1,
158,10,7,22,158,10,8,1,158,9
1360 DATA 8,23,158,10,9,1,15
8,8,9,25,158,9,10,1,158
1370 DATA 6,10,25,158,7,11,1
,158,4,11,27,158,5,12,1,158,
3
1380 DATA 12,29,158,3,21,4,1
57,2,20,4,157,2,22,3,157
1390 DATA 4,22,28,157,4,21,2
9,157,2,20,29,157,2
1400 FOR I=1 TO 35
1410 READ R,C,CC
1420 CALL HCHAR(R,C,CC)
1430 NEXT I
1440 DATA 1,7,155,5,12,147,2
2,7,155,1,24,156,2,23,156
1450 DATA 5,21,156,22,27,156
,4,23,152,2,8,153,2,9,154
1460 DATA 3,10,153,3,11,154,
11,5,144,11,5,145,10,7,144
1470 DATA 10,8,145,8,9,144,8
,10,145,6,10,146,9,23,148
1480 DATA 9,24,149,11,25,148
,11,26,149,12,27,148,12,28
1490 DATA 149,7,21,150,8,22,
150,20,28,151,21,28,136
1500 DATA 19,29,137,19,5,137
,20,6,138,21,6,139,22,8,91,2
2,9,92
1510 DATA 1,12,10,SPELL
1520 RESTORE 1510
1530 GOSUB 3080
1540 J=1
1550 CALL HCHAR(14,12,32,17)
1560 CALL HCHAR(15,12,32,17)
1570 FOR I=1 TO LEN(A$(J))
1580 CALL HCHAR(14,I+12,ASC(
SEG$(A$(J),I,1)))
1590 NEXT I
1600 PRINT #2:"SPELL",A$(J)
1610 FOR D=1 TO D
1620 NEXT D
1630 CALL HCHAR(14,11,32,17)
1640 CALL HCHAR(15,13,106,LE
N(A$(J)))
1650 FOR I=1 TO LEN(A$(J))
1660 CALL KEY(0,K,S)
1670 IF S=0 THEN 1660
1680 IF K<65 THEN 1700
1690 IF K<91 THEN 1720
1700 CALL SOUND(100,-2,2)
1710 GOTO 1660
1720 RS$(I)=CHR$(K)
1730 CALL HCHAR(14,I+12,K)
1740 NEXT I
1750 FOR I=1 TO LEN(A$(J))
1760 IF RS$(I)<>SEG$(A$(J),I
,1)THEN 1790
1770 NEXT I
1780 GOTO 1830
1790 CALL SOUND(500,-1,2)
1800 CALL SOUND(500,-2,2)
1810 CALL HCHAR(14,12,32,17)
1820 GOTO 1550
1830 REM  PLACE FRUIT
1840 IF L=4 THEN 1980
1850 IF L=6 THEN 2080
1860 IF L=8 THEN 2180
1870 IF L=10 THEN 2280
1880 IF P=7 THEN 1920
1890 IF P>7 THEN 1930
1900 GOSUB 2970
1910 GOTO 2350
1920 P=25
1930 IF P=29 THEN 1960
1940 GOSUB 2970
1950 GOTO 2350
1960 L=4
1970 P=2
1980 IF P=10 THEN 2020
1990 IF P>10 THEN 2030
2000 GOSUB 2970
2010 GOTO 2350
2020 P=24
2030 IF P=30 THEN 2060
2040 GOSUB 2970
2050 GOTO 2350
2060 L=6
2070 P=3
2080 IF P=9 THEN 2120
2090 IF P>9 THEN 2130
2100 GOSUB 2970
2110 GOTO 2350
2120 P=21
2130 IF P=31 THEN 2160
2140 GOSUB 2970
2150 GOTO 2350
2160 L=8
2170 P=2
2180 IF P=8 THEN 2220
2190 IF P>8 THEN 2230
2200 GOSUB 2970
2210 GOTO 2350
2220 P=22
```

```
2230 IF P=30 THEN 2260
2240 GOSUB 2970
2250 GOTO 2350
2260 L=10
2270 P=3
2280 IF P=7 THEN 2320
2290 IF P>7 THEN 2330
2300 GOSUB 2970
2310 GOTO 2350
2320 P=25
2330 IF P=29 THEN 2380
2340 GOSUB 2970
2350 IF J>30 THEN 2380
2360 IF A$(J)="" THEN 2380
2370 GOTO 1550
2380 FOR C=8 TO 24 STEP 2
2390 CALL HCHAR(22,C,32)
2400 CALL HCHAR(22,C+1,93)
2410 CALL HCHAR(22,C+2,94)
2420 CALL HCHAR(22,C+1,32)
2430 CALL HCHAR(22,C+2,91)
2440 CALL HCHAR(22,C+3,92)
2450 NEXT C
2460 GOSUB 3160
2470 DATA 4,16,8,VERY GOOD!!
,17,8,YOU DESERVE A HUG!
2480 DATA 18,8,WANT TO PLAY
AGAIN?,19,12,Y OR N
2490 RESTORE 2470
2500 GOSUB 3080
2510 CALL KEY(0,K,S)
2520 IF K=78 THEN 2680
2530 IF K<>89 THEN 2510
2540 CALL CLEAR
2550 DATA 6,9,7,PRESS,9,17,T
O,11,9,1,11,13
2560 DATA USE SAME WORDS,13,
9,2,13,13,INPUT NEW ONES
2570 RESTORE 2550
2580 GOSUB 3080
2590 GOSUB 2840
2600 L=2
2610 P=3
2620 J=1
2630 CALL KEY(0,K,S)
2640 CALL COLOR(10,XX,1)
2650 CALL COLOR(10,1,XX)
2660 IF K=49 THEN 750
2670 IF K=50 THEN 690 ELSE 2
630
2680 CALL CLEAR
2690 DATA 6,9,4,PRESS,9,15,T
O,11,6,1,11,12
2700 DATA SAVE WORDS ON TAPE
,13,6,2,13,12,END PROGRAM
2710 RESTORE 2690
2720 GOSUB 3080
2730 CALL KEY(0,K,S)
2740 IF K=50 THEN 2820
2750 IF K<>49 THEN 2730
2760 OPEN #1:"CS1",INTERNAL,
SEQUENTIAL,OUTPUT,FIXED
2770 PRINT #1:Q
2780 FOR I=1 TO Q
2790 PRINT #1:A$(I)
2800 NEXT I
2810 CLOSE #1
2820 CALL CLEAR
2830 END
2840 FOR I=3 TO 30
2850 CALL HCHAR(1,I,104)
2860 NEXT I
2870 FOR I=1 TO 24
2880 CALL HCHAR(I,30,104)
2890 NEXT I
2900 FOR I=30 TO 3 STEP -1
2910 CALL HCHAR(24,I,104)
2920 NEXT I
2930 FOR I=24 TO 1 STEP -1
2940 CALL HCHAR(I,3,104)
2950 NEXT I
2960 RETURN
2970 CALL SOUND(250,659,0)
2980 CALL SOUND(250,659,0)
2990 CALL SOUND(250,587,0)
3000 CALL SOUND(250,587,0)
3010 CALL SOUND(750,523,0)
3020 FOR X=1 TO 100
3030 NEXT X
3040 CALL HCHAR(L,P+1,96)
3050 P=P+2
3060 J=J+1
3070 RETURN
3080 READ NO
3090 FOR I=1 TO NO
3100 READ ROW,COL,T$
3110 FOR J=0 TO LEN(T$)-1
3120 CALL HCHAR(ROW,COL+J,AS
C(SEG$(T$,J+1,1)))
3130 NEXT J
3140 NEXT I
3150 RETURN
3160 D=185
3170 CALL SOUND(D,196,0)
3180 CALL SOUND(D,392,0)
3190 CALL SOUND(D,196,0)
3200 CALL SOUND(D,392,0)
```

```
3210 CALL SOUND(D,196,0)
3220 CALL SOUND(D,523,0,659,
0)
3230 CALL SOUND(D,523,0,659,
0)
3240 CALL SOUND(D,30000,30)
3250 CALL SOUND(D,262,0)
3260 CALL SOUND(D,523,0)
3270 CALL SOUND(D,262,0)
3280 CALL SOUND(D,523,0)
3290 CALL SOUND(D,262,0)
3300 CALL SOUND(D,784,0,988,
0)
3310 CALL SOUND(D,784,0,988,
0)
3320 CALL SOUND(D,30000,30)
3330 CALL SOUND(D,392,0)
3340 CALL SOUND(D,784,0)
3350 CALL SOUND(D,392,0)
3360 CALL SOUND(D,784,0)
3370 CALL SOUND(D,392,0)
3380 CALL SOUND(D,1047,0,131
9,0)
3390 CALL SOUND(D,1047,0,131
9,0)
3400 CALL SOUND(D,30000,30)
3410 CALL SOUND(D,1319,0)
3420 CALL SOUND(D,1047,0)
3430 CALL SOUND(D,784,0)
3440 CALL SOUND(D,659,0)
3450 CALL SOUND(D,523,0)
3460 CALL SOUND(D,659,0)
3470 CALL SOUND(D,523,0)
3480 RETURN
```

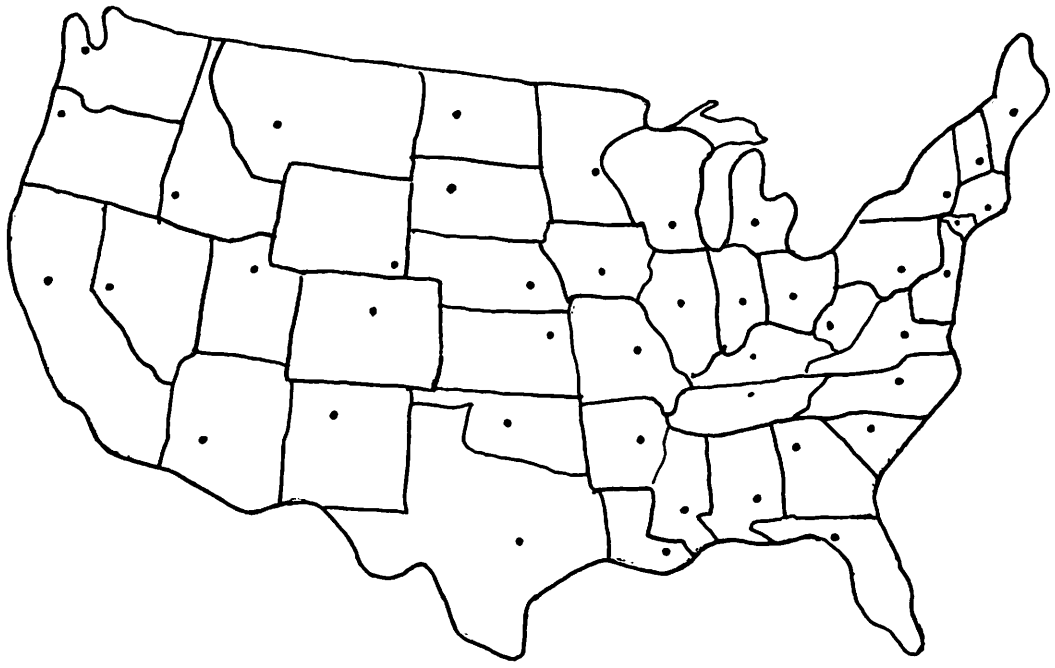
STATE CAPITAL QUIZ

An Education Program in which states are randomly selected and the corresponding capital must be entered. Spelling skill enters the exercise since the capital must be spelled correctly to count. The player picks the number of questions he desires. At the end of the quiz the computer grades your efforts.

```
100 REM******************
110 REM* STATE CAPITOLS *
120 REM*      QUIZ      *
130 REM* EXTENDED BASIC *
140 REM* BY PHIL TAYLOR *
150 REM* HOLLAND, MICH. *
160 REM* COPYRIGHT 5/83 *
170 REM******************
180 CALL COLOR(13,2,9):: CAL
L COLOR(12,16,9)
190 CALL CHAR(128,"000000000
103070F"):: CALL CHAR(129,"0
01E3E7EFCFCFEFF")
200 CALL CHAR(127,"00001C373
C3CFFFF"):: CALL CHAR(130,"0
0787E7F3F3F7FFF")
210 CALL CHAR(131,"00000000C
0E0F0F8")
220 CALL CHAR(132,"000000000
0010303"):: CALL CHAR(133,"1
F3F7F7FFFFFFFFA")
230 CALL CHAR(134,"FFFFFFFFF
F870701")
240 CALL CHAR(135,"FFFFFFFFF
FFFFFFF"):: CALL COLOR(14,2,
9)
250 CALL CHAR(136,"FFFFFFFFF
FE1E080"):: CALL CHAR(137,"F
CFEFFFFFFFFFF5F")
260 CALL CHAR(138,"00000080C
0C0E0F0"):: CALL CHAR(139,"0
7070F0D0818")
270 CALL CHAR(140,"F0F0A")::
 CALL CHAR(141,"FFFFFF7E7E7E
7EE7")
280 CALL CHAR(142,"0F0B01"):
: CALL CHAR(143,"F8F87C2C040
6")
290 CALL CLEAR :: CALL SCREE
N(9):: GOSUB 1200
300 DISPLAY AT(8,2):"*** STA
TE CAPITOLS QUIZ ***"
310 CALL SOUND(300,262,0)::
CALL SOUND(300,220,0):: CALL
 SOUND(500,175,0)
320 CALL SOUND(500,220,0)::
CALL SOUND(500,262,0)
330 CALL SOUND(700,349,0)::
CALL SOUND(300,440,0):: CALL
 SOUND(300,392,0)
340 CALL SOUND(500,349,0)::
CALL SOUND(500,220,0)
350 CALL SOUND(500,247,0)::
CALL SOUND(700,262,0)
360 FOR D=1 TO 400 :: NEXT D
370 CALL CLEAR :: INPUT "WAN
T DIRECTIONS (Y OR N)? ":Y$
:: IF Y$="N" THEN 470
```

```
380 CALL CLEAR :: PRINT TAB(
10);"DIRECTIONS": : : :
390 PRINT "I WILL GIVE YOU T
HE NAME OF":"THE STATE AND Y
OU MUST GIVE"
400 PRINT "ME THE NAME OF IT
'S CAPITOL.": :
410 PRINT "IF YOU MAKE A MIS
TAKE, I":"WILL GIVE YOU THE
CORRECT"
420 PRINT "ANSWER. REMEMBER,
 MISTAKES":"ARE A PART OF LE
ARNING.": :
430 PRINT "ENTER THE NUMBER
OF QUE-":"TIONS YOU WOULD LI
KE TO"
440 PRINT "ANSWER. I WILL GR
ADE YOUR":"EXAM WHEN YOU ARE
 FINISHED.": :
450 PRINT "GOOD LUCK & HAPPY
 LEARNING!": :
460 INPUT " (PRESS ENTER TO
CONTINUE)":A$
470 CALL CLEAR
480 PRINT "HOW MANY QUESTION
S WOULD YOULIKE TO TRY";:: I
NPUT N :: CALL CLEAR
490 RANDOMIZE
500 C=0 :: N1=0
510 GOSUB 1200
520 M1=0
530 RESTORE
540 IF C=N THEN 640 :: C=C+1
 :: PRINT "QUESTION #";C
550 X=INT(RND*50)+1
560 FOR Q=1 TO X :: READ Q$,
A$ :: NEXT Q :: PRINT Q$;
570 INPUT R$ :: IF R$=A$ THE
N 600 :: CALL SOUND(500,-2,0
)
580 PRINT "INCORRECT": :"THE
 CORRECT ANSWER IS: ";A$
590 FOR D=1 TO 500 :: NEXT D
 :: CALL CLEAR :: GOTO 510
600 M1=M1+1 :: IF M1=5 THEN
620 :: CALL SOUND(100,5000,0
)
610 CALL SOUND(100,3000,0)::
 GOTO 600
620 PRINT "CORRECT ANSWER---
VERY GOOD!" :: N1=N1+1 :: FO
R D=1 TO 500
630 NEXT D :: CALL CLEAR ::
GOTO 510
640 DISPLAY
650 PRINT "OUT OF ";N;" QUES
TIONS, YOU ANSWERED";N1;" CO
RRECTLY."
660 DISPLAY :: P=INT((N1/N)*
100+.5)
670 PRINT "YOUR PERCENTAGE F
OR CORRECT ANSWERS IS";P;"%"
: :
680 INPUT "TRY AGAIN? (Y/N)
":A$ :: DISPLAY
690 IF A$="Y" THEN 480 ELSE
1270
700 DATA "MICHIGAN","LANSING
"
710 DATA "CONNECTICUT","HART
FORD"
720 DATA "NEW YORK","ALBANY"
730 DATA "ALABAMA","MONTGOME
RY"
740 DATA "ALASKA","JUNEAU"
750 DATA "ARIZONA","PHOENIX"
760 DATA "ARKANSAS","LITTLE
ROCK"
770 DATA "CALIFORNIA","SACRA
MENTO"
780 DATA "COLORADO","DENVER"
790 DATA "DELAWARE","DOVER"
800 DATA "FLORIDA","TALLAHAS
SEE"
810 DATA "GEORGIA","ATLANTA"
820 DATA "HAWAII","HONOLULU"
830 DATA "IDAHO","BOISE"
840 DATA "ILLINOIS","SPRINGF
IELD"
850 DATA "INDIANA","INDIANAP
OLIS"
860 DATA "IOWA","DES MOINES"
870 DATA "KANSAS","TOPEKA"
880 DATA "KENTUCKY","FRANKFO
RT"
890 DATA "LOUISIANA",BATON R
OUGE"
900 DATA "MAINE","AUGUSTA"
910 DATA "MARYLAND","ANNAPOL
IS"
920 DATA "MASSACHUSETTS","BO
STON"
930 DATA "MINNESOTA","MINNEA
POLIS"
940 DATA "MISSISSIPPI","JACK
SON"
950 DATA "MISSOURI","JEFFERS
ON CITY"
```

```
960 DATA "MONTANA","HELENA"
970 DATA "NEBRASKA","LINCOLN
"
980 DATA "NEVADA","CARSON CI
TY"
990 DATA "NEW HAMPSHIRE","CO
NCORD"
1000 DATA "NEW JERSEY","TREN
TON"
1010 DATA "NEW MEXICO","SANT
A FE"
1020 DATA "NORTH CAROLINA","
RALEIGH"
1030 DATA "NORTH DAKOTA","BI
SMARCK"
1040 DATA "OHIO","COLUMBUS"
1050 DATA "OKLAHOMA","OKLAHO
MA CITY"
1060 DATA "OREGON","SALEM"
1070 DATA "PENNSYLVANIA","HA
RRISBURG"
1080 DATA "RHODE ISLAND","PR
OVIDENCE"
1090 DATA "SOUTH CAROLINA","
COLUMBIA"
1100 DATA "SOUTH DAKOTA","PI
ERRE"
1110 DATA "TENNESSEE","NASHV
ILLE"
1120 DATA "TEXAS","AUSTIN"
1130 DATA "UTAH","SALT LAKE
CITY"
1140 DATA "VERMONT","MONTPEL
IER"
1150 DATA "VIRGINIA","RICHMO
ND"
1160 DATA "WASHINGTON","TACO
MA"
1170 DATA "WEST VIRGINIA","C
HARLESTON"
1180 DATA "WISCONSIN","MADIS
ON"
1190 DATA "WYOMING","CHEYENN
E"
1200 CALL VCHAR(13,15,128)::
 CALL VCHAR(13,16,129):: CAL
L VCHAR(13,17,127)
1210 CALL VCHAR(13,18,130)::
 CALL VCHAR(13,19,131)
1220 CALL VCHAR(14,14,132)::
 CALL VCHAR(14,15,133):: CAL
L VCHAR(14,16,134)
1230 CALL VCHAR(14,17,135)::
 CALL VCHAR(14,18,136)
1240 CALL VCHAR(14,19,137)::
 CALL VCHAR(14,20,138):: CAL
L VCHAR(15,14,139)
1250 CALL VCHAR(15,15,140)::
 CALL VCHAR(15,17,141)
1260 CALL VCHAR(15,19,142)::
 CALL VCHAR(15,20,143):: RET
URN
1270 CALL CLEAR :: END
```



SPACE FURY

One of those rare space games that has no violence! The task is to dock your craft into the space station satelite using keyboard or joystick. To accomplish this you must weave the craft through an endless meteor shower, and adding to the difficulty is the fact that some of the meteors are invisible! This program will develop your ability as a key-punch pilot.

```
100 REM****************
110 REM* SPACE  FURY  *
120 REM*EXTENDED BASIC*
130 REM* BY J. GULICK *
140 REM*FT.MITCHELL,KY*
150 REM*COPYRIGHT 1983*
160 REM****************
170 REM**INSTRUCTIONS**
180 CALL CLEAR :: PRINT TAB(
9);"SPACE FURY": :"THE ORBIT
ING SPACE STATION"
190 PRINT "IS IN TROUBLE. TH
ERE IS AN OUTBREAK OF A STRA
NGE PLAGUE"
200 PRINT "ABOARD THE STATIO
N. YOU HAVEBEEN CHOOSEN TO F
LY A CASE"
210 PRINT "OF MEDICAL SUPLIE
S TO THEM.  HOWEVER, A FREAK
 METEOR"
220 PRINT "SHOWER HAMPERS YO
UR COURSE. USING THE ARROW K
EYS OR JOY-"
230 PRINT "STICK #1, YOU CAN
 GUIDE YOURCRAFT INTO THE DO
CKS WITHOUT"
240 PRINT "COLLIDING WITH A
METEOR (*).GOOD LUCK!": :"
  HIT <ENTER> TO BEGIN."
250 CALL KEY(0,X,S):: IF X<>
13 THEN 250
260 REM**INITIALIZATION**
270 CALL CLEAR :: CALL DELSP
RITE(ALL)
280 CALL SCREEN(2):: RANDOMI
ZE :: CALL COLOR(0,2,16,13,1
6,2)
290 CALL CHAR(128,"F0207C7E7
F20F0002C55C22C55C22C55C0E0F
0FCFEFFFFFFFFFFFFEFCF0E0C0"
)
300 REM**PROGRAM RUN**
310 Q=0 :: R=0 :: CALL SPRIT
E(#1,128,7,80,10):: CALL VCH
AR(1,31,31,96)
320 DISPLAY AT(12,28):CHR$(1
30);:: DISPLAY AT(13,28):CHR
$(131);
330 FOR X=2 TO 27 :: CALL SP
RITE(#X,42,INT(RND*14)+3,INT
(RND*192)+1,255,1,-8)
340 NEXT X
350 CALL JOYST(1,S,W):: IF (
W=0)+(S=0)=-2 THEN 370
360 Q=Q-W :: R=R+S/2 :: GOTO
 380
370 CALL KEY(1,W,S):: Q=Q+(W
=5)*4-(W=0)*4 :: R=R+(W=2)*2
-(W=3)*2
380 CALL MOTION(#1,Q,R):: IF
 ABS(Q)>5 THEN Q=5*SGN(Q)
390 CALL COINC(ALL,M):: IF M
=0 THEN 410
400 CALL PATTERN(#1,129):: C
ALL SOUND(500,-5,0):: CALL D
ELSPRITE(ALL):: GOTO 310
410 CALL POSITION(#1,P,Y)
420 IF P>182 OR P<10 THEN CA
LL MOTION(#1,-2*SGN(Q),1)::
Q=-2*SGN(Q)
430 CALL COINC(#1,99,235,9,P
S)
440 IF PS THEN CALL MOTION(#
1,0,0)ELSE 350 :: CALL SOUND
(1000,660,0)
450 CALL SCREEN(16):: PRINT
"TO PLAY AGAIN PRESS <ENTER>
"
460 INPUT K$ :: GOTO 270
```

DEATH MOBILE

Your mission is to destroy an experimental vehicle that has gone berserk! If your shots are on target 100 times, you move on to a bonus round. You have 3 try's to make it. The pace makes it more difficult than you think! Joysticks optional

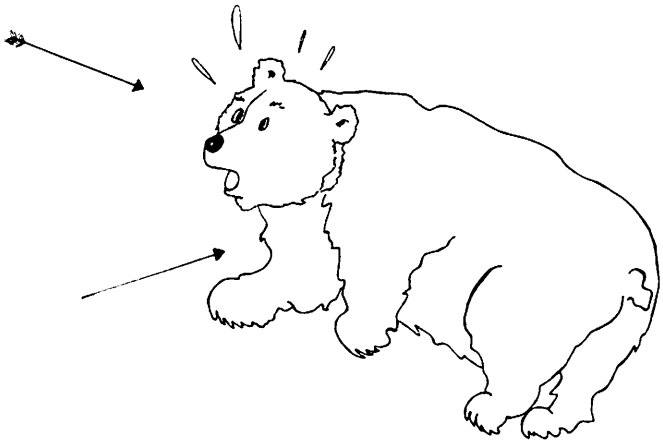
```
100 REM  ****************
110 REM  * DEATH MOBILE *
120 REM  *   TI BASIC   *
130 REM  * BY DON BUSCH *
140 REM  *CINCINNATI,OH.*
150 REM  *COPYRIGHT 1983*
160 REM  ****************
170 REM  **INITIALIZATION**
180 CALL CLEAR
190 FOR COL=2 TO 12
200 CALL COLOR(COL,16,1)
210 NEXT COL
220 CALL COLOR(13,7,1)
230 CALL COLOR(14,5,1)
240 CALL SCREEN(2)
250 REM  **INSTRUCTIONS**
260 PRINT "        DEATH MOBI
LE":"        ----- ------"
270 PRINT "AN EXPERIMENTAL C
AR, THE    DEATH MOBILE, HAS
 GONE OUT  "
280 PRINT "OF CONTROL. YOUR
MISSION IS TO RUN INTO IT ON
E HUNDRED"
290 PRINT "TIMES TO DESTROY
IT. YOU    WILL THEN GO TO A
 BONUS"
300 PRINT "ROUND WHERE INSTR
UCTIONS"
310 PRINT "WILL BE GIVEN. TH
EN ANOTHER DEATH MOBILE WILL
 BE SENT"
320 PRINT "OUT FOR YOU TO CO
NQUER."::
330 PRINT " *JOYSTICK-ALPHA
LOCK <UP>   *KEYBOARD-ALPHA
LOCK<DOWN>"::
340 PRINT "              W=up
          O=left
P=right"
350 PRINT "           S=down"
:"hold any other key to paus
e"
360 PRINT :"   HIT ANY KEY T
O BEGIN"
370 CALL KEY(0,KEY,STA)
380 IF STA=0 THEN 370
390 CALL CLEAR
400 PRINT "AN EXTRA NOTE:"
410 PRINT "TWO CROSSES ARE F
ORMED EACH TIME YOU HIT THE
DEATH     "
420 PRINT "MOBILE. MORE ARE
FORMED AS"
430 PRINT "YOU DESTROY MORE
DEATH      MOBILES. BE SURE
NOT TO"
440 PRINT "CRASH INTO THE WA
LLS OR THE CROSSES; THREE CR
ASHES ENDS YOUR GAME.":::
450 PRINT ::"REMBER,THE ALPH
A LOCK MUST  BE <DOWN> FOR K
EYBOARD AND"
460 PRINT "<UP> FOR JOYSTICK
"::
470 PRINT "   HIT ANY KEY TO
 BEGIN"
480 CALL KEY(0,KEY,STA)
490 IF STA=0 THEN 480
500 REM  **INITIALIZATION**
510 RANDOMIZE
520 SH=3
530 CD=0
540 SC=0
550 LV=1
560 CALL CHAR(129,"FFFFFFFFF
FFFFFFF")
570 CALL CHAR(128,"0018187E7
E181800")
580 CALL CHAR(130,"7EFFFFFFF
FFFFF7E")
590 CALL CHAR(127,"815A3C7E7
E3C5A81")
600 CALL CHAR(136,"5A7E5A183
CBDFFBD")
610 CALL CHAR(137,"BDFFBD3C1
85A7E5A")
620 CALL CHAR(138,"07E24FFFF
F4FE207")
630 CALL CHAR(139,"E047F2FFF
FF247E0")
640 REM  **PRINT BORDER**
650 CALL CLEAR
660 CALL HCHAR(1,1,129,32)
670 CALL HCHAR(24,1,129,32)
680 CALL VCHAR(2,1,129,22)
```

```
690 CALL VCHAR(2,32,129,22)
700 REM  **SET POSITIONS**
710 RDM=16
720 CDM=16
730 MDR=16
740 MDC=16
750 K1=79
760 CHAR=138
770 YC=16
780 YR=4
790 RY=4
800 CY=16
810 REM  **PRINT CARS**
820 CALL HCHAR(YR,YC,32)
830 CALL HCHAR(RY,CY,CHAR)
840 CALL HCHAR(MDR,MDC,32)
850 CALL HCHAR(RDM,CDM,127)
860 CALL GCHAR(RY,CY,CR1)
870 REM  **YOUR MOVE**
880 CALL JOYST(2,JC,JR)
890 YC=CY
900 YR=RY
910 IF JC+JR=0 THEN 960
920 CY=CY+JC/4
930 RY=RY-JR/4
940 CHAR=135-(JR=4)-((JR=-4)
*2)-((JC=-4)*3)-((JC=4)*4)
950 GOTO 1040
960 CALL KEY(0,K,S)
970 IF S<>0 THEN 990
980 K=K1
990 IF (K=79)+(K=80)+(K=83)+
(K=87)=0 THEN 960
1000 CY=CY+(K=79)-(K=80)
1010 RY=RY+(K=87)-(K=83)
1020 K1=K
1030 CHAR=135-(K=87)-((K=83)
*2)-((K=79)*3)-((K=80)*4)
1040 REM  *DEATH'S MOVEMENT*
1050 MDR=RDM
1060 MDC=CDM
1070 RDM=RDM+(INT(3*RND)-1)
1080 CDM=CDM+(INT(3*RND)-1)
1090 RDM=RDM+(RDM>23)-(RDM<2
)
1100 CDM=CDM+(CDM>31)-(CDM<2
)
1110 REM  **COINC CHECK**
1120 CALL GCHAR(RY,CY,CR)
1130 IF (CR=127)+(CR1=127)TH
EN 1410
1140 IF CR>127 THEN 1170
1150 GOTO 820
1160 REM  *CRASH SEQUENCE*
1170 CALL HCHAR(YR,YC,32)
1180 CALL SOUND(2000,-7,0)
1190 FOR CA=1 TO 20
1200 CALL HCHAR(RY,CY,32)
1210 CALL HCHAR(RY,CY,130)
1220 NEXT CA
1230 SH=SH-1
1240 CALL CLEAR
1250 PRINT :::"         SCORE
="&STR$(SC)
1260 PRINT :::"        "&STR$
(SH)&" CAR(S) LEFT":::
1270 IF SH>0 THEN 1350
1280 REM  **GAME OVER**
1290 PRINT "          GAME OV
ER"
1300 PRINT :::
1310 PRINT " HIT ANY KEY TO
PLAY AGAIN":::
1320 CALL KEY(0,KL,SL)
1330 IF SL=0 THEN 1320
1340 GOTO 180
1350 PRINT :::::
1360 PRINT "   HIT ANY KEY T
O CONTINUE"
1370 CALL KEY(0,KI,SI)
1380 IF SI=0 THEN 1370
1390 GOTO 650
1400 REM  **HIT DEATH**
1410 CALL SOUND(200,2000,2)
1420 CALL HCHAR(YR,YC,32)
1430 CALL HCHAR(RY,CY,CHAR)
1440 CALL HCHAR(MDR,MDC,32)
1450 CALL HCHAR(RDM,CDM,127)
1460 CALL HCHAR((INT(22*RND)
+2),(INT((31-LV)*RND)+2),128
,LV)
1470 CALL HCHAR((INT(22*RND)
+2),(INT((31-LV)*RND)+2),128
,LV)
1480 SC=SC+100
1490 CD=CD+1
1500 IF CD=100 THEN 1530
1510 GOTO 1140
1520 REM  **BONUS ROUND**
1530 FOR SO=1 TO 3
1540 CALL SOUND(200,110,0)
1550 FOR DELAY=1 TO 70
1560 NEXT DELAY
1570 NEXT SO
1580 CALL CLEAR
1590 PRINT " YOU HAVE JUST
COMPLETED":"          LEVEL
"&STR$(LV)
```

```
1600 PRINT ::"          SCORE=
"&STR$(SC)
1610 PRINT :::"HIT ANY KEY F
OR INSTRUCTIONS":"   TO THE
BONUS ROUND"::
1620 CALL KEY(0,KM,SM)
1630 IF SM=0 THEN 1620
1640 REM  **INSTRUCTIONS**
1650 CALL CLEAR
1660 PRINT "          BONUS R
OUND"::"THE OBJECT HERE IS T
O RUN"
1670 PRINT "INTO THE MOTIONL
ESS DEATH"
1680 PRINT "MOBILE. WHEN YOU
 HIT IT, ANOTHER    DEATH MO
BILE WILL APPEAR ON"
1690 PRINT "THE SCREEN. DO T
HIS"
1700 PRINT "UNTIL THE SCREEN
 FREEZES.   SCORE 100 POINTS
 FOR THE"
1710 PRINT "FIRST DEATH MOBI
LE YOU HIT,"
1720 PRINT "200 FOR THE SECO
ND, ETC. DO THIS UNTIL YOUR
BONUS TIME  RUNS OUT."
1730 PRINT :"   HIT ANY KEY
TO BEGIN":::::
1740 CALL KEY(0,KEY,STA)
1750 IF STA=0 THEN 1740
1760 REM  *INITIALIZATION*
1770 CALL CLEAR
1780 DB=INT(25*RND)+INT(25*R
ND)+(25*LV)+2
1790 LV=LV+1
1800 IF LV<31 THEN 1820
1810 LV=30
1820 CH=0
1830 SCB=0
1840 CD=0
1850 PT=0
1860 REM  **BORDER,CARS**
1870 CALL CLEAR
1880 CALL HCHAR(1,1,129,32)
1890 CALL HCHAR(24,1,129,32)
1900 CALL VCHAR(2,1,129,22)
1910 CALL VCHAR(2,32,129,22)
1920 CALL HCHAR((INT(22*RND)
+2),(INT(30*RND)+2),127)
1930 CALL HCHAR(YR,YC,32)
1940 CALL HCHAR(RY,CY,CHAR)
1950 REM  **MOVEMENT**
1960 CALL KEY(0,KB,SB)
1970 IF SB<>0 THEN 1990
1980 KB=BC
1990 YC=CY
2000 YR=RY
2010 CY=CY+(KB=79)-(KB=80)
2020 RY=RY+(KB=87)-(KB=83)
2030 BC=KB
2040 CHAR=135-(KB=87)-((KB=8
3)*2)-((KB=79)*3)-((KB=80)*4
)
2050 REM  **COINC CHECKS**
2060 CALL GCHAR(RY,CY,CRB)
2070 IF CRB<>129 THEN 2110
2080 RY=RY-(KB=87)+(KB=83)
2090 CY=CY-(KB=79)+(KB=80)
2100 GOTO 2170
2110 IF CRB<>127 THEN 2170
2120 CALL SOUND(200,2000,2)
2130 CH=CH+1
2140 SC=SC+(CH*100)
2150 SCB=SCB+(CH*100)
2160 CALL HCHAR((INT(22*RND)
+2),(INT(30*RND)+2),127)
2170 PT=PT+1
2180 IF PT=110+DB THEN 2200
2190 GOTO 1930
2200 FOR SO=1 TO 3
2210 CALL SOUND(200,110,0)
2220 FOR DELAY=1 TO 70
2230 NEXT DELAY
2240 NEXT SO
2250 REM  *BONUS ROUND OVER*
2260 CALL CLEAR
2270 PRINT ::"   BONUS ROUND
 SCORE="&STR$(SCB)
2280 PRINT ::"      TOTAL SCO
RE="&STR$(SC)
2290 PRINT ::::"  HIT ANY KE
Y TO CONTINUE":::
2300 CALL KEY(0,KZ,SZ)
2310 IF SZ=0 THEN 2300
2320 GOTO 650
```

GRIZZLEY!

Shoot your arrows wisely, this is a bear you're playing with and he's invisible until hit! Aiming your arrow in the vicinity of the proper coordinates is the only way to bag this one! Pay attention, this game is for keeps!



```
100 REM ******************
110 REM *    GRIZZLY     *
120 REM *    TI BASIC    *
130 REM * BY PHIL TAYLOR *
140 REM *HOLLAND,MIGHIGAN*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 CALL SCREEN(16)
190 DEF A=(AA+3)*AA
200 CALL CHAR(128,"000000000
0000F7F")
210 CALL CHAR(129,"000000000
1071FFF")
220 CALL CHAR(130,"00000040E
0F8F8F8")
230 CALL CHAR(131,"000000000
0030367")
240 CALL CHAR(132,"010307E77
77FFFFF")
250 CALL CHAR(133,"FCFCFFFFF
FFFFFFF")
260 CALL CHAR(134,"FFFFFFFFF
FFFFFFF")
270 CALL CHAR(135,"F0F0D0809
83870E0")
280 CALL CHAR(136,"000000010
1030707")
290 CALL CHAR(137,"000000FFF
FFFFFFF")
300 CALL CHAR(138,"001E0FFFF
FFFFFFF")
310 CALL CHAR(139,"7FFFFFFFF
FFFFFFF")
320 CALL CHAR(141,"FFFFFFFFF
FFFFCF8")
330 CALL CHAR(142,"E0C08")
340 CALL CHAR(143,"0F0F1F3F3
F7F7FFF")
350 CALL CHAR(145,"F8F8F8F8F
8F8F0E0")
360 CALL CHAR(147,"80C0E0F0F
8FCF8F0")
370 CALL CHAR(149,"FEFCFCF8F
0E0C08")
380 CALL CHAR(150,"03070F")
390 CALL CHAR(151,"E0C08")
400 CALL CHAR(152,"7F3F3F1F0
F070703")
410 CALL CHAR(153,"3F1F9FCFE
7F3F8F8")
420 CALL CHAR(154,"F0E0E0F0F
CFEFEFE")
430 CALL CHAR(155,"070707070
7030101")
440 CALL CHAR(156,"FFFEFCF8F
0F8FCFE")
450 CALL COLOR(1,9,16)
460 CALL CHAR(144,"F8F8FFF8F
8F8F0E0")
470 CALL CHAR(36,"0000FF")
480 CALL CHAR(33,"0000000000
000024")
490 CALL CHAR(34,"4890FC9048
24")
500 GOSUB 1200
510 PRINT TAB(11);"GRIZZLY":
:::
520 FOR D=1 TO 750
530 NEXT D
540 CALL CLEAR
550 INPUT "WANT DIRECTIONS?
(Y/N) ":A$
560 IF A$="N" THEN 650
570 CALL CLEAR
```

```
580 PRINT "  YOU ARE ALONE I
N THE WOODSWITH A BOW AND ON
LY THREE"
590 PRINT "(3) ARROWS. SUDDE
NLY YOU"
600 PRINT "ARE BEING CHASED
BY A MAD   GRIZZLY."::
610 PRINT "  THE BEAR'S LOCA
TION IS    RANDOMLY SET. TO
SHOOT, YOU"
620 PRINT "SIMPLY ENTER A NU
MBER."
630 PRINT "IF YOU FAIL TO GE
T THE      GRIZZLY BEFORE US
ING ALL"
640 PRINT "YOUR ARROWS, HE W
ILL GET    YOU.":::::
650 PRINT "PICK DEGREE OF DI
FFICULTY":
660 INPUT "1,2,3:":AA
670 CALL CLEAR
680 PRINT "IN THIS DIFFICULT
Y LEVEL YOUWILL BE ENTERING
NUMBERS    FROM 1 TO";A
690 PRINT :::::::
700 PRINT "  HAPPY HUNTING A
ND GOOD      LUCK!"::::
710 INPUT " (PRESS ENTER TO
CONTINUE)":A$
720 REM ***GAME
730 CALL CLEAR
740 RANDOMIZE
750 G=0
760 B=INT(RND*A)+1
770 REM ***FLASH BEAR***
780 CALL CHAR(157,"071E3F7CF
CFEF29")
790 FOR L=1 TO 10
800 N=INT(24*RND)+1
810 Y=110*(2^(1/12))^N
820 R=INT(18*RND)+1
830 C=INT(30*RND)+1
840 CALL SOUND(10,Y,2)
850 CALL HCHAR(R,C,157)
860 FOR D=1 TO 25
870 NEXT D
880 CALL CLEAR
890 NEXT L
900 INPUT "WHERE WOULD YOU L
IKE TO     SHOOT? ":S
910 G=G+1
920 IF S=B THEN 1050
930 IF (S<1)+(S>A)=-1 THEN 9
50
940 GOTO 990
950 DISPLAY
960 PRINT "ENTER 1 - ";A
970 INPUT S
980 GOTO 920
990 DISPLAY
1000 CALL SOUND(200,-5,1)
1010 IF G=3 THEN 1100
1020 PRINT "YOU MISSED, TRY
AGAIN!"::
1030 CALL CLEAR
1040 GOTO 900
1050 CALL CLEAR
1060 GOSUB 1200
1070 GOSUB 1500
1080 PRINT "CONGRATULATIONS.
 YOU HAVE   JUST BAGGED THE
GRIZZLY."::
1090 GOTO 1160
1100 REM *BEAR GETS HUNTER*
1110 CALL CLEAR
1120 GOSUB 1200
1130 PRINT "I WILL INFORM YO
UR FAMILY   AND FRIENDS OF Y
OUR DOOM."
1140 PRINT "YOU HAVE JUST BE
EN EATEN BY"
1150 PRINT "A MAD GRIZZLY.":
:
1160 INPUT "WANT TO PLAY AGA
IN? (Y/N) ":A$
1170 CALL CLEAR
1180 IF A$="Y" THEN 650
1190 END
1200 CALL VCHAR(8,17,128)
1210 CALL VCHAR(8,18,129)
1220 CALL VCHAR(8,19,130)
1230 CALL VCHAR(9,15,131)
1240 CALL VCHAR(9,16,132)
1250 CALL VCHAR(9,17,133)
1260 CALL VCHAR(9,18,134)
1270 CALL VCHAR(9,19,135)
1280 CALL VCHAR(10,11,136)
1290 CALL HCHAR(10,12,137,2)
1300 CALL VCHAR(10,14,138)
1310 CALL VCHAR(10,15,139)
1320 CALL HCHAR(10,16,134,2)
1330 CALL VCHAR(10,18,141)
1340 CALL VCHAR(10,19,142)
1350 CALL VCHAR(11,11,143)
1360 CALL HCHAR(11,12,134,6)
1370 CALL VCHAR(11,18,145)
1380 CALL HCHAR(12,11,134,8)
1390 CALL VCHAR(12,19,147)
```

```
1400 CALL HCHAR(13,11,134,6)
1410 CALL VCHAR(13,17,149)
1420 CALL VCHAR(13,18,150)
1430 CALL VCHAR(13,19,151)
1440 CALL VCHAR(14,11,152)
1450 CALL VCHAR(14,12,153)
1460 CALL VCHAR(14,13,154)
1470 CALL VCHAR(14,15,155)
1480 CALL VCHAR(14,16,156)
1490 RETURN
1500 REM ***ARROW IN BEAR***
1510 CALL VCHAR(11,18,144)
1520 CALL VCHAR(11,19,36)
1530 CALL VCHAR(10,20,33)
1540 CALL VCHAR(11,20,34)
1550 RETURN
```

TONK

You may be familiar with this card game in which the object is to get a total of 31 without going over. Take as many cards as you want; only the cards 1 thru 10 are used so keep track of what comes up. Closest to 31 wins, over 31 busts.

```
100 REM ******************
110 REM *      TONK      *
120 REM *    TI BASIC    *
130 REM *   PHIL TAYLOR  *
140 REM *HOLLAND,MICHIGAN*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 CALL SCREEN(11)
190 RANDOMIZE
200 CALL CHAR(58,"8E91919191
91918E")
210 PRINT TAB(10);"***TONK**
*"::::::::::::
220 FOR L=1 TO 10
230 FOR C=1 TO 16
240 CALL SCREEN(C)
250 NEXT C
260 NEXT L
270 CALL CLEAR
280 INPUT "WANT INSTRUCTIONS
? (Y/N) ":Z$
290 CALL CLEAR
300 IF Z$="N" THEN 390
310 REM **GIVE INSTRUCTIONS
320 PRINT "'T O N K' IS A GA
ME PLAYED":"WITH SPECIAL CAR
DS UTILIZING"
330 PRINT "ONLY THE NUMBERS
1-10.":::
340 PRINT "THE OBJECT IS FOR
 THE COM-":"PETITORS TO OBTA
IN A TOTAL"
350 PRINT "AS CLOSE TO '31'
AS POSSIBLE"
360 PRINT "WITH AS MANY CARD
S AS ARE":"NEEDED. THE PLAYE
R CLOSEST"
370 PRINT "TO '31' WITHOUT G
OING OVER, WINS":TAB(10);"GO
OD LUCK!"::::
380 INPUT " (PRESS ENTER TO
CONTINUE)":Z$
390 REM ***GAME***
400 CALL CLEAR
410 INPUT "1ST PLAYER'S NAME
? ":B$
420 INPUT "2ND PLAYER'S NAME
? ":C$
430 CALL CLEAR
440 PRINT TAB(3);"**** PLEAS
E STAND BY ****"::
450 PRINT "I'M BUSY SHUFFLIN
G THE CARDS"::::::
460 FOR Q=1 TO 8
470 CALL SOUND(15,-5,9)
480 FOR C=5 TO 11
490 CALL SCREEN(C)
500 NEXT C
510 NEXT Q
520 CALL CLEAR
530 CALL SCREEN(11)
540 REM **1ST PLAYER
550 PRINT "YOU'RE FIRST ";B$
```

```
560 N=0
570 GOSUB 1270
580 B=INT(RND*10)+1
590 CALL HCHAR(9,15,B+48)
600 CALL HCHAR(15,18,B+48)
610 N=N+B
620 IF N=31 THEN 690
630 IF N>31 THEN 740
640 PRINT "CARD = ";B
650 PRINT TAB(3);"TOTAL = ";
N
660 INPUT "WANT ANOTHER CARD
? (Y/N) ":Z$
670 CALL CLEAR
680 IF Z$="Y" THEN 570
690 PRINT B$;", YOUR TOTAL I
S ";N
700 FOR D=1 TO 500
710 NEXT D
720 CALL CLEAR
730 GOTO 810
740 PRINT "YOU BUSTED ";B$;"
WITH A TOTAL OF ";N::
750 CALL SOUND(1000,-2,1)
760 GOTO 1170
770 FOR D=1 TO 500
780 NEXT D
790 CALL CLEAR
800 REM **2ND PLAYER**
810 PRINT "O.K., IT'S YOUR T
URN ";C$::
820 M=0
830 GOSUB 1270
840 C=INT(RND*10)+1
850 CALL HCHAR(9,15,C+48)
860 CALL HCHAR(15,18,C+48)
870 M=M+C
880 IF M=31 THEN 960
890 IF M>31 THEN 1020
900 PRINT "CARD = ";C
910 PRINT TAB(3);"TOTAL = ";
M
920 PRINT "WANT ANOTHER CARD
? Y OR N"
930 INPUT Z$
940 CALL CLEAR
950 IF Z$="Y" THEN 830
960 DISPLAY
970 PRINT C$;", YOUR TOTAL I
S ";M
980 FOR D=1 TO 500
990 NEXT D
1000 CALL CLEAR
1010 GOTO 1080
1020 PRINT "YOU BUSTED ";C$;
"WITH A TOTAL OF ";M::
1030 CALL SOUND(1000,-2,1)
1040 GOTO 1110
1050 FOR D=1 TO 500
1060 NEXT D
1070 CALL CLEAR
1080 PRINT B$;", YOUR TOTAL
WAS ";N::
1090 PRINT C$;", YOUR TOTAL
WAS ";M::
1100 IF N=M THEN 1230
1110 ATOTAL=31-N
1120 BTOTAL=31-M
1130 IF ATOTAL<BTOTAL>-1 THE
N 1150
1140 IF BTOTAL<ATOTAL>-1 THE
N 1190
1150 IF M<32 THEN 1170
1160 GOTO 1210
1170 PRINT C$;"**********W
INS**********"::
1180 GOTO 1240
1190 IF N<32 THEN 1210
1200 GOTO 1150
1210 PRINT B$;"**********W
INS**********"::
1220 GOTO 1240
1230 PRINT "**********TIE*
**********"::
1240 INPUT "WANT TO PLAY AGA
IN? (Y/N) ":Z$
1250 IF Z$="Y" THEN 430
1260 END
1270 REM **DRAW CARD**
1280 FOR I=8 TO 16
1290 CALL HCHAR(I,14,127,6)
1300 NEXT I
1310 FOR I=9 TO 15
1320 CALL HCHAR(I,15,152,4)
1330 NEXT I
1340 RETURN
```

CURVE & CIRCLE PLOTS

A program that allows you to display curves and circles and change the variables to observe the results.

Curve: This enables the user to plot a curve on a grid 64 blocks horizontally by 48 blocks vertically using any mathematical function in the first quadrant of the cartesian coordinate system. This function is located in line 720. The coordinate system is shown in figure 1 and a function graph is shown in figure 2. Remembering that X is the horizontal variable and Y is the vertical variable, the location of X=3, Y=3 is indicated by the dot in figure 1.

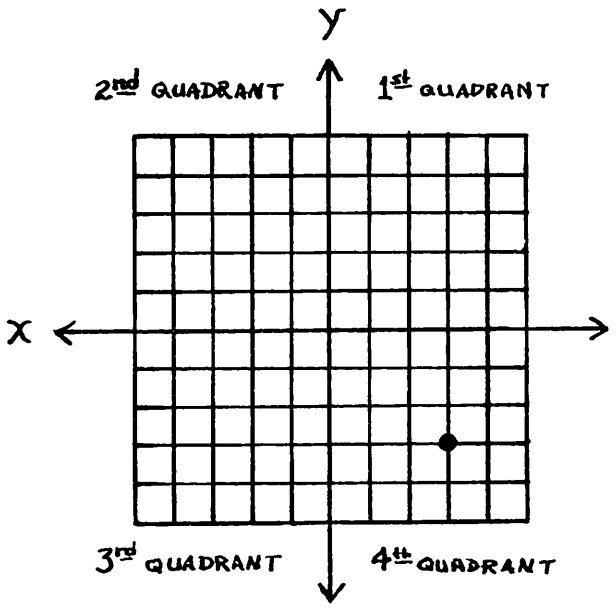


fig. 1

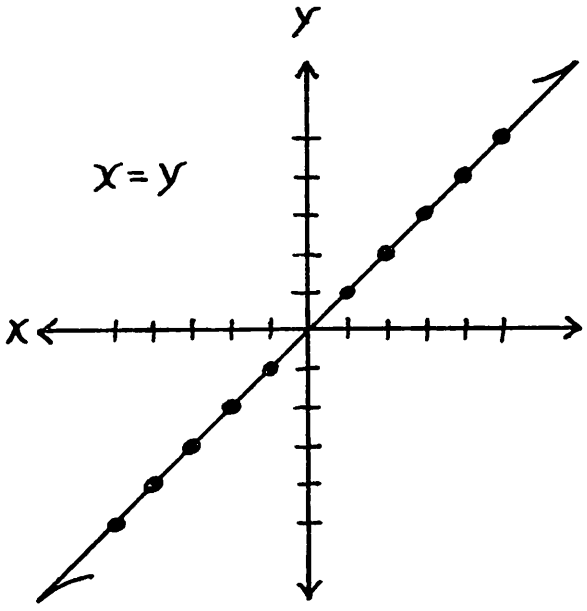


fig. 2

If this is all Greek to you, the program can still be enjoyed by making the following seven program changes and observing the effect after each change.

```
100 REM ********************
110 REM *    CURVE  PLOT     *
120 REM *     TI BASIC       *
130 REM *  BY TOM BANCHY     *
140 REM * CINCINNATI,OHIO   *
150 REM * COPYRIGHT 1983    *
160 REM ********************
170 REM **INITIALIZATION**
180 CALL CLEAR
190 CALL SCREEN(8)
200 CALL COLOR(13,2,1)
210 CALL CHAR(128,"C0C0C0C0"
)
220 CALL CHAR(129,"00000000C
0C0C0C0")
230 CALL CHAR(130,"0C0C0C0C"
)
240 CALL CHAR(131,"000000000
C0C0C0C")
250 CALL CHAR(132,"CCCCCCCC"
)
260 CALL CHAR(133,"00000000C
CCCCCCC")
270 CALL CHAR(134,"C0C0C0C00
C0C0C0C")
280 CALL CHAR(135,"0C0C0C0CC
0C0C0C0")
290 REM **MAIN LOOP**
300 FOR Q=1 TO 63 STEP 2
310 XC=INT(Q/2)+1
320 XA=Q
330 XB=Q+1
340 X=XA
350 GOSUB 720
360 P=48-INT(Y)
370 IF P/2=INT(P/2)THEN 410
380 POR=INT(P/2)+1
390 CHAR=129
```

```
400 GOTO 430
410 POR=(P/2)+1
420 CHAR=128
430 X=XB
440 GOSUB 720
450 P=48-INT(Y)
460 IF P/2=INT(P/2)THEN 500
470 POT=INT(P/2)+1
480 CHAG=131
490 GOTO 520
500 POT=(P/2)+1
510 CHAG=130
520 IF POR=POT THEN 580
530 IF (POR>24)+(POR<1)<0 TH
EN 550
540 CALL HCHAR(POR,XC,CHAR)
550 IF (POT>24)+(POT<1)<0 TH
EN 700
560 CALL HCHAR(POT,XC,CHAG)
570 GOTO 700
580 IF CHAR=129 THEN 640
590 IF CHAG=131 THEN 620
600 CHAT=132
610 GOTO 680
620 CHAT=134
630 GOTO 680
640 IF CHAG=131 THEN 670
650 CHAT=135
660 GOTO 680
670 CHAT=133
680 IF (POR>24)+(POR<1)<0 TH
EN 700
690 CALL HCHAR(POR,XC,CHAT)
700 NEXT Q
710 GOTO 710
720 Y=(SIN(X/4)*22)+24
730 RETURN
```

These seven variations are to be incorporated into the original listing of this program, therefore before making each change be certain that the program listing is in it's original form.

VARIATION #1-
```
720 Y=(SIN(D/1.5)+SIN( D/3))*7+24
```

#2-
```
720 Y=LOG(D^8)
```

#3-
```
720 Y=((ABS(D-32))/3^2+3
```

#4-
```
295 FOR T=0 TO 12 STEP 2
705 NEXT T
720 Y=(SIN((D-T)/6)*(22-T))+24
```

#5-
```
295 FOR T=1 TO 1 TO 3
350 ON T GOSUB 720,740,760
440 ON T GOSUB 720,740,760
705 NEXT T
720 Y=(30*SIN((D-4)16))*EXP(-1*(D/20)))+24
730 Y=(30*EXP(-*((D-4)/20)))+25
740 RETURN
750 Y=-1*(30*EXP(-1*((D-4)/20)))+23
760 RETURN
```

#6-
```
720 Y=((SIN(D/(3-D/64)))*(22-D*.3))+24
```

#7-
```
295 FOR T=1 TO 2
350 ON T GOSUB 680,700
440 ON T GOSUB 680,700
705 NEXT T
683 CALL CHAR(136,"000000FFFF")
684 CALL COLOR (14,7,1)
685 CALL HCHAR (13,1,136,32)
720 Y=SIN(D/4)*20+24
740 Y=COS((D+6)/4)*10+24
750 RETURN
```

Circle: This routine is written in a way to allow the number of circles and the radius of each to be controlled by the values in line 320. The format of line 320 is: FOR T=A TO B STEP C. Where A=The radius of the inner circle, B=the radius of the outer circle, and C=the increments between these circles and the number of circles generated by the program. Change these values and observe the effect.

```
100 REM ********************
110 REM *   CIRCLE PLOT    *
120 REM *    TI BASIC      *
130 REM *  BY TOM BANCHY   *
140 REM * CINCINNATI,OHIO *
150 REM * COPYRIGHT  1983 *
160 REM ********************
170 REM **INITIALIZATION**
180 CALL CLEAR
190 CALL SCREEN(2)
200 CALL COLOR(13,7,2)
210 CALL COLOR(14,7,2)
220 CALL CHAR(128,"C0C0C0C0"
)
230 CALL CHAR(129,"03000000C
0C0C0C0")
240 CALL CHAR(130,"0C0C0C0C"
)
250 CALL CHAR(131,"000000000
C0C0C0C")
260 CALL CHAR(132,"CCCCCCCC"
)
270 CALL CHAR(133,"00000000C
CCCCCCC")
280 CALL CHAR(134,"C0C0C0C00
C0C0C0C")
290 CALL CHAR(135,"0C0C0C0CC
0C0C0C0")
300 CALL CHAR(136,"000000FFF
F000000")
310 REM **MAIN LOOP**
320 FOR T=2 TO 20 STEP 6
330 FOR G=1 TO 2
340 FOR X=(32-T)TO (32+T)STE
P 2
350 XC=INT(X/2)+1
360 XA=X
370 XB=X+1
380 IF XB<33+T THEN 400
390 XB=XA
400 D=XA
410 ON G GOSUB 840,860
420 P=48-INT(Y)
430 IF P/2=INT(P/2)THEN 470
440 POR=INT(P/2)+1
450 CHAR=129
460 GOTO 490
470 POR=(P/2)+1
480 CHAR=128
490 D=XB
500 ON G GOSUB 840,860
510 P=48-INT(Y)
520 IF P/2=INT(P/2)THEN 560
530 POT=INT(P/2)+1
540 CHAG=131
550 GOTO 580
560 POT=(P/2)+1
570 CHAG=130
580 IF POR=POT THEN 650
590 XC=INT(X/2)+1
600 IF (POR>24)+(POR<1)<0 TH
EN 620
610 CALL HCHAR(POR,XC,CHAR)
620 IF (POT>24)+(POT<1)<0 TH
EN 790
630 CALL HCHAR(POT,XC,CHAG)
640 GOTO 790
650 IF CHAR=129 THEN 710
660 IF CHAG=131 THEN 690
670 CHAT=132
680 GOTO 750
690 CHAT=134
700 GOTO 750
710 IF CHAG=131 THEN 740
720 CHAT=135
730 GOTO 750
740 CHAT=133
750 IF (POR>24)+(POR<1)<0 TH
EN 790
760 IF XA<>XB THEN 780
770 CHAT=CHAR
780 CALL HCHAR(POR,XC,CHAT)
790 NEXT X
800 NEXT G
810 NEXT T
820 CALL HCHAR(13,1,136,32)
830 GOTO 830
840 Y=(((T^2)-(ABS((D-32)^2)
))^.5)+25
850 RETURN
860 Y=-1*(((T^2)-(ABS((D-32)
^2)))^.5)+22
870 RETURN
```

TOE/TAC/TIC

A slightly modified version of an age old game of strategy. Unique variations have been added to accommodate a not-so-smart computer. A pretty tricky ticky!

```
100 REM ****************
110 REM * TOE-TAC-TIC  *
120 REM *   TI BASIC   *
130 REM *BY BOB WARTMAN*
140 REM *PARK HILLS,KY.*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 CALL CLEAR
180 REM **INITIALIZATION**
190 CALL COLOR(2,11,11)
200 CALL COLOR(4,2,13)
210 FOR C=9 TO 12
220 CALL COLOR(C,2,11)
230 NEXT C
240 CALL COLOR(14,7,7)
250 CALL COLOR(15,2,2)
260 CALL COLOR(16,16,16)
270 CALL SCREEN(13)
280 NL$=",,,,,,,no,,,,loser,
,,,"
290 NW$=",,,,,,,no,,,,winner
,,,"
300 PA$="TO PLAY AGAIN PRESS
 'ENTER'"
310 WM$=",,you,are,the,winne
r,,"
320 CALL CHAR(58,"181818FFFF
181818")
330 CALL CHAR(59,"1818181818
181818")
340 CALL CHAR(60,"000000FFFF
")
350 RANDOMIZE
360 CALL CLEAR
370 PRINT TAB(9);"TOE TAC TI
C":::::::::::
380 FOR DELAY=1 TO 300
390 NEXT DELAY
400 REM **SELECT OPPONENT**
410 CALL CLEAR
420 TC(1)=1
430 PRINT "      SELECT AN OP
PONENT"::::
440 PRINT TAB(9);"1 HUMAN"::
TAB(9);"2 COMPUTER"::TAB(9);
"3 COMP\COMP":::
450 INPUT OP
460 IF (OP<1)+(OP>3)=-1 THEN
 450
470 CALL CLEAR
480 ON OP GOTO 620,490,540
490 PRINT "  SELECT THE TYPE
 COMPUTER"::"   YOU WOULD LI
KE TO PLAY"::::
500 PRINT TAB(9);"1 NAIVE"::
TAB(9);"2 CONNIVING":::
510 INPUT TC(2)
520 IF (TC(2)<1)+(TC(2)>2)=-
1 THEN 510
530 GOTO 620
540 N$="'X'"
550 FOR N=1 TO 2
560 PRINT "SELECT COMPUTER#"
;N;N$::
570 PRINT TAB(9);"1 NAIVE"::
TAB(9);"2 CONNIVING":::
580 INPUT TC(N)
590 IF (TC(N)<1)+(TC(N)>2)=-
1 THEN 580
600 N$="'O'"
610 NEXT N
620 REM  **GAME BOARD**
630 CALL CLEAR
640 RESTORE
650 PRINT "      PRESS '0' TO
 RESTART"
660 CALL HCHAR(8,7,60,20)
670 CALL HCHAR(15,7,60,20)
680 CALL VCHAR(2,13,59,20)
690 CALL VCHAR(2,20,59,20)
700 FOR I=1 TO 13
710 READ R,C,CC
720 CALL HCHAR(R,C,CC)
730 NEXT I
740 DATA 8,13,58,8,20,58,15,
13,58,15,20,58,5,10,49,5,17,
50,5,24,51,12,10,52
750 DATA 12,17,53,12,24,54,1
9,10,55,19,17,56,19,24,57
760 REM   **WHOSE TURN?**
770 READ Z$
780 IF Z$="X" THEN 840
790 DATA "X","O"
800 REM  **RANDOM PICK**
810 IF OP=1 THEN 840
820 K=INT(RND*9)+49
830 GOTO 890
```

```
840 REM  **SMART PICK**
850 CALL KEY(0,K,S)
860 IF K=48 THEN 360
870 IF OP=3 THEN 820
880 IF (K>57)+(S=0)=-1 THEN
850
890 K=(K-46)/3
900 Q=(INT(K))*7-4
910 QQ=(K-INT(K))*21+8
920 REM  **IF OCCUPIED**
930 CALL GCHAR(Q,QQ,JJ)
940 IF JJ=32 THEN 1020
950 IF OP<>1 THEN 980
960 CALL SOUND(200,-3,1)
970 GOTO 840
980 IF Z$="X" THEN 1000
990 IF TC(2)=1 THEN 820 ELSE
 1020
1000 IF OP=2 THEN 960
1010 IF TC(1)=1 THEN 820
1020 REM   **WHITE SQUARE**
1030 FOR N=1 TO 6
1040 CALL HCHAR(Q+N-2,QQ-1,1
52,6)
1050 NEXT N
1060 IF Z$="X" THEN 1160
1070 REM  **DRAW "O"**
1080 RESTORE 790
1090 CALL SOUND(10,800,1)
1100 CALL HCHAR(Q,QQ,144,4)
1110 CALL VCHAR(Q+1,QQ,144,2
)
1120 CALL VCHAR(Q+1,QQ+3,144
,2)
1130 CALL HCHAR(Q+3,QQ,144,4
)
1140 IF OP=1 THEN 1240
1150 GOTO 1240
1160 REM  **DRAW "X"**
1170 CALL SOUND(10,900,1)
1180 CALL HCHAR(Q,QQ,136)
1190 CALL HCHAR(Q+1,QQ+1,136
,2)
1200 CALL HCHAR(Q+2,QQ+1,136
,2)
1210 CALL HCHAR(Q+3,QQ+3,136
)
1220 CALL HCHAR(Q+3,QQ,136)
1230 CALL HCHAR(Q,QQ+3,136)
1240 REM  ** IF 3-IN-ROW**
1250 CALL GCHAR(5,10,A)
1260 CALL GCHAR(5,17,B)
1270 CALL GCHAR(5,24,C)
1280 CALL GCHAR(12,10,D)
1290 CALL GCHAR(12,17,E)
1300 CALL GCHAR(12,24,F)
1310 CALL GCHAR(19,10,G)
1320 CALL GCHAR(19,17,H)
1330 CALL GCHAR(19,24,I)
1340 IF 2*A=B+C THEN 1430
1350 IF 2*D=E+F THEN 1460
1360 IF 2*G=H+I THEN 1480
1370 IF 2*A=D+G THEN 1530
1380 IF 2*B=E+H THEN 1560
1390 IF 2*C=F+I THEN 1580
1400 IF 2*A=E+I THEN 1630
1410 IF 2*G=E+C THEN 1680
1420 IF A+B+C+D+E+F+G+H+I<12
24 THEN 760 ELSE 1730
1430 REM **HORIZ. LINES**
1440 R=5
1450 GOTO 1490
1460 R=12
1470 GOTO 1490
1480 R=19
1490 FOR I=1 TO 22
1500 CALL HCHAR(R,I+5,ASC(SE
G$(WM$,I,1)))
1510 NEXT I
1520 GOTO 1850
1530 REM  **VERT. LINES**
1540 VC=9
1550 GOTO 1590
1560 VC=16
1570 GOTO 1590
1580 VC=23
1590 FOR I=1 TO 22
1600 CALL HCHAR(I,VC,ASC(SEG
$(WM$,I,1)))
1610 NEXT I
1620 GOTO 1850
1630 REM  **DIAG. LINE DN**
1640 FOR I=1 TO 22
1650 CALL HCHAR(I,I+5,ASC(SE
G$(WM$,I,1)))
1660 NEXT I
1670 GOTO 1850
1680 REM  **DIAG. LINE UP**
1690 FOR I=1 TO 22
1700 CALL HCHAR(23-I,I+5,ASC
(SEG$(WM$,I,1)))
1710 NEXT I
1720 GOTO 1850
1730 REM  **NO WINNER**
1740 FOR I=1 TO 22
1750 CALL HCHAR(I,I+5,ASC(SE
G$(NW$,I,1)))
1760 NEXT I
```

```
1770 FOR I=1 TO 22
1780 CALL HCHAR(23-I,I+5,ASC
(SEG$(NL$,I,1)))
1790 NEXT I
1800 FOR I=1 TO 5
1810 CALL SOUND(20,-3,1)
1820 CALL SOUND(20,-5,1)
1830 NEXT I
1840 GOTO 1900
1850 REM  **PLAY AGAIN?**
1860 FOR I=1 TO 5
1870 CALL SOUND(10,900,1)
1880 CALL SOUND(10,800,1)
1890 NEXT I
1900 FOR I=1 TO 27
1910 CALL HCHAR(23,I+3,ASC(S
EG$(PA$,I,1)))
1920 NEXT I
1930 CALL KEY(3,K,S)
1940 IF K=13 THEN 630 ELSE 1
930
```

LOAN CALCULATING PROGRAM

An extremely valuable program whenever you are considering a purchase that will involve financing and payments. At your choice it will calculate A) amount of payment B) amount of loan C) duration of loan. If you have a printer, it will even save the information for future reference.

```
100 REM******************
110 REM*LOAN CALCULATION*
120 REM* EXTENDED BASIC *
130 REM* BY MARK E COWAN*
140 REM* CENTERVILLE,OH.*
150 REM*COPYRIGHTED 1983*
160 REM******************
170 REM**'LOAN 1.0'**
180 DIM PAR(5)
190 DIM P$(3)
200 CALL CLEAR
210 PRINT "********LOAN PROG
RAM********": : : : :
220 PRINT "WOULD YOU LIKE TO
 RECEIVE":"INSTRUCTIONS (Y/N
)"
230 INPUT Q$
240 IF Q$="Y" THEN 250 ELSE
270
250 GOSUB 1470
260 CALL CLEAR
270 PRINT "SELECT THE OUTPUT
 DEVICE":"    0=SCREEN":"    1
=PRINTER"
280 INPUT PR
290 IF PR=0 THEN 310
300 OPEN #1:"PIO"
310 CALL CLEAR
320 DATA AMOUNT OF EACH PAYM
ENT,AMOUNT OF LOAN,DURATION
OF LOAN
330 RESTORE 320
340 FOR I=1 TO 3
350 READ P$(I)
360 PRINT I;P$(I): :
370 NEXT I
380 PRINT " ": :"WHICH PARAM
ETER IS UNKNOWN?"
390 INPUT UNP
400 IF (UNP<1)+(UNP>3)THEN 3
80
410 CALL CLEAR
420 IF UNP=1 THEN 460
430 PRINT "AMOUNT OF EACH PA
YMENT?"
440 INPUT PAR(1)
450 IF PAR(1)=0 THEN 430
460 IF UNP=2 THEN 500
470 PRINT "AMOUNT OF LOAN?"
480 INPUT PAR(2)
490 IF PAR(2)=0 THEN 470
500 IF UNP=3 THEN 540
510 PRINT " ":"DURATION OF L
OAN":
520 INPUT "(YEAR,MONTH)? ":P
AR(3),PAR(4)
530 IF (PAR(3)=0)*(PAR(4)=0)
THEN 510
540 PRINT " ":"ANNUAL INTERE
ST RATE (%)?"
550 INPUT PAR(5)
560 IF PAR(5)=0 THEN 540
570 PRINT " ":"NUMBER OF PAY
MENTS":
580 INPUT "IN A YEAR? ":PAYP
ERYR
590 IF PAYPERYR=0 THEN 570
600 CALL CLEAR
610 IF UNP=1 THEN 660
620 XX=PAR(1)
630 GOSUB 1580
640 PAR(1)=XX
```

```
650 PRINT "MONTHLY PAYMENT:
$";PAR(1): :
660 IF UNP=2 THEN 710
670 XX=PAR(2)
680 GOSUB 1580
690 PAR(2)=XX
700 PRINT "AMOUNT OF LOAN: $
";PAR(2): :
710 IF UNP=3 THEN 730
720 PRINT "DURATION OF LOAN:
":"      ";PAR(3);"YEAR":"
  ";PAR(4);"MONTH": :
730 PRINT "ANNUAL INTEREST R
ATE:";PAR(5);"%": :
740 PRINT "PAYMENTS IN A YEA
R:";PAYPERYR: : :
750 PRINT P$(UNP):"--TO BE C
ALCULATED--": :
760 INPUT "IS THIS CORRECT (
Y/N)?":A$
770 IF A$="N" THEN 290
780 PAR(5)=PAR(5)/100
790 PAR(5)=PAR(5)/PAYPERYR
800 IF UNP=3 THEN 870
810 Y=0
820 X=PAR(4)/12*PARPERYR
830 FRACT=X-INT(X)
840 IF FRACT=0 THEN 860
850 Y=1
860 NO_PER=PAR(3)*PAYPERYR+I
NT(PAR(4)/12*PAYPERYR)+Y
870 ON UNP GOTO 880,900,920
880 PAR(1)=PAR(2)*PAR(5)*(1+
PAR(5))^NO_PER/((1+PAR(5))^N
O_PER-1)
890 GOTO 930
900 PAR(2)=PAR(1)*((1+PAR(5)
)^NO_PER-1)/(1+PAR(5))^NO_PE
R/PAR(5)
910 GOTO 930
920 NO_PER=INT(-LOG(1-PAR(2)
*PAR(5)/PAR(1))/LOG(1+PAR(5)
))+1
930 CALL CLEAR
940 XX=PAR(2)
950 GOSUB 1580
960 PAR(2)=XX
970 PRINT #PR:"AMOUNT OF LOA
N: $";PAR(2): :
980 PRINT #PR:"ANNUAL INTERE
ST RATE:";PAR(5)*PAYPERYR*10
0;"%": :
990 PRINT #PR:"DURATION OF L
OAN:":"  ";NO_PER;"PAYMENT P
ERIODS"
1000 PRINT #PR:"  (";NO_PER/
PAYPERYR;"YEARS)": :
1010 XX=PAR(1)
1020 GOSUB 1580
1030 PAR(1)=XX
1040 PRINT #PR:"AMOUNT OF EA
CH PAYMENT:":"    $";PAR(1):
 :
1050 PRINT #PR:"NUMBER OF PA
YMENTS":"PER YEAR: ";PAYPERY
R: : :
1060 IF PR=0 THEN 1100
1070 CALL CLEAR
1080 PRINT "PRINTING PAYMENT
 SCHEDUAL": : : : : : : : :
:
1090 PRINT #1:"PAYMENT #   P
AYMENT     PRINCIPLE     INT
EREST   UNPAID BALANCE"
1100 X=PAR(2)
1110 PAYED=0
1120 COUNT=0
1130 IF PR=1 THEN 1150
1140 PRINT "*CALCULATING COS
T OF LOAN*"
1150 FOR I=1 TO NO_PER
1160 INRT=PAR(5)*X
1170 Y=PAR(1)-INRT
1180 IF Y<=X THEN 1240
1190 Y=X
1200 PAR(1)=Y+INRT
1210 XX=PAR(1)
1220 GOSUB 1580
1230 PAR(1)=XX
1240 X=X-Y
1250 XX=Y
1260 GOSUB 1580
1270 Y=XX
1280 XX=X
1290 GOSUB 1580
1300 X=XX
1310 XX=INRT
1320 GOSUB 1580
1330 INRT=XX
1340 IF PR=0 THEN 1360
1350 PRINT #1:" ";I;TAB(12);
PAR(1);TAB(24);Y;TAB(38);INR
T;TAB(52);X
1360 PAYED=PAYED+PAR(1)
1370 NEXT I
1380 IF PR=0 THEN 1400
1390 PRINT #PR:" ": : : :
1400 PRINT #PR:"TOTAL PAYMEN
TS=";PAYED:"COST OF LOAN=";P
AYED-PAR(2): :
```

```
1410 IF PR=0 THEN 1430
1420 CLOSE #1
1430 PRINT "WOULD YOU LIKE T
O RUN":"THIS PROGRAM AGAIN (
Y/N)"
1440 INPUT Q$
1450 IF Q$="Y" THEN 270
1460 END
1470 REM SUB TO OUTPUT INSTR
UCTIONS
1480 CALL CLEAR
1490 PRINT "This program wil
l calculate":"1 out of a pos
sible"
1500 PRINT "3 unknown parame
ters."
1510 PRINT "You will have to
 enter":"the 2 known variabl
es":"in the loan.": :
1520 PRINT "If you have a pr
inter,":"the computer will p
rint"
1530 PRINT "a payment schedu
al for":"the entire loan per
iod.":
1540 PRINT " ": :"PRESS 'ENT
ER' TO CONTINUE"
1550 CALL KEY(0,KEY,ST)
1560 IF ST=0 THEN 1550
1570 RETURN
1580 REM SUB TO ROUND PARAME
TERS TO NEAREST CENTS
1590 IF XX=0 THEN 1640
1600 YY=INT(XX*100)
1610 IF (XX*100-YY)<.5 THEN
1630
1620 YY=YY+1
1630 XX=YY/100
1640 RETURN
```

KEYBOARD TEACHER 1

This program is designed to teach you how to touch type. As you touch a key, the computer calls it off to you, but it does not appear on the screen. If you practice, and don't look at the keys, soon you'll be touch typing! Great for people just learning to type or as a refresher course.

```
100 REM ********************
110 REM *     KEYBOARD     *
120 REM *    TEACHER #1    *
130 REM *     TI BASIC     *
140 REM * TE 2 W/SPEECH    *
150 REM *    BY ED YORK    *
160 REM *WEST CHESTER, OH*
170 REM * COPYRIGHT 1983 *
180 REM ********************
190 CALL CLEAR
200 CALL SCREEN(5)
210 DIM A$(126)
220 GOSUB 660
230 PRINT "      KEYBOARD TEA
CHER I":::::::::::
240 GOSUB 710
250 REM  **OPEN TO SPEECH**
260 OPEN #1:"SPEECH",OUTPUT
270 PRINT #1:"//43 128"
280 GOSUB 760
290 CALL KEY(0,A,B)
300 IF A<>13 THEN 290
310 CALL CLEAR
320 CALL KEY(0,C,D)
330 IF D<1 THEN 320
340 A$(8)="LEFT AIRROW"
350 A$(9)="RIGHT AIRROW"
360 A$(10)="DOWN AIRROW"
370 A$(11)="UP AIRROW"
380 A$(13)="ENTER"
390 A$(33)="EX CLA MATION PO
INT"
400 A$(34)="QUOTE"
410 A$(35)="NUMBER"
420 A$(39)="APOSTRO PHE"
430 A$(43)="PLUS"
440 A$(44)="COMMA"
450 A$(45)="MINE US"
460 A$(46)="PERIOD"
470 A$(58)="COLE ON"
480 A$(59)="SEMI COLE ON"
490 A$(60)="LESS THAN"
500 A$(62)="GREATER THAN"
510 A$(63)="QUESTION MARK"
520 A$(91)="OPEN BRACK ET"
530 A$(92)="REVERSE SLANT"
540 A$(93)="CLOSE BRACK ET"
550 A$(94)="CARET"
560 A$(95)="UNDER LINE"
570 A$(96)="GRAVE"
580 A$(123)="LEFT ^BRACE"
590 A$(125)="RIGHT ^BRACE"
600 A$(126)="TIL DE"
610 REM  **SAY RESPONSE**
620 PRINT #1:CHR$(C)
630 PRINT #1:A$(C)
```

```
640 GOTO 320
650 CLOSE #1
660 REM  **DISAPPEAR**
670 FOR F=1 TO 8
680 CALL COLOR(F,5,5)
690 NEXT F
700 RETURN
710 REM  **APPEAR**
720 FOR F=1 TO 8
730 CALL COLOR(F,16,5)
740 NEXT F
750 RETURN
760 REM  **INSTRUCTIONS**
770 PRINT #1:"HELLO; I AM KE
YBOARD TEACHER ONE"
780 PRINT #1:"DO YOU WANT TO
 HEAR THE INSTRUCTIONS?"
790 PRINT #1:"PLEASE PRESS Y
 FOR YES; OR N FOR NO"
800 CALL KEY(0,G,H)
810 IF H<1 THEN 800
820 IF G=89 THEN 860
830 IF G<>78 THEN 800
840 PRINT #1:"^VERY WELL!;NO
W PRESS THE ENTER KEY AND WE
 WILL >BEGIN."
850 RETURN
860 PRINT #1:"THIS PRO GRAM
WAS DESIGNED TO REPEAT EACH
KEY AS IT IS PRESSED."
870 PRINT #1:"THE PURPUS OF
THIS PRO GRAM IS TO TEACH YO
U TO TOUCH TYPE"
880 PRINT #1:"PROVIDING YOU
DO NOT CHEAT!"
890 PRINT #1:"PRESS THE ENTE
R KEY AND WE WILL >BEGIN!"
900 RETURN
```

KEYBOARD TEACHER 2

This version will print letters on the screen as well as calling the letter off to you as you type them in. You can write a sentence or message, then press enter and the computer will read it back to you. Requires TE2 and Speech Synthesizer.

```
100 REM ******************
110 REM *    KEYBOARD    *
120 REM *   TEACHER #2   *
130 REM *    TI BASIC    *
140 REM * TE-2 W/SPEECH  *
150 REM *   BY ED YORK   *
160 REM *WEST CHESTER, OH*
170 REM * COPYRIGHT 1983 *
180 REM ******************
190 CALL CLEAR
200 CALL SCREEN(5)
210 GOSUB 470
220 PRINT "    KEYBOARD TEAC
HER II"::::::::::
230 GOSUB 520
240 REM  **OPEN TO SPEECH**
250 OPEN #1:"SPEECH",OUTPUT
260 PRINT #1:"//43 128"
270 GOSUB 580
280 CALL KEY(0,A,B)
290 IF A<>13 THEN 280
300 CALL CLEAR
310 CALL KEY(0,C,D)
320 IF D<1 THEN 310
330 REM  **SAY RESPONSE**
340 PRINT #1:CHR$(C)
350 REM  **PRINT RESPONSE**
360 PRINT CHR$(C);
370 REM  **ADD TO STRING**
380 A$=A$&CHR$(C)
390 IF C<>13 THEN 450
400 REM  **REPEAT STRING**
410 PRINT #1:A$
420 REM  **CLEAR STRING**
430 A$=""
440 CALL CLEAR
450 GOTO 310
460 CLOSE #1
470 REM  **DISAPPEAR**
480 FOR F=1 TO 8
490 CALL COLOR(F,5,5)
500 NEXT F
510 RETURN
520 REM  **APPEAR**
530 FOR F=1 TO 8
540 CALL COLOR(F,16,5)
550 NEXT F
560 RETURN
570 REM  **INSTRUCTIONS**
580 PRINT #1:"HELLO; I AM KE
YBOARD TEACHER TWO"
590 PRINT #1:"DO YOU WANT TO
 HEAR THE INSTRUCTIONS?"
600 PRINT #1:"PLEASE PRESS Y
 FOR YES; OR N FOR NO"
610 CALL KEY(0,G,H)
```

```
620 IF H<1 THEN 610
630 IF G=89 THEN 670
640 IF G<>78 THEN 610
650 PRINT #1:"^VERY WELL!;NO
W PRESS THE ENTER KEY AND WE
 WILL >BEGIN."
660 RETURN
670 PRINT #1:"THIS PRO GRAM
WAS DESIGNED TO ALLOW YOU TO
 TIPE A LETTER;"
680 PRINT #1:"WORD OR SENTEN
CE AND TELL YOU EACH"
690 PRINT #1:"LETTER AS IT I
S TIPED."
700 PRINT #1:"YOU MAY THEN P
RESS THE ENTER KEY"
710 PRINT #1:" AND I WILL RE
AD THE ENTIRE MESSAGE BACK T
O YOU."
720 PRINT #1:"THE PURPUS OF
THIS PRO GRAM IS TO"
730 PRINT #1:"ALLOW YOU TO P
RACTICE TOUCH TIPING LETTERS
, WORDS OR SENTENCES."
740 PRINT #1:"PRESS THE ENTE
R KEY AND WE WILL >BEGIN!"
750 RETURN
```

MARTIAN PROBE

Your ability to control and safely land the Lunar Lander is put to a severe test in this game that has 36 variations. With a dwindling fuel supply to contend with, time is of the essence. Complete as many safe landings as possible and build up your score. Forward your high score to NASA, They're always looking for more good Compunauts! Joysticks optional.

```
100 REM ******************
110 REM * MARTIAN PROBE  *
120 REM * EXTENDED BASIC *
130 REM * BY TOM BANCHY  *
140 REM *CINCINNATI, OHIO*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 REM **INITIALIZATION**
180 RANDOMIZE :: CALL MAGNIF
Y(3):: CALL CHAR(126,RPT$("0
F",8))
190 CALL CHAR(122,"0000183C3
C3C7EFF",123,"00000000004266
FF")
200 CALL CHAR(124,"000000000
0183CFF",125,RPT$("F",16))
210 CALL CHAR(128,"071F3F7F7
8F0F8FFFFFFFFFF183C7EFEE0F8F
CFE1E0F1FFFFFFFFFFF183C7
E7F")
220 REM **INSTRUCTION**
230 DISPLAY AT(1,8)ERASE ALL
:"MARTIAN PROBE" :: FOR T=1
TO 200 :: NEXT T
240 DISPLAY AT(3,1):"THE OBJ
ECT OF 'MARTIAN      PROBE'
IS TO GUIDE YOUR"
250 DISPLAY AT(5,1):"SPACE C
APSULE SAFELY FROM   THE TOP
 OF THE SCREEN TO  "
260 DISPLAY AT(7,1):"THE BOT
TOM OF THE TRENCH    BELOW.
THIS IS ACCOMPLISHED"
270 DISPLAY AT(9,1):"BY MANE
UVERING THE CAPSULE  WITH TH
E <RIGHT> AND <LEFT>"
280 DISPLAY AT(11,1):"ARROWS
&Q. THE RIGHT AND LEFTARROWS
 SIMPLY GUIDE THE"
290 DISPLAY AT(13,1):"CAPSUL
E INTO THE TRENCH     WHILE
THE 'Q' KEY ENGAGES "
300 DISPLAY AT(15,1):"THE SH
IP'S THRUST, SLOWING  THE DE
SCENT OF THE CAPSULE,"
310 DISPLAY AT(17,1):"BUT AT
 THE SAME TIME USING  THE SM
ALL AMOUNT OF FUEL ON"
320 DISPLAY AT(19,1):"BOARD.
 YOU, THE PLAYER, MUSTGUIDE
THE SHIP TO SAFETY AS"
330 DISPLAY AT(21,1):"MANY T
IMES AS POSSIBLE BE-  FORE C
RASHING DUE TO LOSS "
340 DISPLAY AT(23,1):"OF FUE
L OR FAULTY PILOTING. *PRESS
 ANY KEY TO CONTINUE*"
350 CALL KEY(0,K,S):: IF S=0
 THEN 350
360 DISPLAY AT(1,1)ERASE ALL
:"YOUR CHANCES OF SURVIVAL A
RE"
370 DISPLAY AT(2,1):"DEPENDA
NT ON YOUR PILOTING  SKILLS
AND 3 DIFFICULTY FAC-"
380 DISPLAY AT(4,1):"TORS TH
AT YOU MUST CHOOSE"
```

```
390 DISPLAY AT(5,1):"BEFORE
BEGINNING. YOU HAVE  THE OPT
ION OF LANDING YOUR"
400 DISPLAY AT(7,1):"CAPSULE
 IN WIND, TERRAIN,   AND MAN
EUVERABILITY CON-"
410 DISPLAY AT(9,1):"DITIONS
 RANGING FROM VERY  EASY TO
VERY DIFFICULT. THE"
420 DISPLAY AT(11,1):"TRENCH
, HOWEVER, REMAINS    VERY N
ARROW AND CHALLENGING"
430 DISPLAY AT(13,1):"TO LAN
D IN, SO USE CAUTION. YOUR S
CORE DEPENDS ON THE"
440 DISPLAY AT(15,1):"NUMBER
 OF LANDINGS YOU COM- PLETE
SAFELY AND THE DIFFI-"
450 DISPLAY AT(17,1):"CULTY
OF THE CONDITIONS THEYWERE M
ADE UNDER."
460 DISPLAY AT(19,1):"  JOYS
TICK & FIRE BUTTON CAN ALSO
BE USED"
470 DISPLAY AT(23,1):"  PRES
S ANY KEY TO START"
480 CALL KEY(0,K,S):: IF S=0
 THEN 480
490 CALL CLEAR :: FUEL=100 :
: CALL SCREEN(2):: CALL COLO
R(0,3,1)
500 FOR T=1 TO 11 :: CALL CO
LOR(T,12,1):: NEXT T :: CALL
 COLOR(12,7,1)
510 REM **SET DIFFICULTY**
520 DISPLAY AT(6,1):"PLEASE
INPUT WIND, TERRAIN, AND MAN
EUVERABILITY DIFFI-"
530 DISPLAY AT(8,1):"CULTY L
EVEL FROM 1 TO 12    (1 BEIN
G EASIEST AND 12 HAR-DES
T)."
540 DISPLAY AT(13,1):"WIND"
:: ACCEPT AT(13,7)VALIDATE(D
IGIT)SIZE(3)BEEP:D1
550 IF D1<1 OR D1>12 THEN 54
0
560 IF D1<4 THEN D=4 ELSE D=
D1
570 SP=D/4 :: Q=(SP*3-SP*2)/
2+(SP*2)
580 DISPLAY AT(15,1):"TERRAI
N" :: ACCEPT AT(15,10)VALIDA
TE(DIGIT)SIZE(3)BEEP:D2
590 IF D2<1 OR D2>12 THEN 58
0
600 DISPLAY AT(17,1):"MANEUV
ERABILITY"
610 ACCEPT AT(17,18)VALIDATE
(DIGIT)SIZE(3)BEEP:D3 :: IF
D3<1 OR D3>12 THEN 600
620 REM **PRINT SCREEN**
630 DISPLAY AT(1,1)ERASE ALL
:"FUEL";FUEL: :"LANDINGS": :
"COMPLETED";L
640 DISPLAY AT(4,1):"WIND";D
1: :"TERRAIN";D2: :"MANEUV."
;D3
650 FOR T=(20-D2)TO 22 :: FO
R TT=1 TO 19 STEP 18 :: CALL
 HCHAR(T,TT,125,15)
660 NEXT TT :: CALL HCHAR(T,
18,126):: NEXT T
670 CALL HCHAR(23,1,125,64):
: FOR F=1 TO 2 :: FOR FF=122
 TO 124
680 FOR FFF=2 TO 19 STEP 17
:: CALL HCHAR(19-D2,FFF+INT(
RND*14),FF)
690 NEXT FFF :: NEXT FF :: N
EXT F :: X=2 :: Y=0
700 CALL SPRITE(#1,128,5,5,1
50+D3*7,X,Y)
710 REM *MAIN CONTROL LOOP*
720 CALL JOYST(1,JX,JY):: IF
 JX=0 THEN 740 :: K=(1+ABS(J
X+1))/2 :: GOSUB 890
730 GOTO 750
740 CALL KEY(1,K,S):: IF S<>
0 AND(K=2)+(K=3)+(K=18)<>0 T
HEN GOSUB 890
750 CALL MOTION(#1,X,Y):: CA
LL POSITION(#1,XX,YY)
760 IF XX>=(137-D2*8)THEN GO
SUB 790
770 X=X+.3 :: Y=Y*.9 :: GOTO
 720
780 REM **TEST FOR CRASHES**
          **AND LANDINGS**
790 IF XX>159-.3*X THEN 850
800 IF (YY>120)+(YY<126)=-2
THEN RETURN
810 CALL DELSPRITE(#1):: CAL
L CLEAR :: CALL SOUND(700,-6
,0)
820 SC=(XX*D1)+(L*(5+D1)*(5+
D2)*(5+D3)):: IF SC>HI THEN
HI=SC
```

```
830 DISPLAY AT(12,1):"YOUR S
CORE IS";SC:"HIGH SCORE IS";
HI
840 FOR T=1 TO 1000 :: NEXT
T :: L,X,Y=0 :: GOTO 490
850 CALL MOTION(#1,0,0):: CA
LL SOUND(700,800,0,801,0,802
,0):: L=L+1
860 DISPLAY AT(3,10):L :: FO
R T=1 TO 500 :: NEXT T
870 CALL DELSPRITE(#1):: GOT
O 630
880 REM **SHIP MOVEMENT**
890 IF K<>18 THEN 930
900 IF X<1 OR FUEL<1 THEN RE
TURN
910 FUEL=FUEL-1 :: DISPLAY A
T(1,5):FUEL
920 X=X-1.5 :: RETURN
930 Y=Y+(SP*K-Q):: RETURN
```

SOUND EFFECTS CATALOG

If you have ever programmed sounds & noises, you're familiar with the tedious trial and error method usually required to get exactly what you're looking for. This program (already containing 6 sound effects) will not only store up to 26 of your favorite routines, but it will also allow you to generate them individually, or in any sequence you desire. A storehouse of sounds for future reference!

```
100 REM ******************
110 REM * SOUND EFFECTS *
120 REM *    CATALOG    *
130 REM *    TI BASIC   *
140 REM *BY BOB WARTMAN *
150 REM * PARK HILLS,KY.*
160 REM * COPYRIGHT 1983*
170 REM ******************
180 CALL CLEAR
190 REM **INITIALIZATION**
200 A$="8080808080808080"
210 AA$="00000000000000FF"
220 AAA$="FF"
230 C$(1)="   PRESS A LETTER
 FOR THE"
240 C$(2)=" CORRESPONDING SO
UND-EFFECT"
250 CALL CHAR(128,A$)
260 CALL CHAR(129,AA$)
270 CALL CHAR(130,AAA$)
280 L=65
290 REM **MAIN MENU**
300 PRINT "  SOUND-EFFECTS C
ATALOG"::::::::::::::::::::::
310 FOR C=3 TO 19 STEP 16
320 FOR I=6 TO 18
330 CALL HCHAR(I,C-1,L)
340 CALL HCHAR(I,C,41)
350 READ B$
360 FOR J=1 TO LEN(B$)
370 CALL HCHAR(I,C+J,ASC(SEG
$(B$,J,1)))
380 NEXT J
390 L=L+1
400 NEXT I
410 NEXT C
420 CALL HCHAR(4,1,129,32)
430 CALL VCHAR(5,17,128,15)
440 CALL HCHAR(20,1,130,32)
450 FOR N=1 TO 2
460 FOR I=1 TO LEN(C$(N))
470 CALL HCHAR(20+N,I,ASC(SE
G$(C$(N),I,1)))
480 NEXT I
490 NEXT N
500 REM **SELECT SOUND**
510 CALL KEY(0,K,S)
520 IF S=0 THEN 510
530 ON K-64 GOTO 550,620,700
,790,860,1000,1080,1110,,,,,
,,,,,,,,,,,,,,,
540 DATA WHISTLE-DOWN,CRASH,
FOOT STEPS,FLYING SAUCER,SIR
EN,SPACESHIP,ENGINE IDLE
,MOTORCYCLE,,,,,,,,,,,,,,,,,
,
550 REM **WHISTLE-DOWN**
560 F=3000
570 FOR V=1 TO 30
580 CALL SOUND(50,F,V)
590 F=F-40
600 NEXT V
610 GOTO 510
620 REM **CRASH**
630 FOR V=1 TO 28 STEP 3
640 CALL SOUND(130,-5,V)
650 NEXT V
660 FOR V=29 TO 30
670 CALL SOUND(250,-5,V)
680 NEXT V
690 GOTO 510
700 REM **FOOTSTEPS**
```

```
710 FOR FS=1 TO 10
720 CALL SOUND(80,-6,8)
730 CALL SOUND(30,-7,1)
740 CALL SOUND(30,-7,1)
750 FOR DELAY=1 TO 100
760 NEXT DELAY
770 NEXT FS
780 GOTO 510
790 REM **FYING SAUCER**
800 FOR FS=1 TO 10
810 CALL SOUND(160,-2,8)
820 CALL SOUND(120,-2,1)
830 CALL SOUND(120,-2,8)
840 NEXT FS
850 GOTO 510
860 REM **SIREN**
870 FOR U=1 TO 3
880 FOR T=645 TO 810 STEP 15
890 CALL SOUND(-200,T,0,T+1,
0,T+2,0)
900 NEXT T
910 FOR T=825 TO 660 STEP -1
5
920 CALL SOUND(-200,T,0,T+1,
0,T+2,0)
930 NEXT T
940 NEXT U
950 FOR T=1 TO 3
960 CALL SOUND(500,400,0,401
,0)
970 CALL SOUND(500,510,0,511
,0)
980 NEXT T
990 GOTO 510
1000 REM **SPACESHIP**
1010 FOR I=1 TO 8
1020 CALL SOUND(-1500,600,3,
603,3,-4,15)
1030 FOR Y=1 TO 100
1040 NEXT Y
1050 CALL SOUND(-1500,600,8,
602,8,603,8,-4,15)
1060 NEXT I
1070 GOTO 510
1080 REM **ENGINE IDLE**
1090 CALL SOUND(100,411,30,3
56,30,413,30,-4,0)
1100 GOTO 510
1110 REM **MOTORCYCLE**
1120 CALL SOUND(3000,250,30,
250,30,400,30,-4,0)
1130 FOR U=1 TO 600
1140 NEXT U
1150 FOR G=630 TO 510 STEP -
40
1160 FOR T=G TO G+300 STEP 1
0
1170 CALL SOUND(-500,250,30,
250,30,T,30,-4,0)
1180 FOR Y=1 TO 2
1190 NEXT Y
1200 NEXT T
1210 NEXT G
1220 CALL SOUND(-4200,250,30
,250,30,820,30,-4,0)
1230 GOTO 510
```

HOUSEHOLD INVENTORY

This program will keep a record of every item you have in your home. It will record it by item, serial # & manufacturer & model #, purchase cost & date. It will sort by room or item. Valuable for insurance purposes and for personal records.

```
100 REM ******************
110 REM *    HOUSEHOLD    *
120 REM *    INVENTORY    *
130 REM *    TI BASIC     *
140 REM *BY BOB WARTMAN   *
150 REM * PARK HILLS,KY.*
160 REM *COPYRIGHT 1983   *
170 REM ******************
180 REM **INITIALIZATION**
190 CALL SCREEN(13)
200 DIM NA$(200),AD$(200),PH
$(200),LN$(200),CS$(200)
210 REM **MAIN MENU**
220 CALL CLEAR
230 PRINT "     \\\\\\\\\\*//
//////// "
240 PRINT "     \
       / "
250 PRINT "     *HOUSEHOLD IN
VENTORY*"
260 PRINT "     /
       \ "
270 PRINT "     //////////*\\
\\\\\\\\ ":::::
280 PRINT "  YOUR OPTIONS AR
E:"::
290 PRINT "    1-REVIEW THE L
IST":"    2-SEARCH FOR AN ITE
M"
```

```
300 PRINT "    3-CHANGE LOCAT
ION":"    4-ADD LISTINGS":"
 5-DELETE LISTINGS"
310 PRINT "    6-ARRANGE BY R
OOM":"    7-READ LIST FROM TA
PE"
320 PRINT "    8-WRITE LIST T
O TAPE":"    9-PRINT NAMES ON
 PRINTER"
330 PRINT "   10-TERMINATE PR
OGRAM"::
340 INPUT " PICK ONE OPTION
":OP
350 CALL CLEAR
360 IF (OP<1)+(OP>10)=-1 THE
N 220
370 ON OP GOTO 390,550,700,8
50,1330,1570,2060,2160,2350,
2450
380 REM **REVIEW LIST**
390 NT=0
400 FOR I=1 TO N
410 NT=NT+1
420 GOSUB 2590
430 IF I=N THEN 450
440 IF NT<6 THEN 520
450 PRINT "  PRESS 'ENTER' T
O CONTINUE. "
460 PRINT "  PRESS 'X' TO EX
IT REVIEW. "
470 CALL KEY(0,K,S)
480 IF K=88 THEN 220
490 IF K<>13 THEN 470
500 CALL CLEAR
510 NT=0
520 NEXT I
530 GOTO 220
540 REM **SEARCH**
550 CALL CLEAR
560 INPUT "WHAT IS THE ITEM?
 ":NI$
570 FOR I=1 TO N
580 IF IT$(I)<>NI$ THEN 670
590 PRINT ::"IS THE ";NI$;"
IN THE ";RM$(I);"?"::
600 INPUT "(Y/N) ":X$
610 IF X$="N" THEN 670
620 GOSUB 2590
630 PRINT "ANY MORE? (Y/N)":
640 INPUT X$
650 IF X$="Y" THEN 550
660 GOTO 220
670 NEXT I
680 GOTO 220
690 REM **CHANGE ROOM**
700 CALL CLEAR
710 INPUT "WHAT IS THE ITEM?
: ":NI$
720 FOR D=1 TO N+1
730 IF IT$(D)<>NI$ THEN 820
740 PRINT ::"IS THE ";NI$;"
IN THE ";RM$(D);"?"::
750 INPUT "(Y/N) ":X$
760 IF X$<>"Y" THEN 820
770 CHD=D
780 INPUT "WHICH ROOM CHANGE
D TO?":RM$(CHD)
790 INPUT "ANY MORE CHANGES?
 (Y/N)      ":X$
800 IF X$<>"N" THEN 700
810 GOTO 220
820 NEXT D
830 GOTO 220
840 REM **ADD LISTINGS**
850 L=N+1
860 FOR I=L TO 200
870 PRINT "  SAMPLE ABBREVIA
TIONS"
880 PRINT "  ~~~~~~~~~~~~~~~
~~~~~":"  BASEMENT-------BAS
MNT"
890 PRINT "  FAMILY ROOM----
FMLYRM":"  KITCHEN--------KI
TCHN"
900 PRINT "  LIVING ROOM----
LVNGRM":"  MASTER BEDROOM-MB
EDRM"::
910 PRINT "  CLOCK/RADIO----
CLK/RD":"  COLOR/TV-------CL
R/TV"
920 PRINT "  DISHWASHER-----
DWASHR":"  FREEZER--------FR
EEZR"
930 PRINT "  MICROWAVE OVEN-
MW/OVN":"  REFRIGERATER---RF
RIGE"::
940 PRINT "/SPACE\":"\LIMIT/
":"    |"
950 INPUT "* (6) ITEM       :
":IT$(I)
960 IF LEN(IT$(I))<7 THEN 98
0 V1├ (,mJ((J *Vq()V GOSUB 2
510
970 GOTO 950
980 INPUT "* (6) ROOM       :
":RM$(I)
990 IF LEN(RM$(I))<7 THEN 10
20
```

```
1000 GOSUB 2510
1010 GOTO 980
1020 INPUT "*(11) BRAND/MOD#
:":BM$(I)
1030 IF LEN(BM$(I))<12 THEN
1060
1040 GOSUB 2510
1050 GOTO 1020
1060 INPUT "* (5) DATE
:":DA$(I)
1070 IF LEN(DA$(I))<6 THEN 1
100
1080 GOSUB 2510
1090 GOTO 1060
1100 INPUT "* (5) COST
:":CO$(I)
1110 IF LEN(CO$(I))<6 THEN 1
140
1120 GOSUB 2510
1130 GOTO 1100
1140 INPUT "*(11) SER#
:":SR$(I)
1150 IF LEN(SR$(I))<12 THEN
1180
1160 GOSUB 2510
1170 GOTO 1140
1180 AN=I
1190 CALL CLEAR
1200 PRINT "ENTRY #";I
1210 PRINT ::"YOU HAVE ENTER
ED:"::
1220 GOSUB 2590
1230 N=N+1
1240 INPUT "ANY MORE LISTING
S? (Y/N) ":X$
1250 CALL CLEAR
1260 IF X$="N" THEN 1280
1270 NEXT I
1280 INPUT "RECORD DATA ON T
APE? (Y/N) ":X$
1290 CALL CLEAR
1300 IF X$="Y" THEN 2160
1310 GOTO 220
1320 REM **DELETE LISTINGS**
1330 INPUT "WHAT IS THE ITEM
? ":NI$
1340 FOR I=1 TO N
1350 IF IT$(I)<>NI$ THEN 150
0
1360 PRINT ::"IS THE ";NI$;"
 IN THE ";RM$(I);"?"::
1370 INPUT "(Y/N) ":X$
1380 CALL CLEAR
1390 LL=I
1400 IF X$<>"Y" THEN 1500
1410 FOR E=LL TO N
1420 IT$(E)=IT$(E+1)
1430 RM$(E)=RM$(E+1)
1440 DA$(E)=DA$(E+1)
1450 CO$(E)=CO$(E+1)
1460 BM$(E)=BM$(E+1)
1470 SR$(E)=SR$(E+1)
1480 NEXT E
1490 N=N-1
1500 NEXT I
1510 PRINT ::"DELETION COMPL
ETE - ANY MORE?"::
1520 INPUT "(Y/N) ":X$
1530 CALL CLEAR
1540 IF X$="Y" THEN 1330
1550 GOTO 220
1560 REM **ARRANGE BY ROOM**
1570 PRINT "      ONE MOMENT
PLEASE.":::::::::
1580 FOR X=1 TO N
1590 A=X
1600 RT=LEN(RM$(X))
1610 FOR T=X+1 TO N
1620 B=T
1630 IF RM$(X)=RM$(T)THEN 19
10
1640 FOR I=1 TO RT
1650 IF SEG$(RM$(X),I,I)<=SE
G$(RM$(T),I,I)THEN 1670
1660 GOSUB 1720
1670 IF SEG$(RM$(X),I,I)<>SE
G$(RM$(T),I,I)THEN 1690
1680 NEXT I
1690 NEXT T
1700 NEXT X
1710 GOTO 220
1720 Q$=RM$(A)
1730 RM$(A)=RM$(B)
1740 RM$(B)=Q$
1750 Q$=IT$(A)
1760 IT$(A)=IT$(B)
1770 IT$(B)=Q$
1780 Q$=DA$(A)
1790 DA$(A)=DA$(B)
1800 DA$(B)=Q$
1810 Q$=CO$(A)
1820 CO$(A)=CO$(B)
1830 CO$(B)=Q$
1840 Q$=BM$(A)
1850 BM$(A)=BM$(B)
1860 BM$(B)=Q$
1870 Q$=SR$(A)
1880 SR$(X)=SR$(B)
```

```
1890 SR$(B)=Q$
1900 RETURN
1910 MNT=X
1920 FOR F=MNT TO MNT+1
1930 FT=LEN(IT$(F))
1940 FOR I=1 TO FT
1950 IF SEG$(IT$(F),I,I)>SEG
$(IT$(F+1),I,I)THEN 1990
1960 IF SEG$(IT$(F),I,I)<>SE
G$(IT$(F+1),I,I)THEN 2030
1970 NEXT I
1980 NEXT F
1990 A=F
2000 B=F+1
2010 GOSUB 1720
2020 GOTO 220
2030 IF T=N THEN 1700
2040 GOTO 1690
2050 REM **READ FROM TAPE**
2060 GOSUB 2550
2070 OPEN #1:DN$,INTERNAL,IN
PUT ,FIXED 128
2080 INPUT #1:LT$
2090 INPUT #1:N
2100 FOR I=1 TO N
2110 INPUT #1:IT$(I),RM$(I),
DA$(I),CO$(I),BM$(I),SR$(I)
2120 NEXT I
2130 CLOSE #1
2140 GOTO 220
2150 REM **WRITE TO TAPE**
2160 GOSUB 2550
2170 INPUT "IS THIS A NEW LI
ST? (Y/N) ":X$
2180 IF X$<>"Y" THEN 2210
2190 PRINT ::"WHAT IS THE TI
TLE OF"::
2200 INPUT "YOUR LIST? ":LT$
2210 OPEN #1:DN$,SEQUENTIAL,
INTERNAL,OUTPUT,FIXED 128
2220 PRINT #1:LT$
2230 PRINT #1:N
2240 FOR I=1 TO N
2250 PRINT #1:IT$(I),RM$(I),
DA$(I),CO$(I),RM$(I),SR$(I)
2260 NEXT I
2270 CLOSE #1
2280 CALL CLEAR
2290 PRINT "THE LISTINGS ARE
 RECORDED.":::::::::::
2300 PRINT "  PRESS `ENTER'
TO CONTINUE."
2310 CALL KEY(0,K,S)
2320 IF K<>13 THEN 2310
2330 GOTO 220
2340 REM *PRINT ON PRINTER*
2350 GOSUB 2550
2360 OPEN #2:DN$,OUTPUT
2370 PRINT #2:TAB(3);LT$
2380 FOR I=1 TO N
2390 PRINT #2:IT$(I);TAB(10)
;DA$(I);TAB(18);BM$(I)
2400 PRINT #2:RM$(I);TAB(10)
;CO$(I);TAB(18);SR$(I)
2410 NEXT I
2420 CLOSE #2
2430 GOTO 220
2440 REM **TERMINATION**
2450 PRINT "DO YOU WISH TO T
ERMINATE"::
2460 INPUT "THIS SESSION? (Y
/N) ":X$
2470 CALL CLEAR
2480 IF X$<>"Y" THEN 220
2490 PRINT TAB(10);"GOOD BYE
":::::::::::
2500 STOP
2510 PRINT "ENTRY IS TOO LON
G-TRY AGAIN."
2520 FOR DELAY=1 TO 100
2530 NEXT DELAY
2540 RETURN
2550 PRINT "WHAT IS YOUR DEV
ICE NAME?"::
2560 INPUT "(CS1,DSK1,RS232/
1,ETC.)":DN$
2570 IF DN$="" THEN 2560
2580 RETURN
2590 PRINT IT$(I);TAB(10);DA
$(I);TAB(18);BM$(I)
2600 PRINT RM$(I);TAB(10);CO
$(I);TAB(18);SR$(I)::
2610 RETURN
```

GEEN GAME

A two player thought provoking word search game. Player 1 enters a word or message up to 20 spaces long. The Computer changes each letter a random number of letter's from the first letter. i.e. A to D,B to E,C to F etc. Player 2 then has two chances to guess the answer. If they guess one letter they should be able to calculate the other letters that comprise the scrambled message. Confused? It's really very simple. Once you play it, it will be a challenge to stump your opponent!

```
100 REM  ****************
110 REM  *   GEEN GAME   *
120 REM  *   TI BASIC    *
130 REM  * BY DON BUSCH *
140 REM  *CINCINNATI,OH.*
150 REM  *COPYRIGHT 1983*
160 REM  ****************
170 REM  *INITIALIZATION*
180 CALL CLEAR
190 Q$=""
200 MES$=""
210 RANDOMIZE
220 X=INT(RND*25)+1
230 REM  **INSTRUCTIONS**
240 PRINT "          GEEN GAM
E":"          ---- ----":
250 PRINT "PLAYER ONE ENTERS
 AN UNSEEN MESSAGE. THE MESS
AGE IS THEN"
260 PRINT "ENCODED. EACH LET
TER IS"
270 PRINT "CHANGED TO ANOTHE
R LETTER A RANDOM NUMBER OF
LETTERS"
280 PRINT "FROM THAT LETTER.
 FOR"
290 PRINT "EXAMPLE: IF A IS
CHANGED TO E, THEN B WOULD B
E CHANGED"
300 PRINT "TO F, Z WOULD BE
CHANGED TO C, AND SO ON. SPA
CES REMAIN"
310 PRINT "SPACES. PLAYER TW
O THEN HAS"
320 PRINT "TWO CHANCES TO GU
ESS THE    ORIGINAL MESSAGE.
"::
330 PRINT "ENTER ONLY LETTER
S AND      SPACES UP TO A TO
TAL OF 20"
340 PRINT "CHARACTERS. HIT "
;CHR$(34);"ENTER";CHR$(34);"
 WHEN"
350 PRINT "MESSAGE IS FINISH
ED."
360 PRINT :"   HIT ANY KEY T
O BEGIN"
370 CALL KEY(0,K1,S1)
380 IF S1=0 THEN 370
390 CALL CLEAR
400 INPUT "PLAYER ONE:":N1$
410 PRINT
420 INPUT "PLAYER TWO:":N2$
430 CALL CLEAR
440 REM *INVISIBLE MESSAGE*
450 PRINT N1$;", ENTER MESSA
GE"
460 CALL KEY(0,KM,SM)
470 IF SM=0 THEN 460
480 IF KM=13 THEN 560
490 IF (KM>64)+(KM<91)=-2 TH
EN 530
500 IF KM=32 THEN 530
510 PRINT "ILLEGAL CHARACTER
"
520 GOTO 460
530 MES$=MES$&CHR$(KM)
540 IF LEN(MES$)>=20 THEN 56
0
550 GOTO 460
560 PRINT ::"MESSAGE ENTERED
"::
```

```
570 REM  **ENCODE MESSAGE**
580 FOR C=1 TO LEN(MES$)
590 D$=SEG$(MES$,C,1)
600 IF ASC(D$)<>32 THEN 630
610 E=32
620 GOTO 660
630 E=ASC(D$)+X
640 IF E<91 THEN 660
650 E=E-26
660 Q$=Q$&CHR$(E)
670 NEXT C
680 PRINT "THE CODED MESSAGE
 IS ";Q$::
690 REM  **GUESS MESSAGE**
700 PRINT N2$;"'S FIRST GUES
S AT THE":"MESSAGE";
710 INPUT G1$
720 PRINT
730 IF G1$=MES$ THEN 880
740 CALL SOUND(1000,-3,0)
750 PRINT "SORRY, ";N2$;", T
HAT IS":"INCORRECT. TRY AGAI
N."::
760 PRINT N2$;"'S SECOND GUE
SS AT THE":"MESSAGE";
770 INPUT G2$
780 PRINT
790 IF G2$=MES$ THEN 880
800 CALL SOUND(1000,-3,0)
810 PRINT "SORRY, ";N2$;", T
HAT IS":"INCORRECT. YOU LOSE
.":
820 PRINT "THE MESSAGE WAS "
;MES$
830 PRINT :" HIT ANY KEY TO
PLAY AGAIN"
840 CALL KEY(0,K1,S1)
850 IF S1=0 THEN 840
860 GOTO 180
870 REM *VICTORY SEQUENCE*
880 PRINT N2$;", YOU ARE ABS
OLUTELY":"CORRECT!!! YOU WIN
!!!"
890 FOR S=30 TO 1 STEP -1
900 CALL SOUND(50,-7,S)
910 NEXT S
920 CALL SOUND(1000,-7,0)
930 CALL SCREEN(2)
940 FOR DELAY=1 TO 350
950 NEXT DELAY
960 CALL SCREEN(4)
970 GOTO 830
```

WORD CRAZE QC

An educational word game for two players. The Computer randomly selects 10 letters and the players compile as many of their own original words as possible. The player with the most words wins. A sort of computerized Boggle.

```
100 REM ******************
110 REM *  WORD CRAZE     *
120 REM *   TI BASIC      *
130 REM *  PHIL TAYLOR    *
140 REM *HOLLAND,MICHIGAN*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 RANDOMIZE
190 CALL SCREEN(16)
200 PRINT TAB(8);"**WORD CRA
ZE**":::::::::::::::::::::::
210 DIM S(20)
220 FOR X=6 TO 1 STEP -1
230 FOR N=1 TO 12
240 CALL SOUND(50,262,0)
250 CALL SOUND(50,330,0)
260 CN=INT(RND*26)+65
270 A=12-(X*SIN(N/6*3.14))
280 B=16-(X*COS(N/6*3.14))
290 CALL HCHAR(A,B,CN)
300 NEXT N
310 NEXT X
320 FOR DELAY=1 TO 500
330 NEXT DELAY
340 CALL CLEAR
350 INPUT "WANT INSTRUCTIONS
? (Y/N) ":Z$
360 IF Z$="N" THEN 380
370 GOSUB 1240
380 CALL CLEAR
390 INPUT "1ST PLAYER'S NAME
? ":M$(1)
400 INPUT "2ND PLAYER'S NAME
? ":M$(2)
410 CALL CLEAR
420 PRINT TAB(10);"PLEASE WA
IT":::::::::
430 FOR N=1 TO 5
440 X=2^(1/12)
450 FOR A=1 TO 13
460 CALL SOUND(100,110*X^A,0
)
470 NEXT A
```

```
480 NEXT N
490 FOR H=1 TO 2
500 CALL CLEAR
510 PRINT "YOUR TURN ";M$(H)
::
520 RESTORE
530 X=INT(RND*20)+1
540 FOR Q=1 TO X
550 READ Q$
560 NEXT Q
570 PRINT Q$::
580 FOR DELAY=1 TO 400
590 NEXT DELAY
600 FOR C=1 TO 15
610 INPUT "WORD? ":Z$
620 IF Z$="Z" THEN 680
630 IF Z$<("    ")THEN 660
640 NEXT C
650 GOTO 680
660 GOSUB 1000
670 GOTO 610
680 C=C-1
690 PRINT "YOU FOUND ";C;"WO
RDS ";M$(H)
700 INPUT "NUMBER OF CHALLEN
GED WORDS? ":D
710 E(H)=C-D
720 CALL CLEAR
730 PRINT "YOUR TOTAL IS ";E
(H);
740 FOR DELAY=1 TO 500
750 NEXT DELAY
760 NEXT H
770 CALL CLEAR
780 PRINT M$(1):"YOUR TOTAL
WAS ";E(1)::M$(2):"YOUR TOTA
L WAS ";E(2)::::
790 IF E(1)>E(2)THEN 810
800 IF E(2)>E(1)THEN 840 ELS
E 870
810 PRINT M$(1)
820 PRINT "**********WINS*
**********"::
830 GOTO 920
840 PRINT M$(2)
850 PRINT "**********WINS*
**********"::::
860 GOTO 920
870 PRINT "**********TIE**
**********"::
880 PRINT TAB(9);"TIE BREAKE
R!!"::
890 FOR D=1 TO 800
900 NEXT D
910 GOTO 420
920 CALL SOUND(700,247,2,392
,0)
930 CALL SOUND(235,294,2,494
,0)
940 CALL SOUND(235,392,2,587
,0)
950 CALL SOUND(235,294,2,494
,0)
960 CALL SOUND(800,247,2,392
,0)
970 INPUT "WANT TO PLAY AGAI
N? (Y/N) ":Z$
980 IF Z$="Y" THEN 410
990 END
1000 REM ***IF ENTRY IS LESS
 THAN A WORD***
1010 PRINT TAB(6);"DON'T CHE
AT!!"
1020 RETURN
1030 DATA "A N K I R W T D L
 O"
1040 DATA "S F H K O T Y P E
 A"
1050 DATA "W C B M I O P R T
 E"
1060 DATA "E R T Y U I P A F
 G"
1070 DATA "N I O V L I S R E
 S"
1080 DATA "Q R B E L E U A W
 S"
1090 DATA "T P E E F R M L I
 D"
1100 DATA "C K O A E L M N S
 G"
1110 DATA "E R T H F L O B M
 A"
1120 DATA "S T I L R F L P H
 K"
1130 DATA "R H L O I N A S T
 F"
1140 DATA "A G D J S L E I T
 O"
1150 DATA "K A C T P L A I S
 O"
1160 DATA "S N S E T I O C C
 L"
1170 DATA "T U R W E A B O H
 Y"
1180 DATA "E E W Y P S D K S
 A"
1190 DATA "Q K C T I U Y L D
 S"
```

```
1200 DATA "K O E K L C S C I
 T"
1210 DATA "M O M Y R E D A S
 I"
1220 DATA "D T W E S A E P R
 I"
1230 DATA "B Y I S A B E T M
 B"
1240 CALL CLEAR
1250 PRINT "=WORD CRAZE=IS A
 COMPETI-":"TIVE WORD GAME B
ETWEEN TWO":"PLAYERS."::
1260 PRINT "EACH PLAYER TRIE
S TO ORGAN-":"IZE '15' WORDS
 FROM A RAN-"
1270 PRINT "DOMLY SELECTED L
IST OF"
1280 PRINT "10 LETTERS. HIS
OPPONENT":"THEN HAS AN OPPOR
TUNITY TO"
1290 PRINT "CHALLENGE HIS WO
RDS. THE"
1300 PRINT "CHALLENGED WORDS
 ARE THEN":"SUBTRACTED FROM
THE TOTAL."::
1310 PRINT "IF YOU HAVE FOUN
D ALL THE":"POSSIBLE WORDS B
EFORE REACH-"
1320 PRINT "ING '15', ENTER
THE LETTER"
1330 PRINT "'Z' TO END YOUR
TURN."::
1340 PRINT "IF THE GAME ENDS
 IN A TIE,":"A TIE BREAKER I
S PLAYED."::
1350 INPUT " (PRESS ENTER TO
 CONTINUE) ":Z$
1360 RETURN
```

WONDER MATH

The practicality and versatility of this program is endless! The user slects the drill (+ - × ÷), the number range to work within and how many attempts they want to give the answer before they want the Computer's help. This program can help everyone from a 1st grader to a college calculus professor.

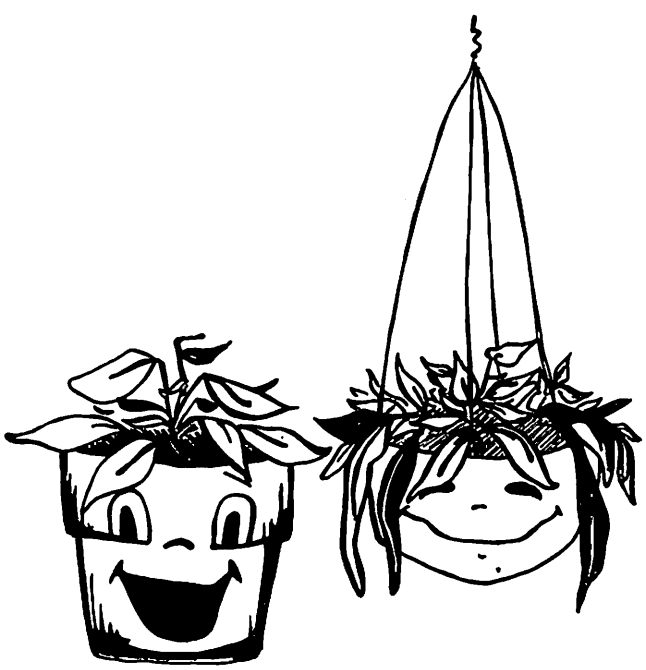
```
100 REM ******************
110 REM *  WONDER MATH   *
120 REM *   TI BASIC     *
130 REM *  PHIL TAYLOR   *
140 REM *HOLLAND,MICHIGAN*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 CALL CHAR(128,"001000FE0
010")
180 GOSUB 1390
190 GOSUB 1450
200 GOSUB 1500
210 GOSUB 1550
220 CALL CLEAR
230 CALL SCREEN(16)
240 RANDOMIZE
250 CALL CLEAR
260 FOR D=1 TO 750
270 NEXT D
280 CALL CLEAR
290 PRINT TAB(9);"WONDER MAT
H"::::
300 PRINT "YOU MUST MAKE YOU
R CHOICE":"FROM THE FOLLOWIN
G LIST OF"
310 PRINT "MATH OPERATIONS:"
::
320 PRINT "        + ADDITIO
N"
330 PRINT "        - SUBTRAC
TION"
340 PRINT "        X MULTIPL
ICATION"
350 PRINT "        / DIVISIO
N"::
360 PRINT "TO CHANGE OPERATI
ONS AFTER":"YOU HAVE BEGUN,
TYPE -1 AS"
370 PRINT "YOUR ANSWER."::::
380 INPUT "ENTER CHOICE OF O
PERATION? ":A$
390 GOTO 410
400 GOSUB 1350
410 IF A$="+" THEN 460
420 IF A$="-" THEN 460
430 IF A$="X" THEN 460
440 IF A$="/" THEN 460
450 GOTO 400
460 CALL CLEAR
470 PRINT "TELL ME THE LOWES
T AND THE":"HIGHEST NUMBERS
YOU WISH TO"
480 PRINT "WORK WITH.":::"FO
R EXAMPLE:"::
490 PRINT "IF YOU ENTER THE
NUMBERS":"*** 10,20 ***, I W
ILL GIVE"
500 PRINT "YOU PROBLEMS USIN
G ONLY THE"
```

```
510 PRINT "NUMBERS BETWEEN 1
0 AND 20.":
520 PRINT "REMEMBER TO PUT A
 COMMA BE-":"TWEEN THE TWO N
UMBERS OR"
530 PRINT "YOU MAY CONFUSE M
E."::::
540 INPUT "ENTER YOUR NUMBER
S? ":J,K
550 CALL CLEAR
560 PRINT "TELL ME HOW MANY
TIMES YOU":"WOULD LIKE TO TR
Y ANSWERING"
570 PRINT "A QUESTION BEFORE
 I GIVE"
580 PRINT "YOU THE CORRECT A
NSWER.":::::
590 INPUT "HOW MANY TIMES? "
:T
600 CALL CLEAR
610 GOSUB 1100
620 IF A$="+" THEN 660
630 IF A$="-" THEN 770
640 IF A$="X" THEN 880
650 IF A$="/" THEN 990
660 REM ***ADDITION***
670 GOSUB 1390
680 CALL CLEAR
690 I=0
700 L=M+N
710 PRINT M;" + ";N;" = ";
720 INPUT P
730 IF P=L THEN 1140
740 IF P=-1 THEN 280
750 GOSUB 1230
760 GOTO 710
770 REM  **SUBTRACTION***
780 GOSUB 1450
790 CALL CLEAR
800 L=M-N
810 I=0
820 PRINT M;" - ";N;" = ";
830 INPUT P
840 IF P=L THEN 1140
850 IF P=-1 THEN 280
860 GOSUB 1230
870 GOTO 820
880 REM  ***MULTIPLICATION**
890 GOSUB 1500
900 CALL CLEAR
910 L=M*N
920 I=0
930 PRINT M;" X ";N;" = ";
940 INPUT P
950 IF P=-1 THEN 280
960 IF P=L THEN 1140
970 GOSUB 1230
980 GOTO 930
990 REM  ***DIVISION***
1000 GOSUB 1550
1010 CALL CLEAR
1020 L=M/N
1030 I=0
1040 PRINT M;" / ";N;" = ";
1050 INPUT P
1060 IF P=L THEN 1140
1070 IF P=-1 THEN 280
1080 GOSUB 1230
1090 GOTO 1040
1100 REM TWO RANDOM NUMBERS*
1110 M=INT(RND*K)+J
1120 N=INT(RND*M)+J
1130 RETURN
1140 REM  ***CORRECT ANSWER*
1150 X=2^(1/12)
1160 FOR B=1 TO 13
1170 CALL SOUND(25,110*X^B,0
)
1180 NEXT B
1190 PRINT TAB(9);"YOU'RE  R
IGHT!!"
1200 FOR D=1 TO 500
1210 NEXT D
1220 GOTO 600
1230 REM  ***WRONG ANSWER***
1240 CALL SOUND(1000,110,1)
1250 I=I+1
1260 IF I>=T THEN 1290
1270 PRINT TAB(6);"SORRY...T
RY AGAIN"::
1280 RETURN
1290 PRINT TAB(5);"THAT WAS"
;I;"TRIES"
1300 PRINT "THE CORRECT ANSW
ER IS";L
1310 FOR DELAY=1 TO 1000
1320 NEXT DELAY
1330 CALL CLEAR
1340 GOTO 610
1350 REM ***GET OPERATION***
1360 DISPLAY
1370 INPUT "YOU MUST ENTER +
,-,X, OR /? ":A$
1380 RETURN
1390 CALL CLEAR
1400 CALL SCREEN(16)
1410 FOR L=1 TO 24
1420 PRINT TAB(L);CHR$(43)
```

```
1430 NEXT L
1440 RETURN
1450 CALL SCREEN(9)
1460 FOR P=1 TO 24
1470 PRINT TAB(P);CHR$(45)
1480 NEXT P
1490 RETURN
1500 CALL SCREEN(14)
1510 FOR Q=1 TO 24
1520 PRINT TAB(Q);CHR$(120)
1530 NEXT Q
1540 RETURN
1550 CALL SCREEN(11)
1560 FOR R=1 TO 24
1570 PRINT TAB(R);CHR$(128)
1580 NEXT R
1590 RETURN
```

HOME PLANT CARE LIBRARY VOLUME 1 & VOLUME 2

A thoroughly detailed program covering the proper care of 41 varieties of Common House Plants. Included is information on watering, light & temperature requirements and other generally helpful information. Vol. 2 has the same information of 41 different plants, all in a separate program.



```
100 REM********************
110 REM*    HOME PLANT     *
120 REM*  CARE LIBRARY     *
130 REM*TI EXTENDED BASIC*
140 REM*PHIL&CHRIS TAYLOR*
150 REM*  HOLLAND, MICH    *
160 REM*  COPYRIGHT 1983 *
170 REM********************
180 CALL CLEAR :: CALL SCREE
N(12):: CALL MAGNIFY(3)
190 A$="000000000000403C1E1E
1F8F7078381E080818387870214 3
C78E8E9EA0C09092"
200 B$="0110080E0E0E26131B1A
1A1E0D070606B2B6E7CF8E8C8993
2F4E56E"
210 CALL CHAR(128,A$):: CALL
 CHAR(132,B$)
220 CALL SPRITE(#1,128,13,15
,31,#2,132,13,28,32)
230 CALL SPRITE(#4,128,13,15
,217,#5,132,13,28,216)
240 C$="LIGHT: OBSTRUCTED NO
RTH WIN-DOW"
250 D$="LIGHT: UNOBSTRUCTED
NORTH   WINDOW OR HALF OBSTR
UCTED   EAST OR WEST WINDOW"
260 E$="LIGHT: UNOBSTRUCTED
EAST OR WEST WINDOW"
270 F$="LIGHT: DIRECT RAYS O
F THE   SUN FOR 3 TO 4 HOURS
 A DAY"
280 G$="WATERING: SATURATE T
HE SOIL,LET DRY 1/2 INCH DEE
P, THEN REPEAT"
290 H$="WATERING: SATURATE T
HE POT  THOROUGHLY. ALLOW SU
RFACE TODRY TO THE TOUCH, TH
EN RE-  PEAT"
300 I$="WATERING: KEEP CONST
ANTLY   MOIST, BUT NOT SOGGY
"
310 J$="TEMPERATURE: PREFERS
 55 TO  70 DEGREES"
320 A$="TEMPERATURE: PREFERS
 65 TO  80 DEGREES"
330 B$="TEMPERATURE: PREFERS
 75 TO  90 DEGREES"
340 AA$="HARDINESS: EXCELLEN
T"
350 AB$="HARDINESS: GOOD"
360 AC$="HARDINESS: FAIR"
370 DISPLAY AT(12,4):"HOME P
LANT CARE LIBRARY" :: DISPLA
Y AT(14,10):"CHAPTER #1"
```

```
380 FOR D=1 TO 1000 :: NEXT
D
390 CALL CLEAR :: PRINT TAB(
9);"MASTER MENU": : : :"1) I
NSECTS & FUNGUS"
400 PRINT "2) HUMIDITY":"3)
FERTILIZER":"4) LIGHT":"5) W
ATERING"
410 PRINT "6) REVIEW 1ST PLA
NT MENU":"7) REVIEW 2ND PLAN
T MENU"
420 PRINT "8) REVIEW 3RD PLA
NT MENU":"9) END THIS SESSIO
N": : : :
430 INPUT "ENTER YOUR CHOICE
? ":A :: CALL CLEAR
440 ON A GOTO 450,540,620,71
0,790,890,980,1070,1660
450 PRINT TAB(6);"INSECTS AN
D FUNGUS": : : :
460 PRINT "PREVENATIVE SPRAY
ING WITH A":"PLANT INSECTICI
DE IS RECOM-"
470 PRINT "MENDED EVERY MONT
H. CHECK":"SOIL & FOILAGE FO
R INSECTS"
480 PRINT "AND SPRAY ACCORDI
NGLY." ::
490 PRINT "DISCOLORED SPOTS
ON FOILAGE":"MAY INDICATE LE
AF FUNGUS."
500 PRINT "TREAT WITH FOILAG
E INSEC-":"TICIDE.": :
510 PRINT "SOFT STEMS AND RO
OTS MAY IN-":"DICATE SOIL FU
NGUS. TREAT"
520 PRINT "WITH A GOOD SOIL
FUNGICIDE.": :
530 INPUT " (PRESS ENTER TO
CONTINUE)":Z$ :: GOTO 390
540 PRINT TAB(11);"HUMIDITY"
: : : :
550 PRINT "HOMES WITH HOT-AI
R HEAT AND":"AIR CONDITIONIN
G HAVE REL-"
560 PRINT "ATIVELY LOW HUMID
ITY LEVELS.":"MOST PLANTS LI
STED WILL"
570 PRINT "WITHSTAND THIS CO
NDITION,":"BUT WITH VARIOUS
DEGREES OF"
580 PRINT "SUCCESS. LESS HAR
DY PLANTS":"WILL BENEFIT FRO
M ALL THE"
590 PRINT "HUMIDITY YOU CAN
PUT INTO"
600 PRINT "THE AIR WITH A HU
MIDIFIER,":"ETC.": : : :
610 INPUT " (PRESS ENTER TO
CONTINUE)":Z$ :: CALL CLEAR
:: GOTO 390
620 PRINT TAB(10);"FERTILIZE
R": : : :
630 PRINT "FERTILIZER SHOULD
 BE USED":"MORE FREQUENTLY I
N SPRING"
640 PRINT "AND SUMMER WHEN P
LANTS GROW":"MORE ACTIVELY.
APPLY BY RE-"
650 PRINT "MOVING 1 INCH OF
SOIL, APPLY":"FERTILIZER, AN
D REPLACE"
660 PRINT "SOIL. FERTILIZERS
 SHOULD":"CONTAIN:": :
670 PRINT " 1. NITROGEN: FOR
 HEALTHY":"GREEN FOILAGE."
680 PRINT " 2. PHOSPHORUS: F
OR STRONG":"ROOTS."
690 PRINT " 3. POTASH: FOR R
ESISTANCE":"TO DISEASE.": :
700 INPUT " (PRESS ENTER TO
CONTINUE)":Z$ :: CALL CLEAR
:: GOTO 390
710 PRINT TAB(12);"LIGHT": :
 : :
720 PRINT "MOST PLANTS, EXCE
PT DELICATE":"FERNS WILL DO
BETTER WITH"
730 PRINT "LIGHTING LEVELS H
IGHER THAN":"RECOMMENDED. MO
ST WILL ALSO"
740 PRINT "LIVE WITH LESS LI
GHT, THOUGH":"REDUCED GROWTH
, POORER"
750 PRINT "HEALTH, AND SHORT
ER LIFE IS":"THE RESULT.": :
760 PRINT "THE LISTED LIGHT
REQUIRE-":"MENTS ARE FOR NAT
URAL LIGHT."
770 PRINT "MOST INDOOR PLANT
S WILL GROW":"WELL WITH ARTI
FICIAL LIGHT.": :
780 INPUT " (PRESS ENTER TO
CONTINUE)":Z$ :: CALL CLEAR
:: GOTO 390
790 PRINT TAB(11);"WATERING"
: : : :
```

```
800 PRINT "DO NOT GIVE YOUR
PLANTS A":"SET AMOUNT OF WAT
ER ON A"
810 PRINT "SCHEDULED BASIS.
WATERING":"NEEDS MUST BE DET
ERMINED BY"
820 PRINT "FEELING AND OBSER
VING THE":"SOIL.": :
830 PRINT "YOU SHOULD ALWAYS
 SATURATE":"THE SOIL ALLOWIN
G THE EXCESS"
840 PRINT "TO COME OUT THE B
OTTOM OF":"THE POT. DO NOT L
ET YOUR"
850 PRINT "PLANT SET IN THE
EXCESS":"WATER FOR MORE THAN
 TWELVE"
860 PRINT "(12) HOURS - THIS
 WILL ROT":"THE ROOTS.": :
870 INPUT " (PRESS ENTER TO
CONTINUE)":Z$ :: CALL CLEAR
:: GOTO 390
880 INPUT " (PRESS ENTER TO
CONTINUE)":Z$
890 CALL CLEAR :: PRINT TAB(
10);"PLANT MENU": : : :"1)
ALOE":"2)  AMARYLLIS"
900 PRINT "3)  NORFOLK ISLAN
D PINE":"4)  ASPARAGUS FERN"
910 PRINT "5)  CAST IRON PLA
NT":"6)  AZALEA":"7)  BEGONI
A"
920 PRINT "8)  CACTUS":"9)
FISH TAIL PALM":"10) BELLA P
ALM"
930 PRINT "11) BAMBOO PALM":
"12) SPIDER PLANT":"13) GRAP
E IVY":"14) COLEUS"
940 PRINT "15) CITRUS(LEMON,
ORANGE)":"16) REVIEW NEXT PL
ANT MENU": :
950 INPUT "ENTER YOUR CHOICE
? ":A :: CALL CLEAR
960 ON A GOTO 1140,1160,1170
,1190,1200,1210,1220,1230,12
50,1260,1270,1280,1290,1
300,1310,980
970 INPUT " (PRESS ENTER TO
CONTINUE)":Z$
980 CALL CLEAR :: PRINT TAB(
10);"MENU (CONT.)": : : :"17
) CYCLAMEN"
990 PRINT "18) CHINESE JADE"
:"19) SAGO PALM":"20) RUBBER
 PLANT"
1000 PRINT "21) FICUS BENJAM
INA":"22) FIDDLE LEAF":"23)
GARDENIA":"24) GLOXINIA"
1010 PRINT "25) PURPLE PASSI
ON":"26) IVY"
1020 PRINT "27) BABY TEARS".
"28) HIBISCUS":"29) WAX PLAN
T"
1030 PRINT "30) REVIEW NEXT
PLANT MENU":"31) GO BACK": :
1040 INPUT "ENTER YOUR CHOIC
E? ":A :: A=A-16 :: CALL CLE
AR
1050 ON A GOTO 1320,1330,134
0,1350,1360,1380,1390,1400,1
410,1420,1430,1440,1450,
1070,890
1060 INPUT " (PRESS ENTER TO
 CONTINUE)":Z$
1070 CALL CLEAR :: PRINT TAB
(10);"MENU (CONT.)": : : :"3
2) HYACINTH"
1080 PRINT "33) EASTER LILY"
:"34) PRAYER PLANT":"35) NAR
CISSUS":"36) BOSTON FERN
"
1090 PRINT "37) ORCHID":"38)
 PHILODENDRON":"39) DATE PAL
M":"40) POINTSETTIA"
1100 PRINT "41) MING TREE":"
42) FINGER PALM":"43) AFRICA
N VIOLET"
1110 PRINT "44) SNAKE PLANT".
:"45) GO BACK":"46) RETURN T
O MASTER MENU": :
1120 INPUT "ENTER YOUR CHOIC
E? ":A :: A=A-31 :: CALL CLE
AR
1130 ON A GOTO 1460,1490,153
0,1540,1570,1580,1590,1600,1
610,1620,1630,1640,1650,
980,390
1140 PRINT TAB(12);"'ALOE'":
 : : :AA$: :"WATERING: WATER
 LIGHTLY, LET"
1150 PRINT "DRY THEN REPEAT
": :F$: :B$: : : : :: GOTO 8
80
1160 PRINT TAB(10);"'AMARYLL
IS'": : : :AA$: :G$: :F$: :A
$: : : : :: GOTO 880
1170 PRINT TAB(6);"NORFOLK I
SLAND PINE": : : :AB$: :H$:
:E$: :A$: : : :
1180 GOTO 880
```

```
1190 PRINT TAB(8);"'ASPARAGU
S FERN'": : : :AB$: :G$: :D$
: :A$: : : : :: GOTO 880
1200 PRINT TAB(7);"'CAST IRO
N PLANT'": : : :AA$: :H$: :C
$: :A$: : : : :: GOTO 88
0
1210 PRINT TAB(11);"'AZALEA'
": : : :AB$: :H$: :E$: :A$:
: : : :: GOTO 880
1220 PRINT TAB(11);"'BEGONIA
'": : : :AC$: :H$: :D$: :A$:
 : : : :: GOTO 880
1230 PRINT TAB(10);"'CACTUS'
": : : :AB$: :"WATERING: WAT
ER HEAVILY, AL-"
1240 PRINT "LOWING SOUL TO D
RY BETWEEN  WATERINGS": :E$:
 :A$: : : : :: GOTO 880
1250 PRINT TAB(7);"'FISH TAI
L PALM'": : : :AB$: :H$: :E$
: :A$: : : : :: GOTO 880
1260 PRINT TAB(9);"'BELLA PA
LM'": : : :AA$: :H$: :C$: :B
$: : : : :: GOTO 880
1270 PRINT TAB(8);"'BAMBOO P
ALM'": : : :AA$: :H$: :C$: :
B$: : : : :: GOTO 880
1280 PRINT TAB(9);"'SPIDER P
LANT'": : : :AB$: :H$: :D$:
:A$: : : : :: GOTO 880
1290 PRINT TAB(10);"'GRAPE I
VY'": : : :AB$: :H$: :D$: :A
$: : : : :: GOTO 880
1300 PRINT TAB(11);"'COLEUS'
": : : :AA$: :H$: :F$: :B$:
: : : :: GOTO 880
1310 PRINT TAB(11);"'CITRUS'
": : : :AC$: :H$: :F$: :A$:
: : : :: GOTO 880
1320 PRINT TAB(10);"'CYCLAME
N'": : : :AC$: :I$: :E$: :J$
: : : : :: GOTO 970
1330 PRINT TAB(8);"'CHINESE
JADE'": : : :AB$: :G$: :E$:
:A$: : : : :: GOTO 970
1340 PRINT TAB(10);"'SAGO PA
LM'": : : :AA$: :G$: :D$: :A
$: : : : :: GOTO 970
1350 PRINT TAB(8);"'RUBBER P
LANT'": : : :AB$: :G$: :D$:
:B$: : : : :: GOTO 970
1360 PRINT TAB(7);"'FICUS BE
NJAMINA'": : : :AB$: :G$: :E
$: :B$: : : :
1370 GOTO 970
1380 PRINT TAB(9);"'FIDDLE L
EAF'": : : :AB$: :G$: :D$: :
B$: : : : :: GOTO 970
1390 PRINT TAB(10);"'GARDENI
A'": : : :AC$: :I$: :F$: :B$
: : : : :: GOTO 970
1400 PRINT TAB(10);"'GLOXINI
A'": : : :AC$: :I$: :E$: :B$
: : : : :: GOTO 970
1410 PRINT TAB(8);"'PURPLE P
ASSION'": : : :AC$: :H$: :E$
: :B$: : : : :: GOTO 970
1420 PRINT TAB(12);"'IVY'":
: : :AB$: :H$: :E$: :J$: : :
 : :: GOTO 970
1430 PRINT TAB(10);"'BABY TE
ARS'": : : :AC$: :H$: :E$: :
A$: : : : :: GOTO 970
1440 PRINT TAB(10);"'HIBISCU
S'": : : :AC$: :I$: :F$: :B$
: : : : :: GOTO 970
1450 PRINT TAB(10);"'WAX PLA
NT'": : : :AB$: :G$: :E$: :A
$: : : : :: GOTO 970
1460 PRINT TAB(10);"'HYACINT
H'": : : :AB$: :I$: :"LIGHT:
 DIRECT UNTIL BUDS BE-"
1470 PRINT "GIN TO SHOW COLO
R. THEN TAKEFROM DIRECT SUNL
IGHT": :A$: : : :
1480 GOTO 1060
1490 PRINT TAB(9);"'EASTER L
ILY'": : : :AB$: :I$: :
1500 PRINT "LIGHT: DIRECT UN
TIL BUDS BE-GIN TO SHOW COLO
R, THEN TAKE"
1510 PRINT "FROM DIRECT SUNL
IGHT": :J$: : : :
1520 GOTO 1060
1530 PRINT TAB(8);"'PRAYER P
LANT'": : : :AB$: :H$: :D$:
:B$: : : : :: GOTO 1060
1540 PRINT TAB(9);"'NARCISSU
S'": : : :AB$: :I$: :"LIGHT:
 DIRECT UNTIL BUDS BE-"
1550 PRINT "GIN TO SHOW COLO
R, THEN TAKEFROM DIRECT SUNL
IGHT": :J$: : : :
1560 GOTO 1060
1570 PRINT TAB(8);"'BOSTON F
ERN'": : : :AC$: :I$: :C$: :
A$: : : : :: GOTO 1060
1580 PRINT TAB(12);"'ORCHID'
": : : :AC$: :H$: :D$: :B$:
: : : :: GOTO 1060
```

```
1590 PRINT TAB(8);"'PHILODEN
DRON'": : : :AA$: :G$: :C$:
:B$: : : : :: GOTO 1060
1600 PRINT TAB(9);"'DATE PAL
M'": : : :AB$: :H$: :D$: :A$
: : : : :: GOTO 1060
1610 PRINT TAB(9);"'POINTSET
TIA'": : : :AB$: :I$: :E$: :
A$: : : : :: GOTO 1060
1620 PRINT TAB(10);"'MING TR
EE'": : : :AB$: :G$: :E$: :B
$: : : : :: GOTO 1060
1630 PRINT TAB(9);"'FINGER P
ALM'": : : :AB$: :H$: :D$: :
A$: : : : :: GOTO 1060
1640 PRINT TAB(8);"'AFRICAN
VIOLET'": : : :AB$: :I$: :E$
: :A$: : : : :: GOTO 106
0
1650 PRINT TAB(9);"'SNAKE PL
ANT'": : : :AA$: :G$: :C$: :
A$: : : : :: GOTO 1060
1660 END
```

DOXOLOGY/SINGING AID

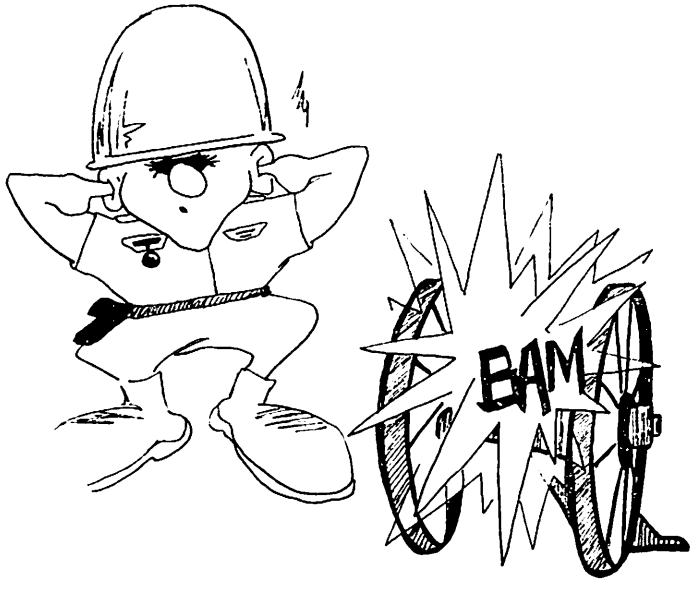
Have you ever wanted to sing but had difficulty learning your part? This program has the capability to produce signing parts. Choose either the Soprano, Tenor or Bass. Hear them alone or with the other parts in the background at a level determined by you. By "Tricking" the Computer the last line of notes plays below a frequency of 110, allowing you to play a note below even the piano keyboard! Included is a listing of the method the Programmer used to "Trick" the Computer.

```
100 REM ******************
110 REM * HYMN DOXOLOGY *
120 REM *   TI BASIC    *
130 REM *RICHARD PROCTOR*
140 REM *  DAYTON OHIO  *
150 REM *COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 CALL SCREEN(16)
190 CALL COLOR(13,9,16)
200 CALL CHAR(128,"080808082
A3E1C08")
210 PRINT "           DOXOLOG
Y":::"   0 TO 30 WITH 0 LOUD
EST":::::
220 INPUT "   SOPRANO ? ":S
230 INPUT "   TENOR   ? ":T
240 INPUT "   BASS    ? ":B
250 CALL CLEAR
260 PRINT "  PRAISE GOD FROM
 WHOM ALL":::
270 GOTO 410
280 PRINT "    BLESSINGS FLO
W;":::
290 GOTO 410
300 PRINT "  PRAISE HIM, ALL
":::
310 GOTO 410
320 PRINT "    CREATURES HER
E BELOW;":::
330 GOTO 410
340 PRINT "  PRAISE HIM ABOV
E, YE":::
350 GOTO 410
360 PRINT "    HEAVENLY HOST
;":::
370 GOTO 410
380 PRINT "  PRAISE FATHER,
SON,":::
390 GOTO 410
400 PRINT "    AND HOLY GHOS
T.":::
410 READ D,SN,TN,BN,R,C,X
420 CALL SOUND(D*500,SN,S,TN
,T,BN,B)
430 CALL HCHAR(17,16,32,12)
440 CALL HCHAR(R,1,32,30)
450 CALL HCHAR(R,C,128)
460 IF X=1 THEN 280
470 IF X=2 THEN 300
480 IF X=3 THEN 320
490 IF X=4 THEN 340
500 IF X=5 THEN 360
510 IF X=6 THEN 380
520 IF X=7 THEN 400
530 IF X=8 THEN 700
540 GOTO 410
550 DATA 2,392,247,165,20,7,
0,2,392,247,165,20,13,0
560 DATA 2,370,220,147,20,17
,0,2,330,196,165,20,22,0
570 DATA 2,294,185,123,20,27
,1,2,392,196,165,20,9,0
580 DATA 2,220,185,147,20,13
,0,4,494,196,196,20,18,2
590 DATA 2,494,196,196,20,7,
0,2,494,196,196,20,13,0
```

```
600 DATA 2,494,196,123,20,18
,3,2,440,185,147,20,8,0
610 DATA 2,392,196,165,20,12
,0,2,523,196,131,20,18,0
620 DATA 2,494,196,196,20,22
,0,4,440,185,147,20,25,4
630 DATA 2,392,196,165,20,7,
0,2,440,185,147,20,13,0
640 DATA 2,494,196,196,20,16
,0,2,440,185,147,20,18,0
650 DATA 2,392,196,123,20,23
,5,2,330,196,131,20,9,0
660 DATA 2,370,220,110,20,13
,0,4,392,247,196,20,18,6
670 DATA 2,587,247,196,20,7,
0,2,494,196,196,20,12,0
680 DATA 2,392,247,165,20,15
,0,2,440,294,147,20,21,7
690 DATA 2,523,330,110,20,8,
8
700 CALL SOUND(500,494,S,294
,T,123,B)
710 CALL HCHAR(20,8,32)
720 CALL HCHAR(20,11,128)
730 CALL SOUND(500,494,S,294
,T,131,B)
740 CALL HCHAR(20,11,32)
750 CALL HCHAR(20,11,128)
760 CALL SOUND(500,440,S,294
,T,147,B)
770 CALL HCHAR(20,11,32)
780 CALL HCHAR(20,13,128)
790 CALL SOUND(500,440,S,262
,T,147,B)
800 CALL HCHAR(20,13,32)
810 CALL HCHAR(20,13,128)
820 CALL SOUND(2000,392,S,24
7,T,1470,30,-4,B)
830 CALL HCHAR(20,13,32)
840 CALL HCHAR(20,18,128)
850 FOR D=1 TO 400
860 NEXT D
870 RESTORE 550
880 GOTO 170
```

SHOOT'EM DOWN

Your assignment is to destroy an attacking enemy bomber, aiming your shots at carefully selected coordinates. The assignment is unusually difficult since this spaceage bomber can travel sideways and backwards as well as up & down!




```
100 REM ******************
110 REM * SHOOT'EM DOWN *
120 REM *   TI BASIC    *
130 REM * TE-2 W/SPEECH *
140 REM *RICHARD PROCTOR*
150 REM *  DAYTON OHIO  *
160 REM *COPYRIGHT 1983 *
170 REM ******************
180 CALL CLEAR
190 CALL SCREEN(12)
200 OPEN #1:"SPEECH",OUTPUT
210 PRINT #1:"//45 135"
220 PRINT TAB(9);"SHOOT'EM D
OWN"::::::::::::::
230 PRINT "      INSTRUCTIONS
 (Y/N)"::
240 PRINT #1:"WELCOME,TO SHO
OT'UM DOWN."
250 PRINT #1:"//46 185"
260 CALL KEY(0,K,S)
270 IF K=78 THEN 670
280 IF K<>89 THEN 260 ELSE 2
90
290 CALL CLEAR
300 CALL SCREEN(11)
```

```
310 PRINT "THE ENEMY PLANE I
S LURKING  SOMEWHERE OVERHEA
D.  THE"
320 PRINT "PLANE CAN MOVE FO
RWARD OR"
330 PRINT "BACKWARD, UP OR D
OWN, OR    SIDEWAYS. AS THE
CAPTAIN YOU"
340 PRINT "CHOOSE THE COORDI
NATES FOR"
350 PRINT "FIRING THE ACK-AC
K GUN.":::::::::
360 PRINT "PRESS ANY KEY WHE
N READY"::
370 CALL KEY(0,K,S)
380 IF S=0 THEN 370
390 CALL CLEAR
400 PRINT "THE PLANE'S POSTI
ON WILL BE UPDATED AFTER EAC
H MOVE.  IT"
410 PRINT "CAN MOVE ONE COOR
DINATE     FORWARD OR BACK (
X), ONE"
420 PRINT "COORDINATE TO EIT
HER SIDE"
430 PRINT "(Y), AND/OR ONE C
OORDINATE  UP OR DOWN.  THE
PLANE MAY"
440 PRINT "ALSO REMAIN STATI
ONARY.  THE"
450 PRINT "COORDINATES REPRE
SENT 100   FEET IN EACH DIRE
CTION AND"
460 PRINT "YOU MUST HIT THE
EXACT PLACE"
470 PRINT "TO HIT THE PLANE.
 EACH SALVOCONSISTS OF THREE
 SHOTS.":::::
480 PRINT "PRESS ANY KEY WHE
N READY"::
490 CALL KEY(0,K,S)
500 IF S=0 THEN 490
510 CALL CLEAR
520 PRINT "YOU HAVE AN ADVAN
TAGE OVER  THE PLANE.  YOU C
AN SHOOT"
530 PRINT "ANYWHERE IN THE S
KY, WHILE"
540 PRINT "THE PLANE CAN MOV
E ONLY ONE COORDINATE AT A T
IME.  THE"
550 PRINT "ADVANTAGE OF THE
PLANE IS"
560 PRINT "THAT HE CAN MOVE
ANY OR ALL DIRECTIONS IN THE
 SAME MOVE"
570 PRINT "OR REMAIN STATION
ARY.  THIS"
580 PRINT "MAKES IT EXTREMEL
Y DIFFICULTTO HIT.  YOU CAN
SELECT 1"
590 PRINT "THROUGH 10 FOR X
AND Y FOR"
600 PRINT "FORWARDS AND BACK
WARDS AND  SIDEWAYS.  SELECT
 6 THROUGH"
610 PRINT "15 FOR AOTITUDE.
 IF YOU"
620 PRINT "SELECT 0  FOR ALT
ITUDE YOU  CAN FIND OUT WHER
E THE PLANE"
630 PRINT "IS WITHOUT SHOOTI
NG ANY     SALVOS.":
640 PRINT "PRESS ANY KEY WHE
N READY"::
650 CALL KEY(0,K,S)
660 IF S=0 THEN 650
670 CALL CLEAR
680 RANDOMIZE
690 C1=INT(11*RND)+16
700 PRINT "     GOOD LUCK, C
APTAIN":::::::::::
710 PRINT "  PRESS ANY KEY W
HEN READY"::
720 CALL KEY(0,K,S)
730 IF S=0 THEN 720
740 CALL CLEAR
750 CALL SCREEN(12)
760 REM  SET UP POSITION FOR
 PLANE
770 A=INT(10*RND)+1
780 B=INT(10*RND)+1
790 D=INT(10*RND)+6
800 REM  A IS THE X AXIS
810 REM  B IS THE Y AXIS
820 REM   D IS THE HEIGHT
830 REM   PLANE'S STARTING C
OORDINATES
840 PRINT " CAPTAIN, WHAT CO
ORDINATES?":::
850 PRINT #1:"CAPTAIN, ^WHAT
 CO ORDINETS?"
860 X1=1
870 Y1=1
880 INPUT "X (1-10) ":X1
890 IF X1>10 THEN 920
900 INPUT "Y (1-10) ":Y1
```

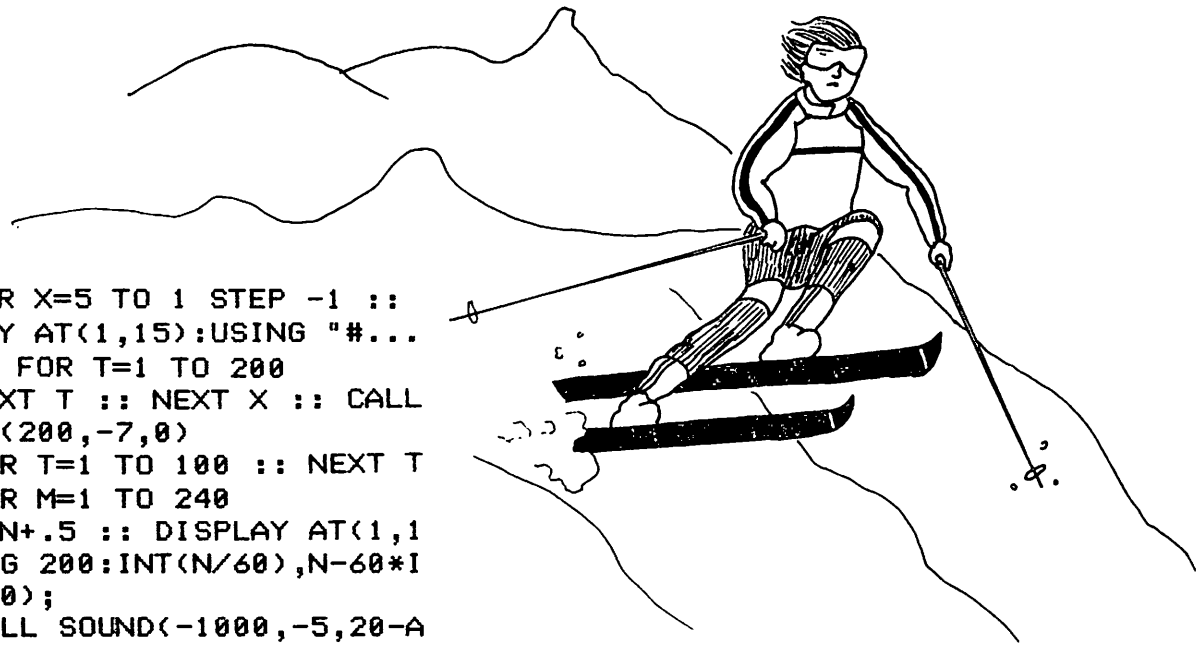
```
910 IF Y1<11 THEN 960
920 PRINT
930 PRINT " SIR, THE PLANE'S
 OVERHEAD    NOT IN THE NEXT
 COUNTY!":::::
940 PRINT #1:"^SIR, THE <PLA
NE'S OVER_HEAD.  NOT IN THE
^NEXT COUNTY."
950 GOTO 840
960 PRINT ::
970 PRINT "WHAT ALTITUDE SET
TING?"::
980 PRINT #1:"WHAT, AL TITUD
E SETTING?"
990 INPUT "ALTITUDE (6-15)&0
=<UPDATE>  ":C
1000 IF C=0 THEN 1110
1010 IF C>15 THEN 1070
1020 IF C>5 THEN 1530
1030 PRINT ::
1040 PRINT "CAPTAIN, THE PLA
NE'S IN THE SKY NOT IN THE M
UD!":::::
1050 PRINT #1:"CAPTAIN, THE,
 <>PLANE'S IN THE <SKY NOT I
N THE ^MUD!"
1060 GOTO 970
1070 PRINT ::
1080 PRINT "CAPTAIN, THE PLA
NE'S IN THE SKY NOT IN SPACE
!":::::
1090 PRINT #1:"CAPTAIN, THE,
 <>PLANE'S IN THE <SKY NOT I
N ^SPACE!"
1100 GOTO 970
1110 PRINT ::
1120 PRINT "  THE PLANE WAS
AT THE       FOLLOWING COORD
INATES: "::
1130 PRINT #1:"^THE PLANE WA
S AT THE >FOLLOWING <>CO >OR
DINETS."
1140 PRINT "X= ";A;"Y= ";B::
1150 PRINT "AND AT AN ALTITU
DE OF ";D::::::
1160 REM   NEW PLANE POSITIO
N
1170 A1=INT(2*RND)
1180 B1=INT(2*RND)
1190 D1=INT(2*RND)
1200 REM  CHECK FOR PROPER M
OVE
1210 REM  - OR + MOVE
1220 Q1=INT(2*RND)
1230 Q2=INT(2*RND)
1240 Q3=INT(2*RND)
1250 IF Q1=1 THEN 1270
1260 Q1=-1
1270 IF Q2=1 THEN 1290
1280 Q2=-1
1290 IF Q3=1 THEN 1310
1300 Q3=-1
1310 IF A+(A1*Q1)>10 THEN 13
70
1320 IF A+(A1*Q1)<1 THEN 135
0
1330 A=A+(A1*Q1)
1340 GOTO 1380
1350 A=1
1360 GOTO 1380
1370 A=9
1380 IF B+(B1*Q2)>10 THEN 14
40
1390 IF B+(B1*Q2)<1 THEN 142
0
1400 B=B+(B1*Q2)
1410 GOTO 1450
1420 B=1
1430 GOTO 1450
1440 B=9
1450 IF D+(D1*Q3)>15 THEN 15
10
1460 IF D+(D1*Q3)<6 THEN 149
0
1470 D=D+(D1*Q3)
1480 GOTO 840
1490 D=6
1500 GOTO 840
1510 D=15
1520 GOTO 840
1530 FOR Q=1 TO 3
1540 CALL SOUND(350,-5,0,205
,0,175,0,110,0)
1550 NEXT Q
1560 FOR DELAY=1 TO 500
1570 NEXT DELAY
1580 IF X1<>A THEN 1610
1590 IF Y1<>B THEN 1610
1600 IF C=D THEN 1760
1610 PRINT ::::
1620 PRINT "SORRY CAPTAIN, W
E'VE MISSED.":::::
1630 PRINT #1:"^SORRY CAPTAI
N, WE'VE _MISSED!"
1640 C1=C1-1
1650 PRINT "YOU STILL HAVE "
;C1;" SALVOS LEFT.":
1660 IF C1>0 THEN 1110
```

```
1670 PRINT "SORRY CAPTAIN, N
O MORE       AMMUNITION AND W
E CAN'T GET HIM WITHOUT
AMMUNITION.":::
1680 PRINT #1:"^SORRY.. CAPT
AIN, NO MORE, _AMMUNITION."
1690 PRINT #1:"AND _WE CAN'T
 ^GET HIM WITHOUT, _AMMUNITI
ON."
1700 PRINT "TO PLAY AGAIN TY
PE Y,        IF NOT TYPE N"::
1710 CALL KEY(0,K,S)
1720 IF K=89 THEN 670
1730 IF K<>78 THEN 1710
1740 CALL CLEAR
1750 END
1760 CALL CLEAR
1770 FOR I=1 TO 3
1780 CALL SOUND(1600,-7,0)
1790 FOR Q=1 TO 20
1800 C=INT(RND*14)+3
1810 CALL SCREEN(C)
1820 NEXT Q
1830 NEXT I
1840 CALL SCREEN(12)
1850 FOR DELAY=1 TO 200
1860 NEXT DELAY
1870 PRINT #1:"//52 200"
1880 PRINT "PATTON WOULD BE
PROUD OF    YOU!!! YOU GOT T
HAT BLASTED PLANE!!!"::
1890 PRINT #1:"<PATTON, WOUL
D BE <>PROUD OF YOU!"
1900 PRINT #1:"<YOU GOT THAT
, ^BLASTED <>PLANE."
1910 PRINT #1:"//46 185"
1920 PRINT "YOU STILL HAVE
";C1;"SALVOS LEFT.":::
1930 GOTO 1700
```

GIANT SLALOM SKI RUN

This individual sport (game) offers you the opportunity to test your maneuverability on a difficult course. You're being timed, but don't be in such a hurry as to hit an obstacle or you'll find yourself skiing right off the side of a mountainnnnnnnn! Joysticks optional

```
100 REM*****************
110 REM*   SKI RACE    *
120 REM*EXTENDED BASIC*
130 REM*   J.GULICK    *
140 REM*FT.MITCHELL,KY*
150 REM*COPYRIGHT 1983*
160 REM*****************
170 CALL CLEAR
180 REM**INITIALIZATION**
190 RANDOMIZE :: F=1 :: N=0
:: HIN=9E20
200 IMAGE ##:##.#
210 CALL CHAR(97,"7E7E7E4242
424242")
220 CALL CHAR(105,"2424BD7E3
C3C2424",106,"24243C3C7EBD24
24")
230 CALL CHAR(107,"4C4C5E7F5
E52620F")
240 CALL CHAR(109,"010107070
F070303",110,RPT$("F",16),11
1,"80C0E0E0F0C08000")
250 CALL COLOR(9,7,1,10,15,1
,11,13,1)
260 CALL CHAR(113,"01030F070
F0F0703",114,"0080C080C0E0C0
00")
270 REM**INSTRUCTIONS**
280 PRINT TAB(10);"SKI RACE"
: :" THE OBJECT OF THIS GAME
 IS"
290 PRINT "FOR YOU, THE SKIE
R, TO RACE AGAINST TIME TO T
HE BOTTOM  OF THE MOUNTA
IN."
300 PRINT " YOU MUST DODGE S
LOLOM FLAGS<a>, TREES <qr>,
AND ROCKS"
310 PRINT "<mno> USING THE <
S> AND <D> KEYS OR JOYSTICK
#1."
320 PRINT :"    HIT <ENTER>
TO BEGIN.": : : : : : :
330 CALL KEY(0,X,S):: IF X<>
13 THEN 330 ELSE CALL CLEAR
:: CALL SCREEN(16)
340 REM**PROGRAM RUN**
350 CALL COLOR(0,2,2)
360 DIM A$(9):: A$(1),A$(2),
A$(3)="a" :: A$(3),A$(4)="qr
" :: A$(5)="mno"
370 CALL SPRITE(#1,105,9,1,9
0)
```



```
380 FOR X=5 TO 1 STEP -1 ::
DISPLAY AT(1,15):USING "#...
":X :: FOR T=1 TO 200
390 NEXT T :: NEXT X :: CALL
 SOUND(200,-7,0)
400 FOR T=1 TO 100 :: NEXT T
410 FOR M=1 TO 240
420 N=N+.5 :: DISPLAY AT(1,1
):USING 200:INT(N/60),N-60*I
NT(N/60);
430 CALL SOUND(-1000,-5,20-A
BS(Q)*2)
440 PRINT TAB(INT(RND*20)+5)
;A$(INT(RND*9)+1):
450 CALL JOYST(1,X,Y):: IF X
=0 THEN 460 :: Q=QA+(X=-4)-(
X=4):: GOTO 480
460 CALL KEY(1,X,S)
470 Q=Q+(X=2)-(X=3)
480 IF ABS(Q)>5 THEN Q=5*SGN
(Q)
490 CALL MOTION(#1,-((M/5)=I
NT(M/5)),Q*2)
500 CALL POSITION(#1,X,Y)
510 Q=Q-(Y<80)*2+(Y>160)*2
520 CALL GCHAR(INT((X+1)/8)+
1,INT((Y+2)/8)+1,T)
530 IF T=32 THEN 620
540 CALL SOUND(100,-5,0):: C
ALL MOTION(#1,2,Q):: CALL PO
SITION(#1,X1,Y1)
550 X1=-(X1-8)*(X1-8>0)+1
560 M=M-INT(RND*11)-5 :: FOR
 P=1 TO 10 :: CALL PATTERN(#
1,105-(P/2=INT(P/2)))
570 FOR T=1 TO 50 :: NEXT T
:: NEXT P
580 CALL SOUND(500,-5,0):: C
ALL PATTERN(#1,107):: CALL M
OTION(#1,0,0)
590 FOR T=1 TO 750 :: NEXT T
 :: CALL PATTERN(#1,105)
600 Q=0 :: CALL MOTION(#1,0,
0):: CALL LOCATE(#1,X1,Y1)
610 DISPLAY AT(1+INT(X1/8),1
):RPT$(" ",160);
620 NEXT M
630 CALL COLOR(0,1,1):: CALL
 MOTION(#1,0,0)
640 CALL CLEAR :: PRINT "--F
INISH-------------LINE--" ::
 FOR M=1 TO 25
650 PRINT :: FOR T=1 TO 50 :
: NEXT T :: NEXT M
660 CALL DELSPRITE(ALL):: FO
R X=2 TO 16 :: CALL SCREEN(X
):: FOR T=1 TO 75
670 NEXT T :: NEXT X
680 REM**FINISH LINE**
690 DISPLAY AT(10,5):"YOU HA
VE FINISHED THE":TAB(12);"SK
I RUN.":
700 DISPLAY TAB(5);"TIME FOR
 RUN:";:: PRINT USING 200:IN
T(N/60),N-60*INT(N/60);
710 IF N<HIN THEN HIN=N
720 DISPLAY TAB(4);"BEST TIM
E TODAY:";
730 PRINT USING 200:INT(HIN/
60),HIN-60*INT(HIN/60);
740 PRINT TAB(5);"HIT <Q> FO
R NEW GAME";
750 CALL KEY(1,X,S):: IF X<>
18 THEN 750
760 CALL CLEAR :: CALL COLOR
(0,2,2):: N=0 :: Q=0 :: GOTO
 370
```

HAPPY BIRTHDAY SONG - CAKE INCLUDED

The fun way to sing someone the Birthday Song and know that all the singers will be in key! Here you can have your cake and see it too! Speech is used in the program, but to run without speech, simply delete line #190, #730 and #740.

```
100 REM ****************
110 REM * BIRTHDAY SONG*
120 REM *   TI BASIC   *
130 REM *BY BOB WARTMAN*
140 REM *PARK HILLS,KY.*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 CALL CLEAR
180 REM **INITIALIZATION**
190 OPEN #1:"SPEECH",OUTPUT
200 M$="HAPPY BIRTHDAY"
210 CALL CHAR(39,"080818387C
3C181")
220 CALL CHAR(41,"292979F8FC
78301")
230 CALL CHAR(97,"2400128008
220049")
240 CALL SCREEN(16)
250 CALL COLOR(1,12,16)
260 CALL COLOR(2,9,16)
270 CALL COLOR(3,11,11)
280 CALL COLOR(9,2,16)
290 CALL COLOR(10,4,4)
300 CALL COLOR(11,10,10)
310 CALL COLOR(12,5,5)
320 PRINT "   WHOSE BIRTHDAY
 IS IT?"::::::::
330 INPUT A$
340 CALL CLEAR
350 REM **TABLE & CAKE**
360 CALL HCHAR(16,1,104,288)
370 CALL VCHAR(9,7,48,12)
380 CALL VCHAR(9,26,48,12)
390 CALL HCHAR(22,13,48,8)
400 CALL HCHAR(21,10,48,14)
410 FOR R=20 TO 10 STEP -1
420 CALL HCHAR(R,7,48,20)
430 NEXT R
440 FOR X=11 TO 7 STEP -1
450 READ Y,Z
460 CALL HCHAR(X,Y,112,Z)
470 NEXT X
480 FOR I=1 TO 14
490 CALL HCHAR(14,I+9,ASC(SE
G$(M$,I,1)))
500 NEXT I
510 FOR I=1 TO LEN(A$)
520 CALL HCHAR(17,I+(32-LEN(
A$))/2,ASC(SEG$(A$,I,1)))
530 NEXT I
540 REM **CANDLES**
550 FOR Y=9 TO 21 STEP 6
560 CALL VCHAR(4,Y,120,5)
570 CALL VCHAR(5,Y+3,120,5)
580 NEXT Y
590 GOSUB 780
600 REM **MUSIC**
610 FOR M=1 TO 21
620 READ T,X,Y,Z
630 CALL SOUND(3000/T,X,1,Y,
1,Z,1)
640 GOSUB 800
650 NEXT M
660 REM **SMOKE & END**
670 FOR DELAY=1 TO 500
680 NEXT DELAY
690 FOR C=9 TO 21 STEP 6
700 CALL HCHAR(3,C,97)
710 CALL HCHAR(4,C+3,97)
720 NEXT C
730 PRINT #1:M$
740 PRINT #1:A$
750 FOR DELAY=1 TO 3000
760 NEXT DELAY
770 END
780 REM *FLICKERING FLAMES*
790 I=1
800 FOR C=9 TO 21 STEP 6
810 I=I*-1
820 CALL HCHAR(3,C,40-I)
830 CALL HCHAR(4,C+3,40+I)
840 NEXT C
850 RETURN
860 REM *CAKE ICEING DATA*
870 DATA 13,8,10,14,7,20,10,
14,13,8
880 REM **MUSIC DATA**
890 DATA 4,523,523,523,4,587
,440,440,4,523,466,392,4,698
,440,349
900 DATA 2,659,392,262,4,523
,523,523,4,587,349,220,4,523
,330,196
910 DATA 4,784,330,131,2,698
,440,175,4,523,466,262,4,104
7,440,175
920 DATA 4,880,523,175,4,698
,349,220,4,659,349,233,2,587
,349,233,4,932,587,196
930 DATA 4,880,523,262,4,698
,440,262,4,784,466,131,2,698
,440,175
```

VISUAL VALENTINE

Undoubtably the most unique Valentine you will ever give (or recieve!) Designed to be personalized and forever reusable. Guaranteed to return a kiss! The use of the speech synthesizer really adds to the fun, but the progran can run without speech by eliminating lines #190 & #570.

```
100 REM ****************
110 REM *  VALENTINE   *
120 REM *   TI BASIC   *
130 REM *BY BOB WARTMAN*
140 REM *PARK HILLS,KY.*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 CALL CLEAR
180 REM **INITIALIZE**
190 OPEN #1:"SPEECH",OUTPUT
200 CALL SCREEN(16)
210 CALL CHAR(33,"C0E070381C
0E0703")
220 CALL CHAR(34,"0103070F1F
3F7FFF")
230 CALL CHAR(48,"42E7FFFF7E
3C1818")
240 CALL COLOR(2,2,2)
250 CALL COLOR(3,7,16)
260 REM **INPUT NAMES**
270 PRINT TAB(6);"WHAT IS YO
UR NAME ?"::::::::::::
280 INPUT YN$
290 CALL CLEAR
300 PRINT " AND YOUR VALENTI
NES NAME ?"::::::::::::
310 INPUT VN$
320 CALL CLEAR
330 REM **SMALL HEARTS**
340 FOR A=1 TO 24
350 CALL HCHAR(A,1,48,32)
360 CALL SOUND(1,500+A*40,0)
370 NEXT A
380 REM **LARGE HEART**
390 A=0
400 READ B,C
410 IF B=1 THEN 460
420 IF B=0 THEN 490
430 CALL HCHAR(A,B,32,C)
440 CALL SOUND(C,-7,1)
450 GOTO 400
460 A=A+1
470 GOTO 430
480 REM **MESSAGES**
490 READ M$,X,Y
500 IF M$="VN" THEN 590
510 IF M$="YN" THEN 620
520 IF M$="END" THEN 650
```

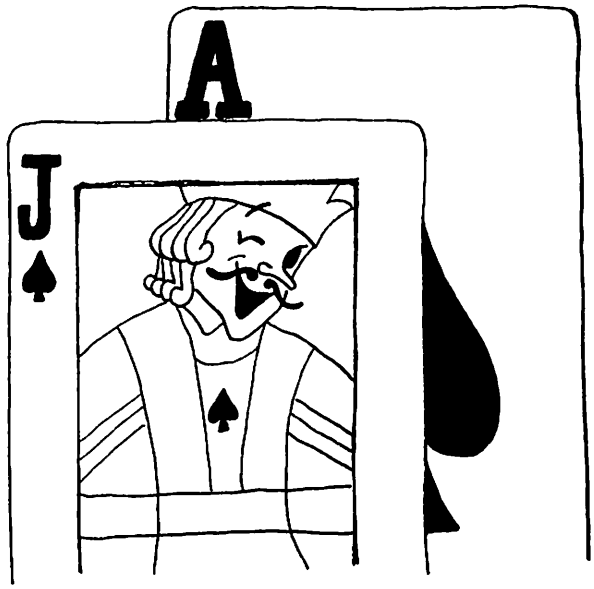
```
530 FOR I=1 TO LEN(M$)
540 CALL HCHAR(X,Y+I,ASC(SEG
$(M$,I,1)))
550 CALL SOUND(1,3000,1)
560 NEXT I
570 PRINT #1:M$
580 GOTO 490
590 M$=VN$
600 Y=(32-LEN(VN$))/2
610 GOTO 530
620 M$=YN$
630 Y=(32-LEN(YN$))/2
640 GOTO 530
650 FOR DELAY=1 TO 100
660 NEXT DELAY
670 REM **ARROW**
680 A=1
690 C=4
700 F=6000
710 V=30
720 FOR COUNT=1 TO C
730 CALL HCHAR(A,A+4,33)
740 CALL SOUND(100,F,V,-4,V)
750 A=A+1
760 IF A=23 THEN 830
770 F=F-200
780 V=V-3
790 NEXT COUNT
800 A=17
810 C=6
820 GOTO 720
```

```
830 REM **ARROWHEAD**
840 CALL HCHAR(19,26,34)
850 FOR C=1 TO 3
860 CALL HCHAR(19+C,26-C,34)
870 CALL HCHAR(19+C,27-C,40,
C)
880 NEXT C
890 CALL SOUND(1,-7,0)
900 FOR DELAY=1 TO 5000
910 NEXT DELAY
920 END
930 REM *LARGE HEART DATA*
940 DATA 1,8,12,11,26,7,1,7,
14,7,27,6,1,5,15,5,29,4,1,4,
16,3,30,3,1,3,17,1
950 DATA 31,2,1,3,31,2,1,2,3
2,1,1,2,32,1,1,3,31,2,1,3,31
,2,1,4,30,3,1,4,30
960 DATA 3,1,5,29,4,1,6,28,5
,1,7,27,6,1,8,26,7,1,9,25,8,
1,11,23,10,1,12
970 DATA 22,11,1,13,21,12,1,
14,20,13,1,15,19,14,1,16,18,
15,1,16,18,15,0,0
980 REM **MESSAGE DATA**
990 DATA "BE",5,9,"MINE",6,8
,"I",4,24,"LOVE",5,23,"YOU",
6,23,"YN",9,1
1000 DATA "BE MY VALENTINE",
11,9,"WITH LOVE",13,12,"YN",
15,1,"END",0,0
```

BLACK JACK

The popularity of this card game is seemingly endless. As a computer game it's sure to fascinate players even more! And there's no worry about what's up the dealers' sleeve either!

```
100 REM ****************
110 REM *   BLACKJACK   *
120 REM *   TI BASIC    *
130 REM * BY TOM BANCHY *
140 REM *CINCINNATI,OHIO*
150 REM * COPYRIGHT 1983*
160 REM ****************
170 REM **INITIALIZE**
180 RANDOMIZE
190 CALL CLEAR
200 CALL SCREEN(13)
210 FOR T=2 TO 8
220 CALL COLOR(T,2,16)
230 NEXT T
240 CALL COLOR(9,9,16)
250 CALL COLOR(10,2,16)
260 CALL COLOR(13,2,9)
270 CALL COLOR(14,2,16)
280 CALL COLOR(16,16,16)
290 CALL CHAR(42,"")
300 CALL CHAR(102,"183C7EFFF
F7E3C18")
310 CALL CHAR(103,"0066FFFFF
F7E3C18")
320 CALL CHAR(104,"183C7EFFF
FDB9918")
330 CALL CHAR(105,"3C3C18FFF
FDB1818")
340 CALL CHAR(128,"FFFFFFFFF
FFFFFFF")
350 CALL CHAR(129,"182442818
1422418")
360 CALL CHAR(140,"004C52525
2524C")
```




```
370 CALL CHAR(141,"000404040
4044438")
380 CALL CHAR(142,"003844444
4544834")
390 CALL CHAR(143,"004448506
0504844")
400 X=10
410 Y=6
420 A$="B L A C K J A C K"
430 GOSUB 1930
440 CALL HCHAR(8,5,128,21)
450 CALL VCHAR(9,5,128,3)
```

```
460 CALL VCHAR(9,25,128,3)
470 CALL HCHAR(12,5,128,21)
480 FOR T=1 TO 1000
490 NEXT T
500 CALL CLEAR
510 REM **INSTRUCTIONS**
520 CALL SCREEN(16)
530 PRINT "THIS IS A GAME OF
 BLACKJACK OR TWENTY-ONE WHE
RE THE"
540 PRINT "PLAYER TRIES TO G
ET CLOSER "
550 PRINT "TO 21 THAN THE DE
ALER WITH- OUT GOING OVER. R
EGULAR"
560 PRINT "CARDS ARE WORTH F
ACE VALUE,"
570 PRINT "FACE CARDS ARE WO
RTH 10, ANDACES ARE WORTH 1
WHEN THE"
580 PRINT "CURRENT CARD TOTA
L IS MORE"
590 PRINT "THAN 10,OR 11 WHE
N THE CARD TOTAL IS 10 OR LE
SS. THE"
600 PRINT "PLAYER HAS THE OP
TION OF"
610 PRINT "STANDING ON HIS F
IRST TWO   CARDS OR DRAWING
ANOTHER BY"
620 PRINT "TAKING A HIT. THE
 PLAYER CAN"
630 PRINT "TAKE UP TO 3 HITS
 BUT GOING OVER 21 MEANS LOS
ING HIS BET"
640 PRINT "IF THE PLAYER TAK
ES 5 HITS"
650 PRINT "WITHOUT BUSTING O
R GETS 21  ON THE FIRST 2 CA
RDS,HE WINS"
660 PRINT "DOUBLE.DEALER WIN
S ALL TIES."
670 CALL KEY(0,K,S)
680 IF S=0 THEN 670
690 CALL CLEAR
700 CALL SCREEN(13)
710 TOTAL=1000
720 CALL CLEAR
730 IF TOTAL>=1 THEN 850
740 REM **OUT OF CHIPS**
750 CALL CLEAR
760 CALL SCREEN(16)
770 PRINT "SORRY--NO MORE CH
IPS"::::::
780 PRINT "WOULD YOU LIKE TO
 :         (1)START OVER AGA
IN WITH"
790 PRINT "NEW CHIPS, OR
       (2)QUIT"
800 INPUT "    ":PLAY
810 IF (INT(PLAY)<>PLAY)+(PL
AY(1)+(PLAY>2)<0 THEN 800
820 CALL SCREEN(13)
830 ON PLAY GOTO 710,1910
840 REM **TAKE BET**
850 PRINT "YOU*HAVE*";STR$(T
OTAL);"*CHIPS*LEFT"
860 PRINT "HOW*MANY*CHIPS*WO
ULD        YOU*LIKE*T0*BET?"
870 INPUT " ":BET
880 IF (INT(BET)=BET)+(BET>=
1)+(BET<=TOTAL)=-3 THEN 930
890 CALL CLEAR
900 INPUT "   BET*AGAIN ":BE
T
910 GOTO 880
920 REM **SET SCREEN**
930 CALL CLEAR
940 X=5
950 Y=4
960 A$="DEALER"
970 GOSUB 1930
980 FOR R=7 TO 13
990 CALL HCHAR(R,3,129,5)
1000 NEXT R
1010 X=7
1020 Y=9
1030 GOSUB 1990
1040 X=15
1050 Y=4
1060 A$="PLAYER"
1070 GOSUB 1930
1080 Y=13
1090 A$="BET*IS*"&STR$(BET)&
"*CHIP"&CHR$((BET<>1)*(-51)+
32)
1100 GOSUB 1930
1110 X=17
1120 Y=3
1130 GOSUB 1990
1140 Y=9
1150 GOSUB 1990
1160 PCARDS=0
1170 DCARDS=0
1180 X=18
1190 Y=4
1200 GOSUB 2080
1210 Y=10
```

```
1220 GOSUB 2080
1230 DCARDS=INT(RND*10)+2
1240 Z=DCARDS
1250 X=8
1260 Y=10
1270 GOSUB 2280
1280 REM **BLACKJACK TEST**
1290 IF DCARDS>20 THEN 2450
1300 IF PCARDS>20 THEN 2710
1310 REM **CONTROL LOOP**
1320 A=0
1330 X=18
1340 Y=10
1350 INPUT " HIT(1)*OR*STAND
(2) ":HOS
1360 CALL HCHAR(23,1,32,64)
1370 A=A+1
1380 IF HOS=2 THEN 1490
1390 X=X-2
1400 Y=Y+5
1410 GOSUB 1990
1420 X=X+1
1430 Y=Y+1
1440 GOSUB 2080
1450 IF PCARDS>21 THEN 2800
1460 IF A=3 THEN 2880
1470 GOTO 1350
1480 REM **DEALER PLAYS**
1490 FOR T=(7-A)TO (13-A)
1500 CALL HCHAR(T,3,32,5)
1510 NEXT T
1520 SUIT=INT(RND*4)+102
1530 IF Z<11 THEN 1560
1540 CHAR=65
1550 GOTO 1600
1560 IF Z<10 THEN 1590
1570 CHAR=140
1580 GOTO 1600
1590 CHAR=Z+48
1600 X=7-A
1610 Y=3
1620 GOSUB 1990
1630 CALL HCHAR(X+1,Y+1,CHAR
)
1640 CALL HCHAR(X+2,Y+1,SUIT
)
1650 CALL HCHAR(X+4,Y+3,CHAR
)
1660 CALL HCHAR(X+5,Y+3,SUIT
)
1670 IF DCARDS>=17 THEN 1880
1680 X=7-A
1690 Y=15
1700 GOSUB 1990
1710 X=8-A
1720 Y=16
1730 GOSUB 2280
1740 IF DCARDS>=17 THEN 1880
1750 X=7-A
1760 Y=21
1770 GOSUB 1990
1780 X=8-A
1790 Y=22
1800 GOSUB 2280
1810 IF DCARDS>=17 THEN 1880
1820 X=7-A
1830 Y=27
1840 GOSUB 1990
1850 X=8-A
1860 Y=28
1870 GOSUB 2280
1880 IF DCARDS>21 THEN 2980
1890 IF DCARDS<PCARDS THEN 2
980
1900 GOTO 3070
1910 END
1920 REM **PRINT AT**
1930 FOR T=1 TO LEN(A$)
1940 A=ASC(SEG$(A$,T,1))
1950 CALL HCHAR(X,(Y+T),A)
1960 NEXT T
1970 RETURN
1980 REM **DRAW BLANK CARD**
1990 CALL HCHAR(X,Y,128,5)
2000 CALL VCHAR((X+1),Y,128,
5)
2010 CALL VCHAR((X+1),(Y+4),
128,5)
2020 CALL HCHAR((X+6),Y,128,
5)
2030 FOR Q=1 TO 3
2040 CALL VCHAR(X+1,Y+Q,152,
5)
2050 NEXT Q
2060 RETURN
2070 REM **PLAYER'S CARD**
2080 PIP=INT(RND*13)+1
2090 SUIT=INT(RND*4)+102
2100 IF (PIP>1)+(PIP<10)=-2
THEN 2110 ELSE 2140
2110 PCARDS=PCARDS+PIP
2120 CHAR=PIP+48
2130 GOTO 2220
2140 IF PIP>9 THEN 2200
2150 IF PCARDS>10 THEN 2170
2160 PCARDS=PCARDS+10
2170 PCARDS=PCARDS+1
2180 CHAR=65
```

```
2190 GOTO 2220
2200 PCARDS=PCARDS+10
2210 CHAR=PIP+130
2220 CALL HCHAR(X,Y,CHAR)
2230 CALL HCHAR(X+1,Y,SUIT)
2240 CALL HCHAR(X+3,Y+2,CHAR
)
2250 CALL HCHAR(X+4,Y+2,SUIT
)
2260 RETURN
2270 REM **DEALER'S CARD**
2280 PIP=INT(RND*13)+1
2290 SUIT=INT(RND*4)+102
2300 IF (PIP>1)+(PIP<10)=-2
THEN 2310 ELSE 2340
2310 DCARDS=DCARDS+PIP
2320 CHAR=PIP+48
2330 GOTO 2420
2340 IF PIP>9 THEN 2400
2350 IF DCARDS>10 THEN 2370
2360 DCARDS=DCARDS+10
2370 DCARDS=DCARDS+1
2380 CHAR=65
2390 GOTO 2420
2400 DCARDS=DCARDS+10
2410 CHAR=PIP+130
2420 GOSUB 2220
2430 RETURN
2440 REM *DEALER BLACKJACK*
2450 FOR T=1 TO 300
2460 NEXT T
2470 FOR X=7 TO 13
2480 CALL HCHAR(X,3,32,5)
2490 NEXT X
2500 X=7
2510 Y=3
2520 GOSUB 1990
2530 SUIT=INT(RND*4)+102
2540 IF Z=11 THEN 2570
2550 CHA=INT(RND*4)+140
2560 GOTO 2580
2570 CHA=65
2580 CALL HCHAR(X+1,Y+1,CHA)
2590 CALL HCHAR(X+2,Y+1,SUIT
)
2600 CALL HCHAR(X+4,Y+3,CHA)
2610 CALL HCHAR(X+5,Y+3,SUIT
)
2620 FOR T=1 TO 200
2630 NEXT T
2640 CALL CLEAR
2650 CALL SCREEN(16)
2660 PRINT "DEALER BLACKJACK
---"
2670 PRINT "NO WINNERS"
2680 TOTAL=TOTAL-BET
2690 GOTO 3140
2700 REM *PLAYER BLACKJACK*
2710 FOR T=1 TO 300
2720 NEXT T
2730 CALL CLEAR
2740 CALL SCREEN(16)
2750 PRINT "BLACKJACK!!!!"
2760 PRINT "YOU WIN";(BET*2)
;"CHIPS!"
2770 TOTAL=TOTAL+(2*BET)
2780 GOTO 3140
2790 REM *PLAYER BUSTS*
2800 FOR T=1 TO 500
2810 NEXT T
2820 TOTAL=TOTAL-BET
2830 CALL CLEAR
2840 CALL SCREEN(16)
2850 PRINT " YOU BUSTED--YOU
 LOSE"
2860 GOTO 3140
2870 REM **5 CARDS WITHOUT
          BUSTING**
2880 FOR T=1 TO 200
2890 NEXT T
2900 CALL CLEAR
2910 CALL SCREEN(16)
2920 PRINT "CONGRATULATIONS!
!!"
2930 PRINT "YOU GOT A 5-CARD
 CHARLIE"
2940 PRINT "YOU WIN";(BET*2)
;"CHIPS!"
2950 TOTAL=TOTAL+(BET*2)
2960 GOTO 3140
2970 REM **PLAYER BEATS
           DEALER**
2980 FOR T=1 TO 1000
2990 NEXT T
3000 TOTAL=TOTAL+BET
3010 CALL CLEAR
3020 CALL SCREEN(16)
3030 PRINT "GOOD JOB--YOU WO
N"
3040 PRINT BET;"CHIP";CHR$((
BET<>1)*(-51)+32)
3050 GOTO 3140
3060 REM **DEALER BEATS
           PLAYER**
3070 FOR T=1 TO 1000
3080 NEXT T
3090 TOTAL=TOTAL-BET
3100 CALL CLEAR
```

```
3110 CALL SCREEN(16)
3120 PRINT "TOO BAD--YOU LOS
T"
3130 PRINT BET;"CHIP";CHR$((
BET<>1)*(-51)+32)
3140 PRINT ::::::"WOULD YOU
LIKE TO :"
3150 PRINT "(1)PLAY ANOTHER
HAND"
3160 PRINT "(2)START OVER AG
AIN WITH"
3170 PRINT "   NEW CHIPS, OR
"
3180 PRINT "(3)QUIT"
3190 INPUT "    ":PLAY
3200 IF (INT(PLAY)<>PLAY)+(P
LAY(1)+(PLAY>3)<0 THEN 3190
3210 CALL SCREEN(13)
3220 ON PLAY GOTO 720,710,19
10
```

TRAP

The object of this two player game is to have your opponent crash into a trail or the wall. There's lots of action and strategy since th first to crash 10 times loses. Efficient use of the keyboard or joysticks makes this game even easier and more fun to play.

```
100 REM  ****************
110 REM  *     TRAP     *
120 REM  *   TI BASIC   *
130 REM  * BY DON BUSCH *
140 REM  *CINCINNATI,OH.*
150 REM  *COPYRIGHT 1983*
160 REM  ****************
170 REM  *INITIALIZATION*
180 CALL CHAR(128,"FFFFFFFFF
FFFFFFF")
190 CALL CHAR(136,"FFFFFFFFF
FFFFFFF")
200 CALL CHAR(129,"FFFFC3C3C
3C3FFFF")
210 CALL CHAR(127,"FFFFC3C3C
3C3FFFF")
220 CALL CHAR(130,"030303030
3030303")
230 CALL CHAR(131,"C0C0C0C0C
0C0C0C0")
240 REM  **INTRODUCTION**
250 CALL CLEAR
260 CALL SCREEN(15)
270 CALL HCHAR(21,1,128,32)
280 CALL HCHAR(24,1,128,32)
290 CALL VCHAR(22,1,128,2)
300 CALL VCHAR(22,32,128,2)
310 A$="TRAP"
320 R=22
330 C=14
340 GOSUB 2100
350 A$="BY DON BUSCH"
360 R=23
370 C=10
380 GOSUB 2100
390 PRINT ::"THE OBJECT OF T
RAP IS TO    FORCE YOUR OPPO
NENT TO CRASH"
400 PRINT "INTO THE WALL OR
INTO EITHER"
410 PRINT "OF YOUR TRAILS. S
CORE ONE   POINT EACH TIME T
HAT"
420 PRINT "HAPPENS. THE FIRS
T TO SCORE"
430 PRINT "TEN POINTS WINS.
MOVEMENT   IS AS FOLLOWS:"
440 PRINT :"      LEFT
   RIGHT"::"      W=UP
   P=UP"::
450 PRINT "A=LEFT          L=
LEFT":"      S=RIGHT
;=RIGHT":
460 PRINT "   Z=DOWN
   .=DOWN  "
470 CALL VCHAR(16,16,130,8)
480 CALL VCHAR(16,17,131,8)
490 PRINT "   HIT ANY KEY TO
 BEGIN"
500 CALL KEY(0,KEY,STA)
510 IF STA=0 THEN 500
520 CALL CLEAR
530 REM  **PLAYERS NAMES**
540 CALL SCREEN(15)
550 INPUT "NAME OF PLAYER ON
 RIGHT:":PL1$
560 IF LEN(PL1$)<=10 THEN 59
0
570 PRINT "NAME TOO LONG"
580 GOTO 550
590 PRINT
600 INPUT "NAME OF PLAYER ON
 LEFT:":PL2$
610 IF LEN(PL2$)<=10 THEN 64
0
620 PRINT "NAME TOO LONG"
```

```
630 GOTO 600
640 CALL CLEAR
650 CALL SCREEN(15)
660 PRINT "   HIT ANY KEY TO
 BEGIN"::::::::::::::
670 CALL KEY(0,KEY,STA)
680 IF STA=0 THEN 670
690 CALL CLEAR
700 REM  **DRAW SCREEN**
710 CX=0
720 CALL SCREEN(15)
730 CALL COLOR(14,7,1)
740 CALL COLOR(12,5,1)
750 FOR XC=16 TO 1 STEP -1
760 CX=CX+2
770 CALL HCHAR(1,XC,128)
780 CALL HCHAR(1,XC+CX-1,129
)
790 CALL HCHAR(24,XC,128)
800 CALL HCHAR(24,XC+CX-1,12
9)
810 NEXT XC
820 CX=24
830 FOR XC=2 TO 12
840 CX=CX-2
850 CALL HCHAR(XC,1,128)
860 CALL HCHAR(XC,32,129)
870 CALL HCHAR(XC+CX-1,1,128
)
880 CALL HCHAR(XC+CX-1,32,12
9)
890 NEXT XC
900 ROW1=12
910 COL1=8
920 ROW2=12
930 COL2=25
940 REM *PRINT CHARACTERS*
950 CALL HCHAR(ROW1,COL1,136
)
960 CALL HCHAR(ROW2,COL2,127
)
970 CALL SOUND(50,-3,0)
980 CALL KEY(2,K2,S2)
990 CALL KEY(1,K1,S1)
1000 REM  **MOVEMENT**
1010 IF S1<>0 THEN 1030
1020 K1=KT
1030 IF K1<>1 THEN 1060
1040 COL1=COL1-1
1050 GOTO 1130
1060 IF K1<>4 THEN 1090
1070 ROW1=ROW1-1
1080 GOTO 1130
1090 IF K1<>2 THEN 1120
1100 COL1=COL1+1
1110 GOTO 1130
1120 ROW1=ROW1+1
1130 KT=K1
1140 IF S2<>0 THEN 1160
1150 K2=KU
1160 IF K2<>12 THEN 1190
1170 COL2=COL2-1
1180 GOTO 1260
1190 IF K2<>11 THEN 1220
1200 ROW2=ROW2-1
1210 GOTO 1260
1220 IF K2<>17 THEN 1250
1230 COL2=COL2+1
1240 GOTO 1260
1250 ROW2=ROW2+1
1260 KU=K2
1270 REM *CHECK FOR CRASH*
1280 CALL GCHAR(ROW1,COL1,CR
1)
1290 CALL GCHAR(ROW2,COL2,CR
2)
1300 IF (CR1>=127)+(CR2>=127
)=-2 THEN 1530
1310 IF CR1>=127 THEN 1350
1320 IF CR2>=127 THEN 1440
1330 GOTO 950
1340 REM  **RIGHT CRASH**
1350 CALL SOUND(1500,-7,0)
1360 CALL HCHAR(ROW2,COL2,12
7)
1370 FOR XD=1 TO 15
1380 CALL HCHAR(ROW1,COL1,32
)
1390 CALL HCHAR(ROW1,COL1,13
6)
1400 NEXT XD
1410 LOS1=LOS1+1
1420 GOTO 1620
1430 REM  **LEFT CRASH**
1440 CALL SOUND(1500,-7,0)
1450 CALL HCHAR(ROW1,COL1,13
6)
1460 FOR XF=1 TO 15
1470 CALL HCHAR(ROW2,COL2,32
)
1480 CALL HCHAR(ROW2,COL2,12
7)
1490 NEXT XF
1500 LOS2=LOS2+1
1510 GOTO 1620
1520 REM  **BOTH CRASH**
1530 CALL SOUND(3000,-7,0)
1540 FOR XS=1 TO 15
```

```
1550 CALL HCHAR(ROW1,COL1,32
)
1560 CALL HCHAR(ROW2,COL2,32
)
1570 CALL HCHAR(ROW1,COL1,13
6)
1580 CALL HCHAR(ROW2,COL2,12
7)
1590 NEXT XS
1600 TI=TI+1
1610 REM  **SCOREBOARD**
1620 CALL CLEAR
1630 CALL SCREEN(15)
1640 A$="SCORE"
1650 R=1
1660 C=14
1670 GOSUB 2100
1680 A$="-----"
1690 R=2
1700 GOSUB 2100
1710 A$=PL2$
1720 R=4
1730 C=3+INT(1/2*(10-LEN(PL2
$)))
1740 GOSUB 2100
1750 A$=PL1$
1760 R=4
1770 C=21+INT(1/2*(10-LEN(PL
1$)))
1780 GOSUB 2100
1790 A$="TIES"
1800 R=4
1810 C=15
1820 GOSUB 2100
1830 A$=STR$(LOS2)
1840 R=6
1850 C=7
1860 GOSUB 2100
1870 A$=STR$(LOS1)
1880 R=6
1890 C=25
1900 GOSUB 2100
1910 A$=STR$(TI)
1920 R=6
1930 C=16
1940 GOSUB 2100
1950 REM *CHECK FOR WINNER*
1960 IF LOS1<10 THEN 1990
1970 C$=PL1$
1980 GOTO 2160
1990 IF LOS2<10 THEN 2020
2000 C$=PL2$
2010 GOTO 2160
2020 A$="HIT ANY KEY TO BEGI
N AGAIN"
2030 R=20
2040 C=3
2050 GOSUB 2100
2060 CALL KEY(0,KEY,STA)
2070 IF STA=0 THEN 2060
2080 GOTO 690
2090 REM  **DISPLAY AT**
2100 FOR XA=1 TO LEN(A$)
2110 B$=SEG$(A$,XA,1)
2120 CALL HCHAR(R,C+XA,ASC(B
$))
2130 NEXT XA
2140 RETURN
2150 REM *WINNING SEQUENCE*
2160 A$=C$&" WINS!!!"
2170 R=15
2180 C=7+INT(1/2*(10-LEN(C$)
))
2190 FOR XG=1 TO 5
2200 CALL HCHAR(R,C,32,LEN(A
$)+1)
2210 GOSUB 2100
2220 FOR DELAY=1 TO 100
2230 NEXT DELAY
2240 NEXT XG
2250 LOS1=0
2260 LOS2=0
2270 TI=0
2280 A$="HIT ANY KEY TO PLAY
 AGAIN"
2290 R=20
2300 C=4
2310 GOSUB 2100
2320 CALL KEY(0,KEY,STA)
2330 IF STA=0 THEN 2320
2340 GOTO 170
```

MATH CHALLENGE

Math drills are incorporated into a game for 1 to 10 players. The four basic math groups are used to instill a little friendly competition to see who remembers their grade school math the best!

```
100 REM ****************
110 REM *MATH CHALLENGE*
120 REM *   TI BASIC   *
130 REM *  J. GULICK   *
140 REM *FT.MITCHELL,KY*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 CALL CLEAR
180 DIM S(10)
190 RANDOMIZE
200 FOR I=1 TO 55
210 PRINT "MATH CHALLENGEMAT
H CHALLENGE"
220 NEXT I
230 CALL CLEAR
240 INPUT "NUMBER OF PLAYERS
(1 TO 10)":P
250 IF (P<1)+(P>10)=-1 THEN
240
260 CALL CHAR(47,"000008007F
0008")
270 FOR X=1 TO P
280 S(X)=0
290 NEXT X
300 CALL CLEAR
310 PRINT "TYPE OF PROBLEMS
?"
320 PRINT "":"":""
330 PRINT "ADDITION-SUBTRACT
ION ---(1) MULTIPLICATION-DI
VISION (2)"
340 PRINT "COMBINATION -----
-------(3)"
350 PRINT "":"":"":"":"":
360 INPUT T
370 IF (T<1)+(T>3)=-1 THEN 3
00
380 ON T GOSUB 490,780,1080
390 REM ** GAME END & SCORE
400 CALL CLEAR
410 PRINT "GAME OVER."
420 PRINT "SCORES WERE:"
430 FOR X=1 TO P
440 PRINT "PLAYER #";X;" GOT
 ";S(X);" CORRECT"
450 NEXT X
460 INPUT "PLAY AGAIN (<Y> O
R <N>)":Q$
470 IF ASC(Q$)=89 THEN 170
480 END
490 REM ADDITION-SUBTRACTION
500 FOR R=1 TO P
510 CALL CLEAR
520 PRINT "PLAYER #";R
530 FOR B=1 TO 10
540 N=INT(RND*2)+1
550 ON N GOSUB 640,710
560 IF I=A THEN 590
570 PRINT "WRONG."
580 GOTO 610
590 PRINT "RIGHT !!!"
600 S(R)=S(R)+1
610 NEXT B
620 NEXT R
630 RETURN
640 REM ** ADDITION **
650 Q=INT(RND*10)+1
660 L=INT(RND*10)+1
670 A=Q+L
680 PRINT Q;"+";L;"=";
690 INPUT I
700 RETURN
710 REM ** SUBTRACTION **
720 Q=INT(RND*10)+1
730 L=INT(RND*Q)+1
740 A=Q-L
750 PRINT Q;"-";L;"=";
760 INPUT I
770 RETURN
780 REM ** MULTIPLICATION &
DIVISION **
790 FOR R=1 TO P
800 CALL CLEAR
810 PRINT "PLAYER";R
820 FOR B=1 TO 10
830 N=INT(RND*2)+1
840 ON N GOSUB 930,1000
850 IF I=A THEN 880
860 PRINT "WRONG."
870 GOTO 900
880 PRINT "CORRECT !!!!!"
890 S(R)=S(R)+1
900 NEXT B
910 NEXT R
920 RETURN
930 REM ** MULITIPLICATION *
940 Q=INT(RND*10)+1
950 L=INT(RND*10)+1
960 A=Q*L
970 PRINT Q;"x";L;"=";
```

```
980 INPUT I
990 RETURN
1000 REM ** DIVISION **
1010 Q=INT(RND*15)+1
1020 L=INT(RND*5)+1
1030 A=INT(Q/L)
1040 PRINT Q;"/";L;"=";
1050 INPUT I
1060 I=INT(I)
1070 RETURN
1080 REM ** COMBINATION **
1090 FOR R=1 TO P
1100 CALL CLEAR
1110 PRINT "PLAYER";R
1120 FOR B=1 TO 10
1130 N=INT(RND*4)+1
1140 ON N GOSUB 640,710,930,
1000
1150 IF I=A THEN 1180
1160 PRINT "WRONG."
1170 GOTO 1200
1180 PRINT "CORRECT !!!!!!"
1190 S(R)=S(R)+1
1200 NEXT B
1210 NEXT R
1220 RETURN
```

STRANDED

It's gonna be tough, but at least you have a chance to win enough money to get out of this shady Casino and back home. Who knows, maybe you'll have some money left to throw a party once you get back - if you get back! Let 'em roll!

```
100 REM ******************
110 REM *     STRANDED     *
120 REM *     TI BASIC     *
130 REM *  PHIL TAYLOR     *
140 REM *HOLLAND,MICHIGAN*
150 REM * COPYRIGHT 1983 *
160 REM ******************
170 CALL CLEAR
180 RANDOMIZE
190 CALL SCREEN(16)
200 CALL COLOR(9,7,6)
210 CALL COLOR(12,8,6)
220 CALL COLOR(14,6,2)
230 CALL COLOR(15,2,6)
240 CALL COLOR(16,11,6)
250 K$="FFFFFFFFFFFFFFFF"
260 L$="00070F1F3F7F7F7F"
270 M$="7F7F7F3F1F0F07"
280 N$="00E0F0F8FCFEFEFE"
290 P$="FEFEFEFCF8F0E0"
300 CALL CHAR(128,K$)
310 CALL CHAR(136,K$)
320 CALL COLOR(15,2,6)
330 CALL CHAR(144,K$)
340 CALL COLOR(12,8,6)
350 CALL CHAR(127,K$)
360 CALL COLOR(16,11,6)
370 CALL CHAR(152,K$)
380 CALL COLOR(9,7,6)
390 CALL CHAR(96,K$)
400 CALL CHAR(104,"FFFF24FF2
4FF24FF")
410 CALL CHAR(105,L$)
420 CALL CHAR(106,M$)
430 CALL CHAR(107,N$)
440 CALL CHAR(108,P$)
450 CALL CHAR(129,L$)
460 CALL CHAR(130,M$)
470 CALL CHAR(131,N$)
480 CALL CHAR(132,P$)
490 CALL CHAR(137,L$)
500 CALL CHAR(138,M$)
510 CALL CHAR(139,N$)
520 CALL CHAR(140,P$)
530 PRINT TAB(8);"***STRANDE
D***"::::::::::::::::::
540 GOSUB 1580
550 INPUT "WANT INSTRUCTIONS
? (Y/N)":A$
560 IF A$="Y" THEN 1450
570 CALL CLEAR
580 INPUT "ENTER YOUR NAME
":B$
590 REM **GAME**
600 M=500
610 CALL CLEAR
620 GOSUB 1860
630 PRINT "YOU HAVE $";M
640 INPUT "WHAT IS YOUR BET?
 $ ":C
650 IF C>M THEN 1150
660 PRINT "YOUR BET OF $";C;
"HAS BEEN PLACED ";B$
670 INPUT "CHOOSE A NUMBER?
(1-6)? ":D
680 IF (D<1)+(D>6)=-1 THEN 6
80
690 CALL CLEAR
```

```
700 GOSUB 1580
710 PRINT "ENTER THE TYPE OF
 ROLL:"::
720 PRINT TAB(3);"1) EASY RO
LL"
730 PRINT TAB(3);"2) NORMAL
ROLL"
740 PRINT TAB(3);"3) HARD RO
LL"::
750 INPUT "ENTER YOUR CHOICE
? ":A
760 IF A>3 THEN 790
770 IF A=0 THEN 790
780 GOTO 800
790 INPUT "ENTER 1 - 3? ":A
800 CALL CLEAR
810 GOSUB 1580
820 PRINT "LET THE DICE ROLL
!!!!!":::
830 GOSUB 1800
840 S=INT(RND*6)+1
850 T=INT(RND*6)+1
860 U=INT(RND*6)+1
870 V=0
880 IF S<>D THEN 900
890 V=V+1
900 IF T<>D THEN 920
910 V=V+1
920 IF U<>D THEN 940
930 V=V+1
940 PRINT "DIE 1 = ";S
950 PRINT "DIE 2 = ";T
960 PRINT "DIE 3 = ";U
970 PRINT "YOU HAVE MATCHED
";V;" DICE."
980 IF V=0 THEN 1000
990 ON V GOTO 1030,1090,1120
1000 PRINT "YOU LOSE $ ";C
1010 M=M-C
1020 GOTO 1200
1030 PRINT "YOU WIN $ ";C
1040 M=M+C
1050 GOTO 1200
1060 PRINT "YOU WIN $ ";C
1070 M=M+C
1080 GOTO 1200
1090 PRINT "YOU WIN $ ";C*2
1100 M=M+(C*2)
1110 GOTO 1200
1120 PRINT "YOU WIN $ ";C*3
1130 M=M+(C*3)
1140 GOTO 1200
1150 REM **BET IS TOO HIGH**
1160 PRINT "YOUR BET WAS $";
C;"BUT YOU ONLY HAVE $";M
1170 FOR DELAY=1 TO 400
1180 NEXT DELAY
1190 GOTO 630
1200 REM **END OF ROUND**
1210 INPUT "WANT TO ROLL AGA
IN? (Y/N)":A$
1220 IF A$="N" THEN 1360
1230 CALL CLEAR
1240 IF M=0 THEN 1390
1250 IF M>=1500 THEN 1270
1260 GOTO 620
1270 REM **HAVE WON $1000**
1280 M=M-1500
1290 PRINT "YOU HAVE ENOUGH
TO GO HOME.":"DO YOU WANT TO
 PURCHASE A"
1300 INPUT "TICKET?(Y/N)":T$
1310 IF T$="N" THEN 610
1320 M=M-1500
1330 IF M=0 THEN 1350
1340 GOTO 1370
1350 PRINT "HAVE A GOOD TRIP
. BYE!!!"
1360 END
1370 PRINT "YOU NOW HAVE $ "
;M
1380 GOTO 1350
1390 REM **OUT OF MONEY**
1400 PRINT "WHO ARE YOU KIDD
ING? YOU'RE OUT OF MONEY ";B
$:::::::::
1410 FOR DELAY=1 TO 1000
1420 NEXT DELAY
1430 GOTO 1360
1440 REM **INSTRUCTIONS**
1450 CALL CLEAR
1460 PRINT "  YOU ARE A HIGH
 ROLLER":"STRANDED IN LAS VE
GAS TRYING"
1470 PRINT "TO WIN ENOUGH MO
NEY TO GET":"HOME.":::
1480 PRINT "  YOUR PLANE TIC
KET WILL":"COST $1500 - BUT
YOU HAVE"
1490 PRINT "ONLY $500. YOU M
UST WIN THE"
1500 PRINT "ADDITIONAL $1000
.":::
1510 PRINT "  THREE DICE WIL
L BE ROLLED":"AND YOU TRY TO
 MATCH THE"
1520 PRINT "DICE BY PICKING
A NUMBER"
1530 PRINT "FROM 1 - 6. 1 MA
TCH PAYS":"EVEN MONEY, 2 MAT
CHES PAYS"
```

```
1540 PRINT "DOUBLE, AND 3 MA
TCHES PAYS":"TRIPLE."::
1550 PRINT TAB(10);"GOOD LUC
K!"::
1560 INPUT " (PRESS ENTER TO
 CONTINUE)":A$
1570 GOTO 570
1580 REM *MAKE GAME TABLE*
1590 CALL COLOR(13,10,16)
1600 CALL HCHAR(12,5,128,25)
1610 CALL HCHAR(20,5,128,25)
1620 CALL VCHAR(12,5,128,8)
1630 CALL VCHAR(12,29,128,8)
1640 CALL HCHAR(13,6,136,23)
1650 CALL HCHAR(14,6,136,22)
1660 CALL HCHAR(15,6,136,22)
1670 CALL HCHAR(16,6,136,22)
1680 CALL HCHAR(17,6,136,22)
1690 CALL HCHAR(18,6,136,22)
1700 CALL HCHAR(19,6,136,23)
1710 CALL HCHAR(14,10,144)
1720 CALL HCHAR(18,22,144)
1730 CALL HCHAR(14,14,127)
1740 CALL HCHAR(18,18,127)
1750 CALL HCHAR(14,18,152)
1760 CALL HCHAR(18,14,152)
1770 CALL HCHAR(14,22,96)
1780 CALL HCHAR(18,10,96)
1790 RETURN
1800 REM **ROLL DICE**
1810 CALL COLOR(10,16,6)
1820 CALL HCHAR(12,7,104)
1830 CALL HCHAR(14,8,104)
1840 CALL HCHAR(16,7,104)
1850 RETURN
1860 REM **DRAW CHIPS**
1870 CALL COLOR(10,16,2)
1880 CALL HCHAR(18,5,105)
1890 CALL HCHAR(19,5,106)
1900 CALL HCHAR(18,6,107)
1910 CALL HCHAR(19,6,108)
1920 CALL COLOR(13,9,2)
1930 CALL HCHAR(18,7,129)
1940 CALL HCHAR(19,7,130)
1950 CALL HCHAR(18,8,131)
1960 CALL HCHAR(19,8,132)
1970 CALL HCHAR(18,9,137)
1980 CALL HCHAR(19,9,138)
1990 CALL HCHAR(18,10,139)
2000 CALL HCHAR(19,10,140)
2010 RETURN
```

LAS VEGAS LUCK

The graphics in this program are so good that you might actually begin to believe you're in Vegas! You control the force with which the handle is pulled, and unlike Vegas, the odds are in your favor! Just one more thing - don't hold your breath for the nickels to come falling our of your monitor!

```
100 REM*****************
110 REM*LAS VEGAS LUCK *
120 REM*   TI BASIC    *
130 REM*RICHARD PROCTOR*
140 REM*  DAYTON OHIO  *
150 REM*COPYRIGHT 1983 *
160 REM*****************
170 CALL CLEAR
180 CALL SCREEN(16)
190 RANDOMIZE
200 FOR G=1 TO 16
210 READ C
220 CALL COLOR(G,C,16)
230 NEXT G
240 DATA 7,7,5,5,5,5,5,7,11,
11,13,13,2,6,9,9
250 PRINT "          LAS  VEG
AS": : :
260 PRINT "             LUCK"
: : : : : : : : :
270 PRINT "  PRESS ANY KEY W
HEN READY": : :
280 CALL CHAR(62,"1893179765
ACD672")
290 FOR I=3 TO 30
300 CALL HCHAR(1,I,62)
310 NEXT I
320 FOR I=1 TO 24
330 CALL VCHAR(I,30,62)
340 NEXT I
350 FOR I=30 TO 3 STEP -1
360 CALL HCHAR(24,I,62)
370 NEXT I
380 FOR I=24 TO 1 STEP -1
390 CALL VCHAR(I,3,62)
400 NEXT I
410 DEF XX=INT(14*RND+2)
420 CALL KEY(0,K,S)
430 CALL COLOR(4,XX,1)
440 CALL COLOR(4,1,XX)
450 IF S=0 THEN 420
460 CALL CLEAR
470 CALL COLOR(4,5,16)
```

```
480 PRINT "          LAS VEGA
S": :
490 PRINT "       YOU ARE TH
ERE": : : :
500 PRINT "TRY YOUR LUCK AND
 SEE IF YOUCAN BE A WINNER.
 CAREFUL"
510 PRINT "THIS CAN BE HABIT
 FORMING."
520 PRINT "CHOOSE THE FORCE
WITH WHICH TO PULL THE HANDL
E BY"
530 PRINT "SELECTING NUMBERS
 1 TO 9.": : : :
540 PRINT "          GOOD LUC
K": : : : :
550 REM  CREATE SLOT MACHINE
560 A$="FFFFFFFFFFFFFFFF"
570 CALL CHAR(38,"071F3F7F7F
FFFFFF")
580 CALL CHAR(34,"E0F8FCFEFE
FFFFFF")
590 CALL CHAR(35,"3C7EFFFFFF
FF7E3C")
600 CALL CHAR(106,"3C3C3C3C3
C3C3C3C")
610 CALL CHAR(107,"003C42023
C40407E")
620 CALL CHAR(108,"007E407C0
202423C")
630 CALL CHAR(109,"101028404
0281010")
640 CALL CHAR(110,"FFFFFF7F7
F3F1F07")
650 CALL CHAR(111,"FFFFFFFEF
EFCF8E0")
660 CALL CHAR(133,A$)
670 CALL CHAR(134,"071F3F7F7
FFFFFFF")
680 CALL CHAR(135,"E0F8FCFEF
EFFFFFF")
690 CALL CHAR(158,A$)
700 REM CREATE HEART
710 CALL CHAR(144,"000000000
3070F1F")
720 CALL CHAR(145,"000000F0F
8FCFCFE")
730 CALL CHAR(146,"0000000F1
F3F3F7F")
740 CALL CHAR(147,"00000080C
0E0F0F8")
750 CALL CHAR(148,"1F3F3F3F3
F3F1F1F")
760 CALL CHAR(149,A$)
770 CALL CHAR(150,"F8FCFCFCF
CFCF8F8")
780 CALL CHAR(151,"0F0F07070
301")
790 CALL CHAR(152,"FFFFFFFFF
FFFFF7F")
800 CALL CHAR(153,"FFFFFFFFF
FFFFFFE")
810 CALL CHAR(154,"F0F0E0E0C
08")
820 CALL CHAR(156,"3F1F07030
1")
830 CALL CHAR(157,"FCF8E0C08
")
840 REM CREATE CHERRY
850 CALL CHAR(41,"0000000000
00001C")
860 CALL CHAR(43,"0000000000
0000F0")
870 CALL CHAR(42,"0001030307
070F0F")
880 CALL CHAR(40,A$)
890 CALL CHAR(37,"81C3E6ECF8
F8F3FF")
900 CALL CHAR(47,"E000000000
000080")
910 CALL CHAR(88,"0F1F1F1F1F
0F0F0F")
920 CALL CHAR(95,"C0C0E0E0E0
E0C0C0")
930 CALL CHAR(90,"070703")
940 CALL CHAR(91,"FFFFFFFF7F
0F")
950 CALL CHAR(92,"FFFFFFFEF8
E")
960 CALL CHAR(93,"808")
970 REM CREATE BELL
980 CALL CHAR(129,"000000000
3030303")
990 CALL CHAR(130,"00000000C
0C0C0C0")
1000 CALL CHAR(131,"03030303
0303070F")
1010 CALL CHAR(132,"C0C0C0C0
C0C0E0F0")
1020 CALL CHAR(136,"1F3F3F3F
3F3F3F3F")
1030 CALL CHAR(137,"F8FCFCFC
FCFCFCFC")
1040 CALL CHAR(138,"7FFFFF7F
3F0303")
1050 CALL CHAR(139,"FEFFFFFE
FCC0C")
1060 REM CREATE LEMON
```

```
1070 CALL CHAR(97,"000000000
000073F")
1080 CALL CHAR(98,"000000000
000E0FC")
1090 CALL CHAR(99,"000103070
70F3F7F")
1100 CALL CHAR(100,A$)
1110 CALL CHAR(101,"0080C0E0
E0F0FCFE")
1120 CALL CHAR(102,"7F3F0F07
070301")
1130 CALL CHAR(103,"FEFCF0E0
E0C08")
1140 CALL CHAR(104,"3F07")
1150 CALL CHAR(105,"FCE")
1160 REM CREATE DIAMOND
1170 CALL CHAR(113,"00010103
07070F1F")
1180 CALL CHAR(114,"008080C0
E0E0F0F8")
1190 CALL CHAR(115,"00000000
00010307")
1200 CALL CHAR(116,"1F3F7FFF
FFFFFFFF")
1210 CALL CHAR(117,"F8FCFEFF
FFFFFFFF")
1220 CALL CHAR(118,"00000000
0080C0E0")
1230 CALL CHAR(119,"070301")
1240 CALL CHAR(120,"FFFFFFFF
FF7F3F1F")
1250 CALL CHAR(121,"FFFFFFFF
FFFEFCF8")
1260 CALL CHAR(122,"E0C08")
1270 CALL CHAR(123,"1F0F0707
030101")
1280 CALL CHAR(124,"F8F0E0E0
C0808")
1290 REM CREATE BAR
1300 CALL CHAR(64,"00000F0F0
F0F0F0F")
1310 CALL CHAR(58,"0000FFFFF
FFFFFFF")
1320 CALL CHAR(59,"0000F0F0F
0F0F0F0")
1330 CALL CHAR(60,"0F0F0F0F0
F0F")
1340 CALL CHAR(63,"F0F0F0F0F
0F")
1350 CALL CHAR(62,"FFFFFFFFF
FFF")
1360 FOR Q=1 TO 1000
1370 NEXT Q
1380 CALL CLEAR
1390 PRINT "      INSTRUCTION
S Y OR N": : : : : : : : : :
 : : : :
1400 CALL KEY(0,K,S)
1410 IF K=78 THEN 1670
1420 IF K<>89 THEN 1400
1430 CALL CLEAR
1440 PRINT "           SCORIN
G": : :
1450 PRINT "IF ALL PICTURES
ARE ALIKE"
1460 PRINT "       300 POINT
S": :
1470 PRINT "IF FIRST TWO PIC
TURES ARE   CHERRIES, LEMONS
, OR BARS"
1480 PRINT "       150 POINT
S": :
1490 PRINT "IF FIRST TWO PIC
TURES ARE   HEARTS, BELLS, O
R DIAMONDS"
1500 PRINT "        40 POINT
S": :
1510 PRINT "IF FIRST AND LAS
T PICTURES  ARE ALIKE"
1520 PRINT "        40 POINT
S": :
1530 PRINT "ALL OTHER COMBIN
ATIONS"
1540 PRINT "       LOSE 25 P
OINTS": :
1550 PRINT "PRESS ANY KEY WH
EN READY"
1560 CALL KEY(0,K,S)
1570 IF S=0 THEN 1560
1580 CALL CLEAR
1590 PRINT "  THE HANDLE CON
TROLS THE      SPEED OF THE
MACHINE": :
1600 PRINT "TO PULL THE HAND
LE SELECT   ANY NUMBER BETWE
EN 1 AND 9": :
1610 PRINT " 1 MOVES THE MAC
HINE FAST": :
1620 PRINT " 9 MOVES THE MAC
HINE SLOW": : : :
1630 PRINT "    PRESS N TO E
ND GAME": : : : : :
1640 PRINT "  PRESS ANY KEY
WHEN READY": :
1650 CALL KEY(0,K,S)
1660 IF S=0 THEN 1650
1670 CALL CLEAR
1680 REM CREATE SLOT MACHINE
```

```
1690 CALL VCHAR(7,8,40,10)
1700 CALL VCHAR(7,9,40,10)
1710 CALL VCHAR(7,10,40,10)
1720 CALL VCHAR(7,23,40,10)
1730 CALL VCHAR(7,24,40,10)
1740 CALL VCHAR(7,25,40,10)
1750 RESTORE 1800
1760 FOR Q=1 TO 27
1770 READ X,Y,Z,W
1780 CALL HCHAR(X,Y,Z,W)
1790 NEXT Q
1800 DATA 4,9,134,1,4,10,133
,14,4,24,135,1,17,6,134,1,17
1810 DATA 27,135,1,17,7,133,
20,18,6,133,22,19,6,133,22
1820 DATA 13,20,134,1,13,21,
133,1,13,22,135,1,14,20,110
1830 DATA 1,14,21,100,1,14,2
2,111,1,5,8,38,1,5,25,34,1
1840 DATA 5,9,40,16,6,8,40,1
8,11,11,40,12,12,11,40,12,13
1850 DATA 14,40,6,14,11,40,9
,15,8,40,20,16
1860 DATA 11,40,12,13,11,107
,1,13,12,108,1,13,13,109,1
1870 CALL VCHAR(7,27,106,8)
1880 CALL HCHAR(6,27,35)
1890 DATA 1,24,8,PRESS 1 TO
9 OR N
1900 RESTORE 1890
1910 GOSUB 3610
1920 C=11
1930 GOSUB 3210
1940 C=15
1950 GOSUB 3410
1960 C=19
1970 GOSUB 3110
1980 REM PULL HANDLE
1990 CALL KEY(0,K2,S)
2000 IF S=0 THEN 1990
2010 CALL HCHAR(2,18,32,7)
2020 CALL HCHAR(22,5,32,25)
2030 IF K2=78 THEN 2980
2040 IF (K2<49)+(K2>57)=-1 T
HEN 1990
2050 FOR A=7 TO 14
2060 CALL HCHAR(A-1,27,32)
2070 CALL HCHAR(A,27,35)
2080 NEXT A
2090 CALL VCHAR(7,27,106,8)
2100 CALL VCHAR(6,27,35)
2110 CALL COLOR(16,16,16)
2120 FOR F=7 TO 10
2130 CALL HCHAR(F,11,158,12)
2140 NEXT F
2150 FOR FLS=1 TO K2-48
2160 FOR COL=3 TO 10
2170 CALL COLOR(16,COL,1)
2180 CALL SOUND(30,-5,9)
2190 NEXT COL
2200 NEXT FLS
2210 CALL COLOR(16,9,16)
2220 FOR CL=7 TO 10
2230 CALL HCHAR(CL,11,32,12)
2240 NEXT CL
2250 REM RAMDOM CHOICE
2260 C=11
2270 FOR I=1 TO 3
2280 PIC(I)=INT(6*RND)+1
2290 ON PIC(I)GOSUB 3010,311
0,3210,3310,3410,3510
2300 C=C+4
2310 NEXT I
2320 REM SCORING
2330 IF PIC(1)<>PIC(2)THEN 2
350
2340 IF PIC(2)=PIC(3)THEN 26
80 ELSE 2370
2350 IF PIC(1)<>PIC(3)THEN 2
510
2360 GOTO 2570
2370 IF PIC(1)/2<>INT(PIC(1)
/2)THEN 2570
2380 TOTAL=TOTAL+150
2390 FOR Z=1 TO 2
2400 CALL SOUND(150,440,2)
2410 CALL SOUND(150,660,2)
2420 CALL SOUND(150,550,2)
2430 CALL SOUND(150,440,2)
2440 CALL SOUND(150,660,2)
2450 CALL SOUND(150,550,2)
2460 NEXT Z
2470 DATA 1,22,8,BONUS 150 P
OINTS
2480 RESTORE 2470
2490 GOSUB 3610
2500 GOTO 2930
2510 TOTAL=TOTAL-25
2520 CALL SOUND(100,110,1)
2530 DATA 1,22,10,LOSE 25 PO
INTS
2540 RESTORE 2530
2550 GOSUB 3610
2560 GOTO 2930
2570 TOTAL=TOTAL+40
2580 FOR Z=1 TO 2
2590 CALL SOUND(150,660,2)
2600 CALL SOUND(150,770,2)
```

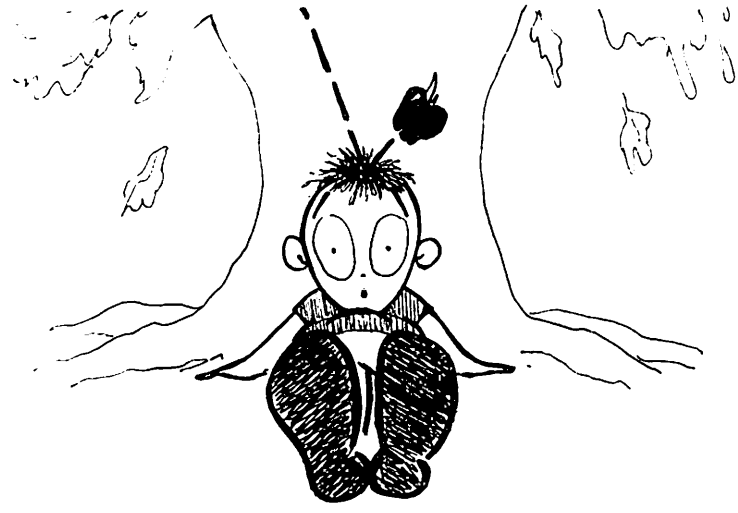
```
2610 CALL SOUND(150,660,2)
2620 CALL SOUND(150,770,2)
2630 NEXT Z
2640 DATA 1,22,10,WIN 40 POI
NTS
2650 RESTORE 2640
2660 GOSUB 3610
2670 GOTO 2930
2680 TOTAL=TOTAL+300
2690 GOSUB 3740
2700 CALL SOUND(87,1175,0)
2710 CALL SOUND(87,1175,0)
2720 CALL SOUND(175,1175,0)
2730 CALL SOUND(87,1175,0)
2740 CALL SOUND(87,1175,0)
2750 CALL SOUND(175,1175,0)
2760 CALL SOUND(175,1976,0)
2770 CALL SOUND(175,1760,0)
2780 CALL SOUND(175,1480,0)
2790 CALL SOUND(175,1175,0)
2800 GOSUB 3740
2810 CALL SOUND(87,1568,0)
2820 CALL SOUND(87,1976,0)
2830 CALL SOUND(437,2350,0)
2840 CALL SOUND(87,2094,0)
2850 CALL SOUND(87,1976,0)
2860 CALL SOUND(87,1760,0)
2870 CALL SOUND(175,1568,0)
2880 CALL SOUND(175,1976,0)
2890 CALL SOUND(175,1568,0)
2900 DATA 1,22,7,JACKPOT!  3
00 POINTS
2910 RESTORE 2900
2920 GOSUB 3610
2930 Q$="SCORE = "&STR$(TOTA
L)
2940 COL=10
2950 ROW=2
2960 GOSUB 3690
2970 GOTO 1990
2980 CALL CLEAR
2990 PRINT "        DID YOU L
EAVE                ALL YOUR M
ONEY?": : : : : : : : :
: : :
3000 END
3010 REM PRINT HEART
3020 RESTORE 3090
3030 FOR R=7 TO 10
3040 FOR D=C TO C+3
3050 READ X
3060 CALL HCHAR(R,D,X)
3070 NEXT D
3080 NEXT R
3090 DATA 144,145,146,147,14
8,149,149,150,151,152,153,15
4,32,156,157,32
3100 RETURN
3110 REM PRINT CHERRY
3120 RESTORE 3190
3130 FOR R=7 TO 10
3140 FOR D=C TO C+3
3150 READ X
3160 CALL HCHAR(R,D,X)
3170 NEXT D
3180 NEXT R
3190 DATA 32,41,32,43,42,40,
37,47,88,40,40,95,90,91,92,9
3
3200 RETURN
3210 REM  PRINT BELL
3220 RESTORE 3290
3230 FOR R=7 TO 10
3240 FOR D=C TO C+3
3250 READ X
3260 CALL HCHAR(R,D,X)
3270 NEXT D
3280 NEXT R
3290 DATA 32,129,130,32,32,1
31,132,32,32,136,137,32,32,1
38,139,32
3300 RETURN
3310 REM PRINT LEMON
3320 RESTORE 3390
3330 FOR R=7 TO 10
3340 FOR D=C TO C+3
3350 READ X
3360 CALL HCHAR(R,D,X)
3370 NEXT D
3380 NEXT R
3390 DATA 32,97,98,32,99,100
,100,101,102,100,100,103,32,
104,105,32
3400 RETURN
3410 REM PRINT DIAMOND
3420 RESTORE 3490
3430 FOR R=7 TO 10
3440 FOR D=C TO C+3
3450 READ X
3460 CALL HCHAR(R,D,X)
3470 NEXT D
3480 NEXT R
3490 DATA 32,113,114,32,115,
116,117,118,119,120,121,122,
32,123,124,32
3500 RETURN
3510 REM PRINT BAR
3520 RESTORE 3590
```

```
3530 FOR R=7 TO 10
3540 FOR D=C TO C+3
3550 READ X
3560 CALL HCHAR(R,D,X)
3570 NEXT D
3580 NEXT R
3590 DATA 32,32,32,32,64,58,
58,59,60,62,62,63,32,32,32,3
2
3600 RETURN
3610 READ NMBR
3620 FOR I=1 TO NMBR
3630 READ ROW,COL,T$
3640 FOR J=0 TO LEN(T$)-1
3650 CALL HCHAR(ROW,COL+J,AS
C(SEG$(T$,J+1,1)))
3660 NEXT J
3670 NEXT I
3680 RETURN
3690 FOR LN=1 TO LEN(Q$)
3700 Z$=SEG$(Q$,LN,1)
3710 CALL HCHAR(ROW,COL+LN,A
SC(Z$))
3720 NEXT LN
3730 RETURN
3740 CALL SOUND(87,1175,0)
3750 CALL SOUND(87,1175,0)
3760 CALL SOUND(175,1175,0)
3770 CALL SOUND(87,1175,0)
3780 CALL SOUND(87,1175,0)
3790 CALL SOUND(175,1175,0)
3800 CALL SOUND(87,1175,0)
3810 CALL SOUND(87,1175,0)
3820 CALL SOUND(175,1568,0)
3830 CALL SOUND(175,1760,0)
3840 CALL SOUND(175,1976,0)
3850 RETURN
```

GRAVITY SIMULATION

This program will allow you to visually experience the gravitational force of the earth as well as the force on the other planets and moons of our solar system. You can also input a factor that represents materials of different densities to see the effect of gravitational forces on them. Actual figures are used, therefore the results are very enlightening.

```
100 REM*********************
110 REM*GRAVITY SIMULATION*
120 REM*  EXTENDED BASIC  *
130 REM*  BY TOM BANCHY   *
140 REM* CINCINNATI,OHIO  *
150 REM*  COPYRIGHT 1983  *
160 REM*********************
170 REM **INITIALIZATION**
180 CALL CHAR(128,"3C7EFFFFF
FFF7E3C"):: CALL CHAR(129,"F
FFFC3C3C3C3FFFF")
190 CALL SCREEN(15):: CALL C
OLOR(13,5,15)
200 REM **INTRODUCTION**
210 DISPLAY AT(1,1)ERASE ALL
:"THE PATH OF A BALL BOUNCIN
G"
220 DISPLAY AT(2,1):"ON A SM
OOTH STEEL SURFACE   IS DETE
RMINED BY TWO FACTORS"
230 DISPLAY AT(4,1):"-GRAVIT
Y AND ELASTICITY"
240 DISPLAY AT(6,1):"THE FIR
ST OF THESE FACTORS  IS THE
ACCELERATION OF GRAV-"
250 DISPLAY AT(8,1):"ITY(IN
M/SEC^2) ON THE      PLANET
WHERE THE BALL IS "
260 DISPLAY AT(10,1):"BEING
DROPPED."
270 DISPLAY AT(13,1):"FOLLOW
ING IS A CHART OF SOMEOF THE
 DIFFERENT CELESTIAL"
280 DISPLAY AT(15,1):"BODIES
 IN THE SOLAR SYSTEM  AND TH
EIR ACCELERATION OF"
290 DISPLAY AT(17,1):"GRAVIT
Y. YOU MAY PICK ONE OFTHESE
BODIES OR INPUT YOUR"
```



```
300 DISPLAY AT(19,1):"OWN AC
CELERATION OF GRAVITY."
310 DISPLAY AT(24,1):"*PRESS
 ANY KEY TO CONTINUE*"
320 CALL KEY(0,K,S):: IF S=0
 THEN 310
330 REM **MAIN MENU**
340 DISPLAY AT(1,1)ERASE ALL
:"CHOOSE ONE OF THE FOLLOWIN
G:"&RPT$("-",28)
350 DISPLAY AT(3,1):"1. MERC
URY(3.57 M/SEC^2)    2. VENU
S(8.87 M/SEC^2)"
360 DISPLAY AT(5,1):"3. EART
H(9.8 M/SEC^2)        4.*THE
MOON(1.62 M/SEC^2)"
370 DISPLAY AT(7,1):"5. MARS
(3.74 M/SEC^2)        6. A TY
PICAL ASTEROID"
380 DISPLAY AT(9,1):"
  (.0195 M/SEC^2)     7. JUPI
TER(28.5 M/SEC^2)"
390 DISPLAY AT(11,1):"8.*GAN
YMEDE(1.6 M/SEC^2)     9. SAT
URN(11.17 M/SEC^2)"
400 DISPLAY AT(13,1):"10. UR
ANUS(10.49 M/SEC^2)    11. NE
PTUNE(13.25 M/SEC^2) "
410 DISPLAY AT(15,1):"12. PL
UTO(2.21 M/SEC^2)      13. ON
E OF YOUR OWN"
420 REM **ASSIGN GRAVITY**
430 ACCEPT AT(19,2)VALIDATE(
DIGIT)SIZE(3)BEEP:C
440 IF C=1 THEN V=3.57 :: GO
TO 590
450 IF C=2 THEN V=8.87 :: GO
TO 590
460 IF C=3 THEN V=9.8 :: GOT
O 590
470 IF C=4 THEN V=1.62 :: GO
TO 590
480 IF C=5 THEN V=3.74 :: GO
TO 590
490 IF C=6 THEN V=.0195 :: G
OTO 590
500 IF C=7 THEN V=28.5 :: GO
TO 590
510 IF C=8 THEN V=1.6 :: GOT
O 590
520 IF C=9 THEN V=11.17 :: G
OTO 590
530 IF C=10 THEN V=10.49 ::
GOTO 590
540 IF C=11 THEN V=13.25 ::
GOTO 590
550 IF C=12 THEN V=2.21 :: G
OTO 590
560 IF C<>13 THEN 430
570 DISPLAY AT(23,1):"ENTER
YOUR OWN VALUE"
580 ACCEPT AT(24,5)VALIDATE(
NUMERIC)BEEP:V
590 REM *ASSIGN ELASTICITY*
600 DISPLAY AT(1,1)ERASE ALL
:"PLEASE INPUT THE ELASTICIT
Y"
610 DISPLAY AT(2,1):"OF THE
BALL-FROM 30 TO 100%,WITH 30
% BEING LITTLE BOUNCE"
620 DISPLAY AT(4,1):"AND 100
% BEING A"
630 DISPLAY AT(5,1):"PERFECT
LY ELASTIC BOUNCE."
640 ACCEPT AT(7,5)VALIDATE(D
IGIT)SIZE(4)BEEP:D
650 IF D<30 OR D>100 THEN 64
0
660 REM **PROGRAM RUN**
670 DISPLAY AT(1,1)ERASE ALL
:"GRAVITY=";V :: DISPLAY AT(
2,1):"%ELASTICITY=";D
680 FOR X=1 TO 4 :: CALL VCH
AR(6,X,129,19):: NEXT X
690 CALL SPRITE(#1,128,7,33,
1,0,5)
700 FOR X=1 TO 380 :: NEXT X
710 A=0
720 CALL POSITION(#1,X,Y)::
IF X>(183-.4*A)AND A>0 THEN
A=-D/100*A
730 A=A+(V/5)
740 CALL MOTION(#1,A,2)
750 IF (X>240)+(Y>250)<0 THE
N CALL DELSPRITE(#1):: GOTO
770
760 GOTO 720
770 DISPLAY AT(1,1)ERASE ALL
:"WOULD YOU LIKE TO CREATE"
780 DISPLAY AT(2,1):"ANOTHER
 SIMULATION?(Y/N)     Y"
790 ACCEPT AT(3,1)VALIDATE("
YN")SIZE(-1)BEEP:CH$
800 IF CH$<>"Y" THEN END
810 DISPLAY AT(5,1):"UNDER T
HE SAME CONDITIONS?  (Y/N)"
820 ACCEPT AT(6,8)VALIDATE("
YN")SIZE(1)BEEP:CH$
830 IF CH$="N" THEN 340 ELSE
 660
```

PINPOINT SKYDIVING CHALLENGE

Keep your eye on the wind flag and you'll have a fairly good chance of landing on course. There are 3 targets for which you must aim. With a little luck and a lot of skill, you may avoid the embarassment of missing the Iceburg in Level 3. Happy Landing! Joysticks optional

```
100 REM*****************
110 REM*   SKYDIVING    *
120 REM*   CHALLENGE    *
130 REM*EXTENDED BASIC *
140 REM* BY J. GULICK  *
150 REM*FT.MITCHELL,KY.*
160 REM*COPYRIGHT 1983 *
170 REM*****************
180 CALL MAGNIFY(3)
190 CALL CLEAR
200 REM**INSTRUCTIONS**
210 PRINT "  Welcome to the
TI-99/4A      SKYDIVING  CHA
LLENGE.": :
220 PRINT "This is a three p
art contest in which you, th
e skydiver,"
230 PRINT " must guide yours
elf through the wind towards
 a target,":
240 PRINT " which will be ma
rked by an  asterix (*). You
 will guide"
250 PRINT " yourself useing
the <S> and <D> keys or joys
tick #1 as  controls.":
260 PRINT "the third board i
s a change  from the first t
wo. In it,"
270 PRINT " you must land yo
urself on a drifting iceflow
.":
280 PRINT "Your score will b
e based on  how close you co
me to your"
290 PRINT " target. You will
 not score  anything if you
hit a tree":
300 PRINT " on the second fi
eld or miss the iceflow on t
he third."
310 PRINT "HIT <ENTER> TO BE
GIN"
320 CALL KEY(0,K,S):: IF K<>
13 THEN 320
330 REM**INITIALIZATION**
340 CALL CLEAR :: RANDOMIZE
:: CALL MAGNIFY(3)
350 CALL CHAR(128,"00030F1F3
7E24222130B0F030302020200C0F
0F8EC474244C8D0F0C0C0404040"
)!PARACHUTIST
360 CALL CHAR(127,RPT$("F",1
6))!SOLID BLOCK
370 CALL CHAR(97,"070F1F3F7F
FFFFFF",98,"FFFFFF7F3F1F0F07
",99,"E0F0F8FCFEFFFFFF")
380 CALL CHAR(100,"FFFFFFFEF
CF8F0E0")!TREE TOP
390 CALL CHAR(104,RPT$("07",
8),105,"0707070F0F1F3FFF",10
6,RPT$("E0",8))
400 CALL CHAR(107,"E0E0E0F0F
0F8FCFF")!TREE TRUNK
410 CALL CHAR(140,RPT$("0",1
3)&"181DFFF0E02"&RPT$("0",20
)&"C0FCFFBE383C1C380800")!IC
E FLOW
420 B=1 :: TOTAL=0
430 REM**FIELD ONE**
440 CALL CLEAR :: CALL COLOR
(0,7,2,12,2,1,9,13,1):: CALL
 SCREEN(8)
450 PRINT RPT$(" ",28)&RPT$(
CHR$(127),56);
460 CALL SPRITE(#2,128,9,10,
INT(RND*200)+21,1,0)
470 DISPLAY AT(24,7):"WIND <
<(*)>> FLAG";
480 CALL MOVEMENT(WIND)
490 CALL POSITION(#2,V,H)::
CALL GCHAR((V+18)/8,H/8-(H<2
50),D)
500 IF D<>32 THEN 760
510 GOTO 480
520 REM**FIELD TWO**
530 CALL CLEAR
540 PRINT "  ac      ac
    ac        bd      bd
    bd"
550 PRINT "  hj      hj
    hj        ik      ik
    ik"
560 PRINT RPT$(CHR$(127),56)
;
```

```
570 CALL SPRITE(#2,128,9,10,
INT(RND*200)+21,1,0)
580 DISPLAY AT(24,7):"WIND <
<<*>>> FLAG";
590 CALL MOVEMENT(WIND)
600 CALL POSITION(#2,V,H)::
CALL GCHAR((V+18)/8,H/8-(H<2
50),D)
610 IF D=127 OR D=31 OR D=30
 THEN 760
620 IF (D>97)+(D<107)=-2 THE
N 880
630 GOTO 590
640 REM**FIELD THREE**
650 CALL CLEAR
660 CALL COLOR(12,5,1,0,1,5)
:: PRINT RPT$(" ",28)&RPT$(C
HR$(127),56);
670 CALL SPRITE(#2,128,9,10,
INT(RND*255)+1,1,0)
680 DISPLAY AT(24,7):"WIND <
<<->>> FLAG";:: CALL SPRITE(
#1,140,16,168,INT(RND*20
0)+21)
690 CALL SPRITE(#1,140,16,16
8,INT(RND*200)+21)
700 CALL MOVEMENT(WIND)
710 CALL MOTION(#1,0,WIND-SG
N(WIND))
720 CALL COINC(ALL,LAND):: I
F LAND=-1 THEN 800
730 CALL POSITION(#2,V,H)::
CALL GCHAR((V+18)/8,H/8-(H<2
50),D)
740 IF D<>32 THEN 840
750 GOTO 700
760 CALL COLOR(0,1,1):: CALL
 DELSPRITE(ALL):: CALL CLEAR
 :: SCORE=1000
770 SCORE=INT(SCORE/((ABS(H-
124)/24)+1)):: PRINT "SCORE=
";SCORE
780 TOTAL=TOTAL+SCORE :: FOR
 TL=1 TO 2000 :: NEXT TL ::
CALL COLOR(0,7,2)
790 WIND=0 :: B=B+1 :: ON B
GOTO 530,530,650
800 CALL DELSPRITE(ALL):: CA
LL COLOR(0,1,1):: CALL CLEAR
810 PRINT "GOOD LANDING!!!!!
":"1000 POINTS." :: TOTAL=TO
TAL+1000
820 PRINT "TOTAL SCORE=";TOT
AL;".";
830 GOTO 860
840 CALL DELSPRITE(ALL):: CA
LL COLOR(0,1,1):: CALL CLEAR
850 PRINT "SPLASH !!!!!!!!!"
:"0 POINTS.":"TOTAL SCORE=";
TOTAL;"."
860 PRINT : :" HIT <ENTER> T
O PLAY AGAIN"
870 CALL KEY(0,K,S):: IF K<>
13 THEN 870 ELSE 420
880 CALL COLOR(0,1,1):: CALL
 DELSPRITE(ALL):: CALL CLEAR
890 PRINT "CRASH!!!!!!!!!!!
!" :: SCORE=0 :: PRINT SCORE
900 GOTO 780
910 SUB MOVEMENT(WIND)
920 CALL JOYST(2,X,Y)
930 IF X=0 THEN 960
940 Q=(X=-4)-(X=4)
950 GOTO 980
960 CALL KEY(1,X,S)
970 Q=(X=2)-(X=3)
980 CALL MOTION(#2,1,Q*2+WIN
D)
990 WIND=WIND+INT(RND*3)-1
1000 WIND=WIND-(WIND<-3)+(WI
ND>3)
1010 DISPLAY AT(23,12):RPT$(
CHR$(127),3+WIND)&CHR$(30)&R
PT$(CHR$(127),3-WIND);
1020 SUBEND
```

MAZE MADNESS

This Auto Racing course has some perilous twists and turns and such speed that you had better strap yourself into your playing seat to avoid being flung around while steering, with keyboard or joystick, through one of those hairpin turns. Keep your composure and you'll get around ok!

```
100 REM ******************
110 REM * MAZE MADNESS   *
120 REM *    TI BASIC     *
130 REM * BY TOM BANCHY  *
140 REM *CINCINNATI,OHIO*
150 REM * COPYRIGHT 1983*
160 REM ******************
170 REM **INITIALIZATION**
180 CALL CLEAR
190 CALL SCREEN(2)
200 FOR T=1 TO 13
210 CALL COLOR(T,12,1)
220 NEXT T
230 CALL COLOR(14,1,1)
240 CALL CHAR(91,"FFFFFFFFFF
FFFFFF")
250 CALL CHAR(96,"001030FFFF
3010")
260 CALL CHAR(128,"AA55AA55A
A55AA55")
270 CALL CHAR(129,"3C7E3C3C3
C7E1818")
280 CALL CHAR(130,"0044FCFFF
FFC44")
290 CALL CHAR(131,"18187E3C3
C3C7E3C")
300 CALL CHAR(132,"00223FFFF
F3F22")
310 CALL CHAR(140,"")
320 REM **INSTRUCTIONS**
330 PRINT "         MAZE MADN
ESS"::::::::
340 PRINT "YOU ARE AT THE WH
EEL OF A   FORMULA RACE CAR.
 YOUR GOAL-"
350 PRINT "TO MANEUVER YOUR
CAR USING"
360 PRINT "THE ARROW KEYS, C
OMPLETING  AS MANY FULL LAPS
 AS"
370 PRINT "POSSIBLE ON THE T
RACK OF    YOUR CHOICE. YOU
HAVE THE"
380 PRINT "OPTION OF RACING
ON TRACKS"
390 PRINT "VARYING FROM EASY
 TO GRUEL- ING. THE CHOICE I
S YOURS--"
400 PRINT "PLAY IT SAFE, OR
PUSH YOUR  SKILLS TO THE LIM
IT."
410 PRINT "   HIT ANY KEY TO
 START              GOOD LUC
K!"
420 CALL KEY(0,K,S)
430 IF S=0 THEN 420
440 CALL CLEAR
450 PRINT "DO YOU WANT EASY,
 HARD, VERYHARD, OR ALMOST I
MPOSSIBLE"
460 INPUT "MAZE(E,H,V,OR A)?
  ":Q$
470 REM **SET MAZE BORDER**
480 CALL CLEAR
490 CALL HCHAR(1,1,128,96)
500 CALL HCHAR(23,1,128,64)
510 CALL VCHAR(1,1,128,72)
520 CALL VCHAR(1,29,128,96)
530 IF Q$="E" THEN 1530
540 IF Q$="V" THEN 1820
550 IF Q$="A" THEN 1660
560 REM **SET 'H' SCREEN**
570 XX=20
580 YY=13
590 RESTORE 2010
600 FOR R=1 TO 9
610 READ R1,R2,R3
620 CALL HCHAR(R1,R2,128,R3)
630 NEXT R
640 FOR R=1 TO 15
650 READ R1,R2,R3
660 CALL VCHAR(R1,R2,128,R3)
670 NEXT R
680 FOR T=17 TO 20
690 CALL HCHAR(T,15,128,4)
700 NEXT T
710 FOR T=19 TO 22
720 CALL HCHAR(T,4,128,9)
730 NEXT T
740 A=0
750 XXX=1
760 YYY=11
770 I$="MAZE MADNESS"
780 GOSUB 1950
790 B=-1
800 X=4
```

```
810 L=1
820 Y=9
830 CHAR=132
840 CALL HCHAR(4,10,96)
850 CALL HCHAR(X,Y,CHAR)
860 XXX=24
870 YYY=12
880 I$="LAP NO. 1"
890 GOSUB 1950
900 REM **CONTROL LOOP**
910 CALL KEY(1,K,S)
920 IF (K<0)+(K>5)<0 THEN 94
0
930 ON (K+1)GOTO 1210,940,12
50,1290,940,1170
940 CALL GCHAR(X+A,Y+B,R)
950 IF R=128 THEN 1340
960 IF R<>96 THEN 980
970 IF E=1 THEN 1080
980 IF R<>140 THEN 1000
990 E=1
1000 CALL HCHAR(X,Y,32)
1010 CALL HCHAR(4,10,96)
1020 CALL HCHAR(XX,YY,140)
1030 X=X+A
1040 Y=Y+B
1050 CALL HCHAR(X,Y,CHAR)
1060 GOTO 910
1070 REM **LAP COMPLETED**
1080 L=L+1
1090 I$=STR$(L)
1100 XXX=24
1110 YYY=20
1120 GOSUB 1950
1130 E=0
1140 CALL SOUND(-100,800,5,8
01,5,802,5)
1150 GOTO 1000
1160 REM *CHANGE DIRECTION*
1170 A=-1
1180 B=0
1190 CHAR=131
1200 GOTO 940
1210 A=1
1220 B=0
1230 CHAR=129
1240 GOTO 940
1250 A=0
1260 B=-1
1270 CHAR=132
1280 GOTO 940
1290 A=0
1300 B=1
1310 CHAR=130
1320 GOTO 940
1330 REM **CRASH**
1340 FOR T=-1 TO 1
1350 CALL HCHAR(X+A+T,Y+B-1,
145,3)
1360 NEXT T
1370 FOR T=1 TO 10
1380 CALL COLOR(15,16,16)
1390 CALL COLOR(15,2,2)
1400 CALL SOUND(-200,110,6,-
5,0)
1410 NEXT T
1420 PRINT "    CALL AN AMBU
LANCE!!    ";
1430 FOR T=1 TO 300
1440 NEXT T
1450 CALL CLEAR
1460 PRINT "O.K., YOUR BONES
 HAVE SET.  CARE TO TRY YOUR
 LUCK AGAIN?"
1470 PRINT "HIT Q TO QUIT OR
 ANY OTHER  KEY TO PLAY OVER
."
1480 CALL KEY(0,K,S)
1490 IF S=0 THEN 1480
1500 IF K=81 THEN 1510 ELSE
440
1510 END
1520 REM **SET 'E' SCREEN**
1530 XX=22
1540 YY=14
1550 CALL HCHAR(6,6,128,21)
1560 CALL HCHAR(5,6,128,10)
1570 CALL VCHAR(7,6,128,14)
1580 CALL VCHAR(7,14,128,15)
1590 FOR W=22 TO 26
1600 CALL VCHAR(7,W,128,14)
1610 NEXT W
1620 CALL VCHAR(10,10,128,13
)
1630 CALL VCHAR(10,18,128,13
)
1640 GOTO 740
1650 REM **SET 'A' SCREEN**
1660 XX=15
1670 YY=19
1680 RESTORE 2040
1690 FOR R=1 TO 21
1700 READ R1,R2,R3
1710 CALL VCHAR(R1,R2,128,R3
)
1720 NEXT R
1730 FOR R=1 TO 19
1740 READ R1,R2,R3
1750 CALL HCHAR(R1,R2,128,R3
)
```

```
1760 NEXT R
1770 FOR T=19 TO 22
1780 CALL HCHAR(T,4,128,4)
1790 NEXT T
1800 GOTO 740
1810 REM **SET 'V' SCREEN**
1820 XX=22
1830 YY=16
1840 RESTORE 2110
1850 FOR R=1 TO 6
1860 READ R1,R2,R3
1870 CALL VCHAR(R1,R2,128,R3
)
1880 NEXT R
1890 FOR R=1 TO 18
1900 READ R1,R2,R3
1910 CALL HCHAR(R1,R2,128,R3
)
1920 NEXT R
1930 GOTO 740
1940 REM **PRINT AT**
1950 FOR T=1 TO LEN(I$)
1960 AA=ASC(SEG$(I$,T,1))
1970 CALL HCHAR(XXX,YYY+T,AA
)
1980 NEXT T
1990 RETURN
2000 REM  **TRACK LAYOUT**
2010 DATA 5,6,22,6,6,22,7,6,
7,8,6,7,9,8,5,10,8,5,11,8,5,
16,6,2,14,13,4
2020 DATA 12,8,5,7,19,14,7,2
0,14,17,14,4,7,27,14,14,26,2
,11,4,4,11,5,3
2030 DATA 14,11,5,14,12,5,9,
15,5,9,16,5,9,23,14,9,24,3,1
8,24,5
2040 DATA 4,13,2,4,14,4,4,15
,4,4,16,6,4,23,2,16,13,6
2050 DATA 20,21,3,20,22,3,17
,23,3,11,28,3
2060 DATA 6,6,2,7,11,6,10,12
,3,10,13,3,13,9,4,17,10,4
2070 DATA 6,19,6,6,20,3,6,26
,2,13,20,5,15,26,6
2080 DATA 5,6,5,10,4,5,9,8,1
,11,4,3,12,4,3,22,13,4,15
2090 DATA 12,7,11,22,6,6,7,4
,13,10,1,15,6,3
2100 DATA 16,6,3,12,14,6,8,2
1,6,18,16,4,19,16,3,20,18,1,
14,21,5,20,25,1
2110 DATA 6,16,16,19,5,3,19,
7,3,19,6,3,19,11,3,20,9,3
2120 DATA 5,10,1,4,14,1,5,17
,9,6,5,11,8,18,11,9,4,11
2130 DATA 11,17,11,12,5,11,1
4,18,11,15,4,11,17,17,11
2140 DATA 18,5,11,19,12,4,20
,12,4,21,12,4,20,19,10,21,19
,10,22,19,10
```

ADDRESS ACCESS & PHONE FILE

Now you'll be able to keep the names, addresses, phone #'s and other pertinent information for 200 friends and neighbors. From now on you'll be able to make neat and easy changes for those 2 or 3 people we all know who are always moving and have been crossed out and re-entered in our books a dozen times! there are quite a few features found here that make this program extremely fun and easy to work with.

```
100 REM ******************
110 REM *MAIL&PHONE LIST*
120 REM *    TI BASIC     *
130 REM * BY R.WARTMAN   *
140 REM * PARK HILLS,KY.*
150 REM *COPYRIGHT 1983 *
160 REM ******************
170 CALL SCREEN(13)
180 DIM FN$(200),AD$(200),PH
$(200),LN$(200),CO$(200)
190 REM **MAIN MENU**
200 CALL CLEAR
210 PRINT "     \\\\\\\\\\*//
////////"
220 PRINT "     \
       /"
```

```
230 PRINT "     * MAIL & PHON
E LIST *"
240 PRINT "     /
       \"
250 PRINT "     //////////*\\
\\\\\\\\":::::
260 PRINT "  YOUR OPTIONS AR
E:"::
270 PRINT "    1-REVIEW THE L
IST":"    2-SEARCH FOR A NAME
"
280 PRINT "    3-CHANGE INFOR
MATION":"    4-ADD LISTINGS":
"    5-DELETE LISTINGS"
290 PRINT "    5-DELETE LISTI
NGS":"    6-ALPHABETIZE":"
7-READ LIST FROM TAPE"
300 PRINT "    8-WRITE LIST T
O TAPE":"    9-PRINT NAMES ON
 PRINTER"
310 PRINT "  10-TERMINATE PR
OGRAM":::
320 INPUT " PICK ONE OPTION
":OP
330 IF (OP<1)+(OP>10)=-1 THE
N 200
340 CALL CLEAR
350 ON OP GOTO 360,520,660,1
030,1260,1490,1960,2070,2260
,2370
360 REM **REVIEW LIST**
370 T=0
380 FOR I=1 TO N
390 T=T+1
400 PRINT "#";I:LN$(I);" ";F
N$(I):AD$(I):CS$(I):PH$(I)::
:
410 IF I=N THEN 430
420 IF T<3 THEN 500
430 PRINT "  PRESS 'ENTER' T
O CONTINUE."
440 PRINT "  PRESS 'X' TO EX
IT REVIEW."
450 CALL KEY(0,K,S)
460 IF K=88 THEN 200
470 IF K<>13 THEN 450
480 CALL CLEAR
490 T=0
500 NEXT I
510 GOTO 200
520 REM **SEARCH**
530 INPUT "LAST NAME? ":NN$
540 FOR I=1 TO N
550 IF LN$(I)<>NN$ THEN 640
560 PRINT ::"IS THE NAME:"::
FN$(I);" ";LN$(I);"?"::
570 INPUT "(Y/N) ":X$
580 IF X$="N" THEN 640
590 PRINT ::FN$(I);" ";LN$(I
):AD$(I):CS$(I):PH$(I)::
600 INPUT "ANY MORE? (Y/N) "
:X$
610 IF X$="Y" THEN 530
620 CALL CLEAR
630 GOTO 650
640 NEXT I
650 GOTO 200
660 REM **CHANGE INFO**
670 AC=0
680 IF AC=1 THEN 760
690 INPUT "LAST NAME: ":NN$
700 FOR I=1 TO N
710 IF LN$(I)<>NN$ THEN 890
720 PRINT ::"IS THE NAME:"::
FN$(I);" ";LN$(I);"?"::
730 INPUT "(Y/N) ":X$
740 IF X$<>"Y" THEN 890
750 CALL CLEAR
760 CHD=I
770 PRINT "YOUR OPTIONS ARE:
":::"    1 - ADDRESS":"    2
 - CITY/STATE/ZIPCODE"
780 PRINT "    3 - PHONE NUM
BERS":"    4 - NO CHANGES"::
790 INPUT "PICK ONE OPTION?
":OP
800 CALL CLEAR
810 IF (OP<1)+(OP>4)=-1 THEN
 750
820 CALL CLEAR
830 ON OP GOTO 910,950,990,2
00
840 CALL CLEAR
850 INPUT "ANY MORE CHANGES?
 (Y/N)     ":X$
860 IF X$="Y" THEN 680
870 CALL CLEAR
880 GOTO 200
890 NEXT I
900 GOTO 200
910 PRINT "THE OLD ADDRESS W
AS: "::AD$(CHD)::
920 PRINT "WHAT IS THE NEW A
DDRESS?"::
930 INPUT AD$(I)
940 GOTO 840
950 PRINT "THE OLD CITY/STAT
E/ZIPCODE  WAS: "::CS$(CHD):
:
960 PRINT "WHAT IS THE NEW C
ITY/STATE/ ZIPCODE?"::
970 INPUT CS$(I)
```

```
980 GOTO 840
990 PRINT "THE OLD PHONE NUM
BERS WERE:"::PH$(CHD)::
1000 PRINT "WHAT ARE THE NEW
 NUMBERS?"::
1010 INPUT PH$(I)
1020 GOTO 840
1030 REM **ADD LISTINGS**
1040 AC=1
1050 L=N+1
1060 FOR I=L TO 200
1070 INPUT "   *LAST NAME:
              ":LN$(I)
1080 INPUT "   *FIRST NAME:
              ":FN$(I)
1090 INPUT "   *ADDRESS:
              ":AD$(I)
1100 INPUT "   *CITY/STATE/ZI
P CODE:       ":CS$(I)
1110 INPUT "   *PHONE NUMBERS
              ":PH$(I)
1120 PRINT ::::::
1130 CALL CLEAR
1140 PRINT "ENTRY #";I::
1150 PRINT "YOU HAVE ENTERED
:"::"   ";LN$(I);",";FN$(I)
1160 PRINT "   ";AD$(I):"   ";
CS$(I):"   ";PH$(I)::::
1170 N=N+1
1180 INPUT "ANY CHANGES? (Y/
N) ":X$
1190 IF X$="Y" THEN 760
1200 INPUT "ANY MORE LISTING
S? (Y/N) ":X$
1210 IF X$="N" THEN 1230
1220 NEXT I
1230 INPUT "RECORD DATA ON T
APE? (Y/N) ":X$
1240 CALL CLEAR
1250 IF X$="Y" THEN 2070 ELS
E 200
1260 REM **DELETE LISTINGS**
1270 INPUT "LAST NAME: ":NN$
1280 FOR I=1 TO N
1290 IF LN$(I)<>NN$ THEN 144
0
1300 PRINT ::"IS THE NAME ":
:FN$(I);" ";LN$(I);"?"::
1310 INPUT "(Y/N) ":X$
1320 CALL CLEAR
1330 L=I
1340 IF X$="N" THEN 1440
1350 FOR E=L TO N
1360 FN$(E)=FN$(E+1)
1370 LN$(E)=LN$(E+1)
1380 AD$(E)=AD$(E+1)
1390 CS$(E)=CS$(E+1)
1400 PH$(E)=PH$(E+1)
1410 NEXT E
1420 N=N-1
1430 GOTO 1450
1440 NEXT I
1450 PRINT ::"DELETION COMPL
ETE-ANY MORE?"::
1460 INPUT "(Y/N) ":X$
1470 IF X$="Y" THEN 1260
1480 GOTO 200
1490 REM **ALPHABETIZE**
1500 PRINT "      ONE MOMENT
PLEASE."::::::::::
1510 FOR X=1 TO N
1520 A=X
1530 RT=LEN(LN$(X))
1540 FOR T=X+1 TO N
1550 B=T
1560 IF LN$(X)=LN$(T)THEN 18
20
1570 FOR I=1 TO RT
1580 IF SEG$(LN$(X),I,I)<=SE
G$(LN$(T),I,I)THEN 1600
1590 GOSUB 1660
1600 IF SEG$(LN$(X),I,I)<>SE
G$(LN$(T),I,I)THEN 1620
1610 NEXT I
1620 NEXT T
1630 IF (X+1=N)+(X=N)=-1 THE
N 1650
1640 NEXT X
1650 GOTO 200
1660 Q$=LN$(A)
1670 LN$(A)=LN$(B)
1680 LN$(B)=Q$
1690 Q$=FN$(A)
1700 FN$(A)=FN$(B)
1710 FN$(B)=Q$
1720 Q$=AD$(A)
1730 AD$(A)=AD$(B)
1740 AD$(B)=Q$
1750 Q$=CS$(A)
1760 CS$(A)=CS$(B)
1770 CS$(B)=Q$
1780 Q$=PH$(A)
1790 PH$(A)=PH$(B)
1800 PH$(B)=Q$
1810 RETURN
1820 ST=X
1830 FOR F=ST TO ST+1
1840 FT=LEN(FN$(F))
1850 FOR I=1 TO FT
1860 IF SEG$(FN$(F),I,I)>SEG
$(FN$(F+1),I,I)THEN 1900
```

```
1870 IF SEG$(FN$(F),I,I)<>SE
G$(FN$(F+1),I,I)THEN 1940
1880 NEXT I
1890 NEXT F
1900 A=F
1910 B=F+1
1920 GOSUB 1660
1930 GOTO 200
1940 IF T=N THEN 1640
1950 GOTO 1620
1960 REM **READ FROM TAPE**
1970 GOSUB 2450
1980 OPEN #1:DN$,INTERNAL,IN
PUT ,FIXED 128
1990 INPUT #1:LT$
2000 INPUT #1:N
2010 FOR I=1 TO N
2020 INPUT #1:LN$(I),FN$(I),
AD$(I),CS$(I),PH$(I)
2030 IF I=N THEN 2050
2040 NEXT I
2050 CLOSE #1
2060 GOTO 200
2070 REM **WRITE TO TAPE**
2080 GOSUB 2450
2090 INPUT "IS THIS A NEW LI
ST? (Y/N) ":X$
2100 IF X$<>"Y" THEN 2130
2110 PRINT ::"WHAT IS THE TI
TLE OF"::
2120 INPUT "YOUR LIST? ":LT$
2130 OPEN #1:DN$,SEQUENTIAL,
INTERNAL,OUTPUT,FIXED 128
2140 PRINT #1:LT$
2150 PRINT #1:N
2160 FOR I=1 TO N
2170 PRINT #1:LN$(I),FN$(I),
AD$(I),CS$(I),PH$(I)
2180 NEXT I
2190 CLOSE #1
2200 CALL CLEAR
2210 PRINT "THE LISTINGS ARE
 RECORDED.":::::::::::
2220 PRINT "  PRESS 'ENTER'
TO CONTINUE."
2230 CALL KEY(0,K,S)
2240 IF K<>13 THEN 2230
2250 GOTO 200
2260 REM *PRINT ON PRINTER*
2270 GOSUB 2450
2280 OPEN #2:DN$,OUTPUT
2290 PRINT #2:TAB((32-LEN(LI
ST$))/2);LT$
2300 FOR I=1 TO N
2310 PRINT #2:::FN$(I);" ";L
N$(I)
2320 PRINT #2:AD$(I)
2330 PRINT #2:CS$(I)
2340 NEXT I
2350 CLOSE #2
2360 GOTO 200
2370 REM **TERMINATION**
2380 PRINT "DO YOU WISH TO T
ERMINATE"::
2390 INPUT "THIS SESSION? (Y
/N) ":X$
2400 CALL CLEAR
2410 IF X$="N" THEN 200
2420 PRINT TAB(10);"GOOD BYE
":::::::::::
2430 STOP
2440 REM **DEVICE NAME**
2450 PRINT "WHAT IS YOUR DEV
ICE NAME?"::
2460 INPUT "(CS1,DSK1,RS232/
1,ETC.)":DN$
2470 IF DN$="" THEN 2460
2480 RETURN
```

SPEECH SOUNDER

This program will randomly select two letters and pronounce their sound when put together. It is very helpful when trying to develop new sound routines. Speech and TE2 required.

```
100 REM ******************
110 REM * SPEECH SOUNDER *
120 REM *    TI BASIC    *
130 REM * TE-2 W/SOUND   *
140 REM *   BY ED YORK   *
150 REM *WEST CHESTER, OH*
160 REM * COPYRIGHT 1983 *
170 REM ******************
180 CALL CLEAR
190 CALL SCREEN(5)
200 GOSUB 470
210 PRINT "       SPEECH SOU
NDER":::::::::::"PRESS THE E
NTER KEY TO BEGIN"
220 GOSUB 520
230 REM **OPEN TO SPEECH**
240 OPEN #1:"SPEECH",OUTPUT
250 PRINT #1:"//43 128"
260 GOSUB 570
270 CALL KEY(0,A,B)
280 CALL CLEAR
290 RANDOMIZE
```

```
300 REM **BEGIN LOOP**
310 FOR C=1 TO 1000
320 REM **RANDOM LETTERS**
330 D=INT(25*RND)+65
340 F=INT(25*RND)+65
350 REM **STRING LETTERS**
360 A$=CHR$(D)&CHR$(F)
370 REM **PRINT LETTERS**
380 PRINT :"  THIS IS THE SO
UND OF ";A$;"":
390 REM **SAY LETTERS**
400 PRINT #1:"THIS IS THE SO
UND OF"
410 PRINT #1:CHR$(D)
420 PRINT #1:"AND"
430 PRINT #1:CHR$(F)
440 PRINT #1:A$&A$&A$&A$&A$&
A$&A$&A$&A$&A$&A$&A$&A$&A$&A
$&A$&A$&A$&A$&A$&A$
450 NEXT C
460 CLOSE #1
470 REM **DISAPPEAR**
480 FOR G=1 TO 8
490 CALL COLOR(G,5,5)
500 NEXT G
510 RETURN
520 REM **APPEAR**
530 FOR H=1 TO 8
540 CALL COLOR(H,16,5)
550 NEXT H
560 RETURN
570 REM **INSTRUCTIONS**
580 PRINT #1:"PRESS THE ENTE
R KEY TO >BEGIN"
590 CALL KEY(0,I,J)
600 IF I<>13 THEN 590
610 RETURN
```

EVIEL-EYEVIL SPRITE DEMOLITION

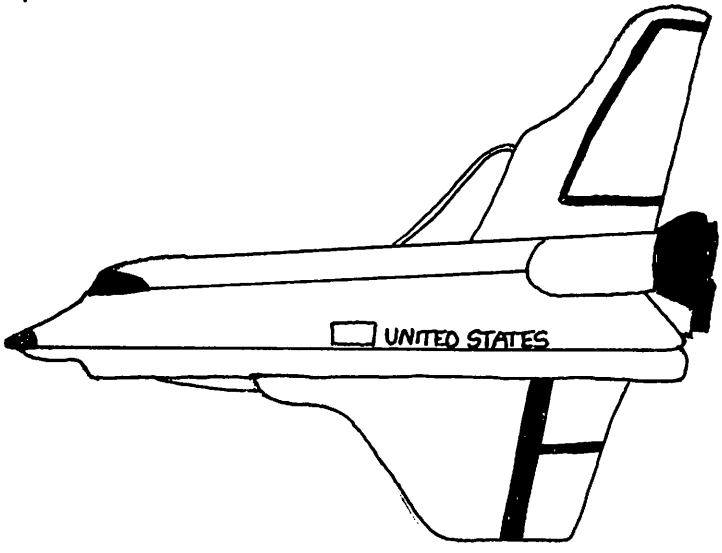
A quick reoutine to demonstrate the controls, properties and amazing visual appeal of sprites. Cars are used for this demonstration, but in keeping with the daredevil tradition, motorcycles and rockets could be easily added.

```
100 REM ********************
110 REM *SPRITE DEMOLITION*
120 REM * EXTENDED  BASIC *
130 REM *  BY TOM BANCHY  *
140 REM * CINCINNATI,OHIO *
150 REM * COPYRIGHT  1983 *
160 REM ********************
170 REM **INITIALIZATION**
180 CALL CLEAR
190 CALL MAGNIFY(3)
200 CALL COLOR(9,13,1)
210 CALL CHAR(64,"0000000001
010F1F1F0F07010000000000000
C0F0F8F8FCFCFCF0E0C")
220 CALL CHAR(68,"0000000808
120406041F22080004000000004
00207888A08000C0C01818")
230 CALL CHAR(72,"0008002C08
0200120200040220000400404028
0200E044041C8002324008")
240 CALL CHAR(76,"0042000848
0101400004090020040040014800
4302100200200084004000004")
250 CALL CHAR(80,"0001002000
0000000040000010200000000004
0000000404000002000001")
260 CALL CHAR(84,"4000000000
0000000000000040000002001000
0000000000000002")
270 CALL CHAR(128,"0000001F1
424247FFFFFFF7F3C3C180000000
080402010FCFEFFFFFE3C3C18")
280 CALL CHAR(132,"000000010
204083F7FFFFF7F3C3C180000000
0F8282424FEFFFFFFFE3C3C1
8")
290 CALL CHAR(136,"000007081
0304947472F3F3F3F1F0900001EF
F3F7EFEFFFFE6C08080C0C08")
300 CALL CHAR(140,"0078FFFC7
E7FFFFF67030101030301000000E
010080C92E2E2F4FCFCFCF89")
310 CALL CHAR(100,RPT$("F",1
6)):: CALL CHAR(101,"0103070
F1F3F7FFF")
320 CALL CHAR(102,"80C0E0F0F
8FCFEFF")
330 CALL CHAR(105,"00000F102
0204040"):: CALL CHAR(106,"0
000F00804040202")
340 CALL CHAR(107,"40407F7F7
F7F7F7F")
350 CALL CHAR(108,"0202FEFEF
EFEFEFE"):: CALL CHAR(109,"7
F4747477F7F3030")
360 CALL CHAR(110,"FEE2E2E2F
EFE0C0C")
```

```
370 REM **DRAW GROUND AND
              RAMPS**
380 CALL HCHAR(17,1,100,256)
390 FOR T=1 TO 4 :: CALL HCH
AR(17-T,6+T,101)
400 CALL HCHAR(17-T,27-T,102
):: NEXT T
410 CALL VCHAR(13,11,100,4):
: CALL VCHAR(13,22,100,4)
420 CALL VCHAR(14,10,100,3):
: CALL VCHAR(14,23,100,3)
430 CALL VCHAR(15,9,100,2)::
 CALL VCHAR(15,24,100,2)
440 CALL HCHAR(16,8,100):: C
ALL HCHAR(16,25,100)
450 REM **DRAW BUSES**
460 FOR C=12 TO 20 STEP 2
470 CALL HCHAR(14,C,105):: C
ALL HCHAR(14,C+1,106):: CALL
 HCHAR(15,C,107)
480 CALL HCHAR(15,C+1,108)::
 CALL HCHAR(16,C,109):: CALL
 HCHAR(16,C+1,110)
490 NEXT C
500 REM **DRAW CARS**
510 CALL SPRITE(#1,128,6,114
,5)
520 CALL SPRITE(#2,132,12,11
4,236)
530 CALL SOUND(-2000,-8,0,11
0,8,111,8,115,8)
540 FOR X=1 TO 500 :: NEXT X
550 REM **CARS MOVE**
560 CALL SOUND(-2000,-3,0,15
0,4)
570 CALL MOTION(#1,0,10):: C
ALL MOTION(#2,0,-10)
580 FOR X=1 TO 215 :: NEXT X
590 REM *CARS CLIMB RAMPS*
600 CALL SOUND(-2000,-2,0,15
0,6)
610 CALL MOTION(#2,-20,-20):
: CALL MOTION(#1,-20,20)
620 CALL PATTERN(#1,136):: C
ALL PATTERN(#2,140)
630 FOR X=1 TO 230 :: NEXT X
640 CALL SOUND(-1000,-5,0,11
0,5)
650 CALL MOTION(#1,5,-1):: C
ALL MOTION(#2,5,1)
660 REM **CRASH**
670 FOR T=64 TO 84 STEP 4 ::
 CALL PATTERN(#1,T):: CALL P
ATTERN(#2,T)
680 CALL SOUND(-200,-5,T-62,
110,T-58)
690 CALL SCREEN(11):: CALL S
CREEN(7):: CALL SCREEN(11)::
 CALL SCREEN(7)
700 FOR Y=1 TO 15 :: NEXT Y
:: NEXT T
710 CALL MOTION(#1,5,-1):: C
ALL MOTION(#2,5,1)
720 FOR X=1 TO 130 :: NEXT X
730 CALL DELSPRITE(ALL):: CA
LL SCREEN(8)
740 FOR D=1 TO 200 :: NEXT D
 :: GOTO 510
```

SPACE SHUTTLE COLUMBIA SPRITE DEMO

A design of the Columbia was created and is use to demostrate how a sprite can change colors, directions, speed and size.




```
100 REM ****************
110 REM * SPRITE DEMO. *
120 REM *EXTENDED BASIC*
130 REM * BY DON BUSCH *
140 REM *CINCINNATI,OH.*
150 REM *COPYRIGHT 1983*
160 REM ****************
170 REM **INITIALIZE**
180 CALL CLEAR :: RANDOMIZE
:: CALL SCREEN(2):: CALL MAG
NIFY(3)
190 REM CREATE CHARACTERS
200 CALL CHAR(48,"F0F8FCFE7F
3F1F0F0F0F0F0F0F0E0C08000000
00FFFEFCF8F0F8FFFF7E3C3830")
```

```
210 CALL CHAR(52,"00000000FF
7F3F1F0F1FFFFF7E3C1C0C0F1F3F
7FFEFCF8F0F0F0F0F0F0F0703010")
220 CALL CHAR(56,"0C1C3C7EFF
FF1F0F1F3F7FFF0000000103070
F0F0F0F0F0F0F8FCFE7F3F1F0F")
230 CALL CHAR(60,"080C0E0F0F
0F0F0F0F1F3F7FFEFCF8F030383C
7EFFFFF8F0F8FCFEFF00000000")
240 CALL CHAR(128,RPT$("0",4
8)&"C0E07E3E3C3F3706")
250 CALL CHAR(132,RPT$("0",4
9)&"3077E7C3CFCEC60")
260 CALL CHAR(136,RPT$("0",4
8)&"60ECFC3C7C7E0703")
270 CALL CHAR(140,RPT$("0",4
9)&"6373F3C3E7EE0C0")
280 REM *DEFINE SPRITES*
290 FOR X=6 TO 22 STEP 4
300 S1=INT(RND*2):: S2=INT(R
ND*2):: S3=INT(RND*2):: S4=I
NT(RND*2)
310 CALL SPRITE(#X,48+(S1*80
),INT(RND*12)+3,185,249,X*IN
T(RND*-1.75),X*INT(RND*-1.75
))
320 CALL SPRITE(#X+1,52+(S2*
80),INT(RND*12)+3,185,1,X*IN
T(RND*-1.75),X*INT(RND*4)+1)
330 CALL SPRITE(#X+2,56+(S3*
80),INT(RND*12)+3,1,1,X*INT(
RND*4)+1,X*INT(RND*4)+1)
340 CALL SPRITE(#X+3,60+(S4*
80),INT(RND*12)+3,1,249,X*IN
T(RND*4)+1,X*INT(RND*-1.75))
350 NEXT X
360 REM **MOVE SPRITES**
370 FOR X=6 TO 22 STEP 4
380 CALL MOTION(#X,X*INT(RND
*-1.75),X*INT(RND*-1.75))
390 CALL MOTION(#X+1,X*INT(R
ND*-1.75),X*INT(RND*4)+1)
400 CALL MOTION(#X+2,X*INT(R
ND*4)+1,X*INT(RND*4)+1)
410 CALL MOTION(#X+3,X*INT(R
ND*4)+1,X*INT(RND*-1.75))
420 NEXT X :: GOTO 370
```

JG'S -- QUEST!

Dragonslayers take arms! The quest awaits you! Knights, Dungeons & Dragons all cross your path in this excellent version of a text-only game. This program has all the suspense one player can handle, so beware and expect the unexpected!

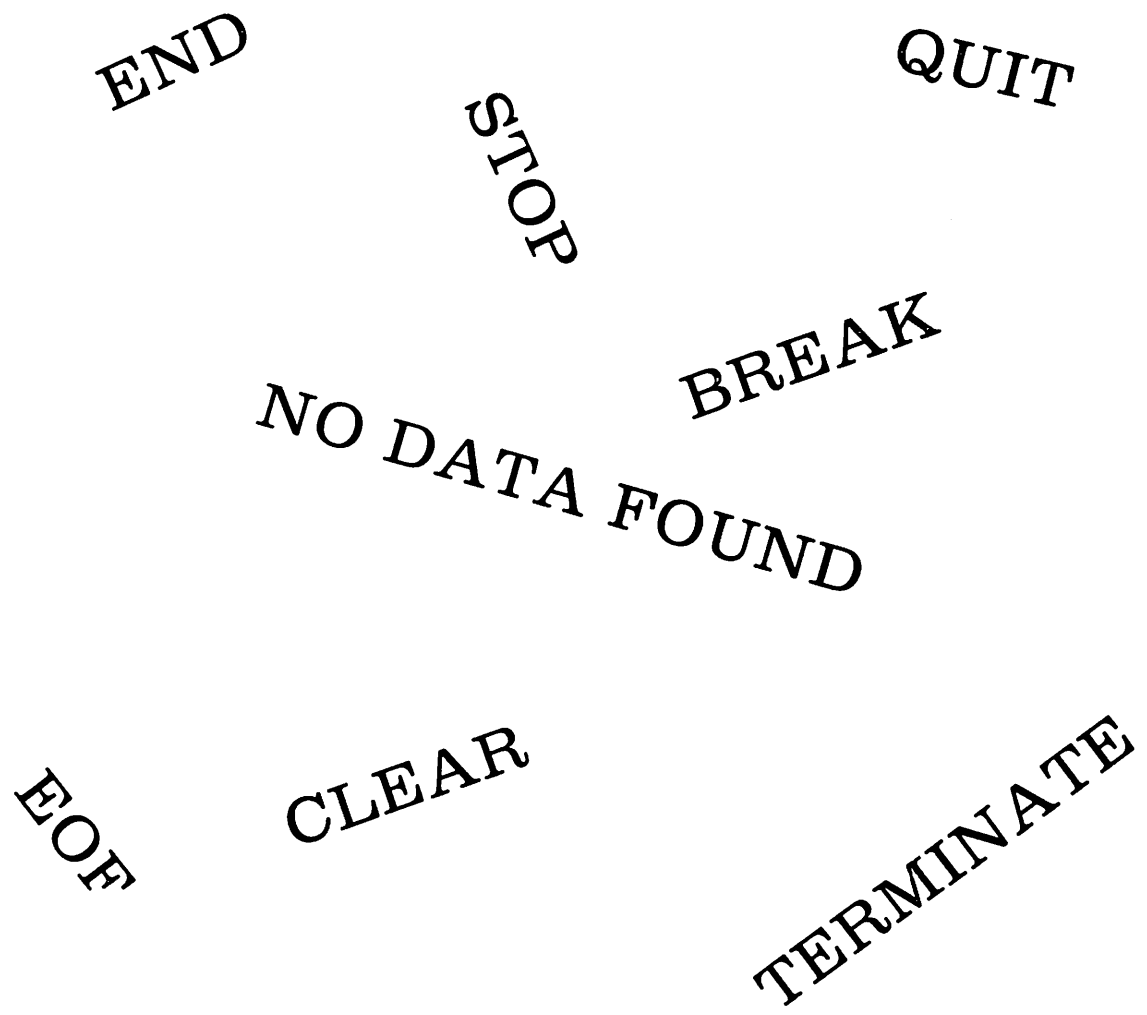
```
100 REM****************
110 REM*     QUEST      *
120 REM*EXTENDED BASIC*
130 REM* BY J. GULICK *
140 REM*FT.MITCHELL,KY*
150 REM*COPYRIGHT 1983*
160 REM****************
170 REM** INITIALIZATION **
180 RANDOMIZE :: DIM A$(27),
B(27),X(27),SP$(27):: CALL C
OLOR(0,1,1)
190 CALL CLEAR :: CALL SCREE
N(2):: H=INT(RND*5+RND*5+RND
*5)+18 :: C=6+INT(RND*5)
200 FOR Q=1 TO 27 :: READ A$
(Q),B(Q),X(Q),SP$(Q):: NEXT
Q
210 REM** INSTRUCTIONS **
220 PRINT TAB(6);"QUEST INTO
 MYSTERY": :"  WELCOME TO TH
E WORLD OF"
230 PRINT "FANTASTIC ADVENTU
RE": :
240 PRINT "I AM RAMAGARIAN.
I AM TO BE":"THINE GUIDE IN
THE CAVERNS"
250 PRINT "OF MYSTERY. I INV
ITE YOU TO":"TAKE UP THINE L
ONGSWORD AND":
260 PRINT "MAGIC STAFF AND C
HALLENGE":"MY CAVERNS AND TH
E MONSTERS"
270 PRINT "THEREIN. IF THOU
CANST GAIN":"15 THOUSAND PIE
CES OF GOLD"
280 PRINT "IN TREASURE,I SHA
LL ALLOW"
290 PRINT "THINE DEPARTURE.
IF THOU":"THINKEST THYSELF R
EADY TO"
300 PRINT "ENTER, PRESS <Q>"
: : : :
310 FOR Y=1 TO 20 :: CALL SC
REEN(2-14*(Y/2=INT(Y/2))):: 
CALL SOUND(50,-5,0)
320 FOR S=1 TO 15 :: NEXT S
:: NEXT Y
```

```
330 CALL KEY(0,Y,S):: IF Y=8
1 THEN 480 ELSE 330
340 REM**POISON GAS TRAP**
350 PRINT :"LOOK OUT!!!! YOU
 MUST HIT":"THE """;:: H1=IN
T(RND*26)+65
360 PRINT CHR$(H1);""" KEY B
EFORE THE GAS":"KILLS YOU!!!
!";
370 FOR TL=1 TO 120 :: CALL
KEY(0,Y,S):: IF S=1 THEN 390
380 NEXT TL :: GOTO 400
390 IF Y=H1 THEN 410 ELSE 42
0
400 PRINT "TIME'S UP,FOOL. "
"HE WHO":"HESITATES IS LOST.
"".": :: GOTO 1190
410 PRINT "  DRAT!! FOILED A
GAIN." :: GOTO 980
420 PRINT :"SORRY, BUT HITTI
NG THE WRONG":"KEY DOESN'T H
ELP." :: GOTO 1190
430 PRINT :"  HIT <Q> TO CON
TINUE THE":TAB(9);"INSTRUCTI
ONS."
440 REM**TIMER LOOP**
450 CALL KEY(0,Y,S):: IF Y<>
81 THEN 440 ELSE RETURN
460 FOR TL=1 TO 300 :: NEXT
TL :: RETURN
470 REM**BEGIN GAME**
480 CALL CLEAR :: CALL SCREE
N(2)
490 CALL SOUND(175,196,0)::
CALL SOUND(150,175,0):: CALL
 SOUND(500,196,0)
500 CALL SOUND(125,175,0)::
CALL SOUND(125,165,0)
510 CALL SOUND(125,147,0)::
CALL SOUND(125,131,0):: CALL
 SOUND(300,123,0)
520 CALL SOUND(100,131,0)::
CALL SOUND(1000,131,0)
530 CALL CLEAR :: CALL SCREE
N(3)
540 REM**MOVEMENT**
550 D=INT(RND*3)+1 :: SE=0
560 PRINT "Move How <1-3>? "
;:: ACCEPT VALIDATE("123")SI
ZE(1):L
570 IF L=D THEN 610
580 PRINT "BAD GUESS, MORTAL
.":"DOOR #";L;" IS AN ILLUSI
ON."
590 T=T-INT(RND*20)-1 :: GOT
O 560
600 REM**MONSTERS!!!**
610 M=INT(RND*27)+1
620 IF T<0 THEN T=0
630 DATA "A GOBLIN",2,4,"NON
E","AN ORC",2,6,"NONE","A SK
ELETON",1,5,"NONE"
640 DATA "AN ADDER",0,3,"POI
SON","A GREAT SPIDER",0,7,"W
EB"
650 DATA "A HOB-GOBLIN",0,8,
"NONE","A HARPY",0,8,"NONE",
"A WEREWOLF",0,15
660 DATA "LYCANTHROPY","A TH
IEF",1,20,"STEALS AND FLEES"
,"A SPECTRE",-1,8
670 DATA "DEATH TOUCH","A BU
GBEAR",-1,9,"NONE","AN OGRE"
,-1,10
680 DATA "GREAT STRENGTH","A
 GARGOYLE",-1,12,"NONE","AN
IMP",-2,5,"NONE","A TROL
L",-2
690 DATA 10,"REGENERATE DAMA
GE","A MINOTAUR",-2,11,"YOU
CANNOT FLEE THIS BEAST."
700 DATA "A GORGON",-2,15,"T
URN YOU TO STONE","A BANTH",
-3,17
710 DATA "SWALLOW YOU WHOLE"
,"A PURPLE WORM",-3,25,"SWAL
LOW YOU WHOLE"
720 DATA "A GIANT",-4,20,"CR
USHING ""HUG""","A DRAGON",-
4,30,"FIRE BREATH"
730 DATA "THE BLACK KNIGHT",
-4,25,"STAFF RESISTANT","NOT
HING",0,0," "
740 DATA "A PIT",0,0," ","A
POISON GAS TRAP",0,0," ","A
MAGIC POOL",0,0," "
750 DATA "A SWORD",0,0," "
760 IF M=9 OR M=22 THEN PN$=
"HE" ELSE IF M=7 THEN PN$="S
HE" ELSE PN$="IT"
770 E=INT(RND*X(M))-(INT(RND
*B(N)))+1 :: E1=E
780 IF M=22 THEN SE=1
790 PRINT :"THERE IS ";A$(M)
;" IN";" THIS";" CHAMBER.":
:: IF M=23 THEN 1090
800 IF M<25 THEN 820
810 ON M-23 GOTO 1840,350,12
50,1760
```

```
820 IF H>30 THEN H=30
830 REM**COMBAT**
840 PRINT "COMBAT OPTION (1-
SWORD,       2-STAFF, 3-FLEE
,4-HELP)? ";
850 ACCEPT VALIDATE("1234")B
EEP SIZE(1):W
860 IF W=2 THEN 1030
870 IF W=3 THEN 1620
880 IF W=4 THEN PRINT :"MONS
TER DESCRIPTION FOR ";A$(M);
":":"COMBAT SKILL:";B(M)
:"MAXIMUM HIT POINTS:";X(M):
"SPECIAL POWERS:";SP$(M): :
:: GOTO 840
890 REM**SWORD COMBAT**
900 IF INT(RND*10)+B(M)+HB>4
 THEN E=E-INT(RND*6)-HB-1
910 IF E>0 THEN PRINT "YOU H
IT, BUT ";PN$;"'S NOT DEAD."
 :: GOTO 1000
920 IF E>0 THEN PRINT "YOU M
ISSED !!!" :: GOTO 1000
930 PRINT PN$;" IS DEAD."
940 TT=INT(RND*500)-(B(M)*IN
T(RND*10))+(X(M)*INT(RND*50)
)+(H*2)+(M*INT(RND*10))+
E1
950 IF M=21 OR M=22 THEN TT=
TT+INT(RND*100)*M
960 IF TT<50 THEN TT=50
970 CALL SCREEN(3):: PRINT "
THE TREASURE IS";TT;"GOLD":"
PIECES." :: T=T+TT
980 GOSUB 460 :: GOTO 1090
990 REM**MONSTER SWINGS**
1000 IF INT(RND*10)-B(M)-HB>
3 THEN PRINT PN$;" HIT YOU.
OUCH !!!!" :: GOTO 1380
1010 PRINT PN$;" MISSED." ::
 GOTO 840
1020 REM**STAFF COMBAT**
1030 IF C=0 THEN PRINT "OUT
OF POWER !!!" :: GOTO 1000
1040 PRINT TAB(7);"-< Z A P
>-" :: FOR Y=1 TO 30
1050 CALL SCREEN(3-(Y/2=INT(
Y/2))*7):: CALL SOUND(-99,50
0-Y*5,0):: NEXT Y
1060 IF SE>0 THEN 1880
1070 C=C-1 :: GOTO 930
1080 REM**TREASURE**
1090 H=H+INT(RND*3):: IF T<0
 THEN T=0
1100 IF T>14999 THEN 1960
1110 PRINT "YOU HAVE";T;"GOL
D PIECES":"TOTAL."
1120 IF T>10000 THEN PRINT "
ONLY";15000-T;"MORE NEEDED !
"
1130 GOSUB 460 :: GOSUB 460
1140 GOTO 530
1150 REM**TAKE DAMAGE**
1160 H=H-INT(RND*6)+B(M)+HB-
1
1170 IF H>0 THEN PRINT "YOU
HAVE";H;"HIT POINT";CHR$((H>
1)*(-51)+32):"LEFT." ::
GOSUB 460 :: GOTO 840
1180 GOSUB 460 :: GOTO 840
1190 CALL SCREEN(5):: PRINT
"YOU ARE DEAD." :: IF T<0 TH
EN T=0
1200 PRINT T;"GOLD PIECES MA
RK YOUR":"      GRAVE."
1210 PRINT "DO YOU WISH TO P
LAY AGAIN?";
1220 ACCEPT VALIDATE("YN")BE
EP SIZE(1):Q$ :: IF Q$="Y" T
HEN RUN
1230 GOTO 1690
1240 REM**MAGIC POOLS**
1250 PRINT "DO YOU WISH TO T
EST THE":"POOL?? (Y/N)"
1260 ACCEPT VALIDATE("YN")SI
ZE(1):T$
1270 IF T$="N" THEN 1090
1280 PRINT :"IT WAS A ";
1290 P=INT(RND*8)+1
1300 ON P GOTO 1310,1310,131
0,1320,1320,1340,1340,1360
1310 PRINT "HEALING POOL." :
: H=H+INT(RND*(30-H))+1 :: G
OSUB 460 :: GOTO 1090
1320 PRINT "TREASURE":"MULTI
PLYING POOL" :: T=T+INT(RND*
(T/2)):: GOSUB 460
1330 GOTO 1090
1340 PRINT "STAFF":"CHARGING
 POOL." :: C=C+INT(RND*10-C)
+1 :: GOSUB 460
1350 GOTO 1090
1360 PRINT "POISONOUS POOL."
 :: GOTO 1190
1370 REM**MONSTER  POWERS**
```

```
1380 ON M GOSUB 1430,1430,14
30,1730,1400,1430,1430,1480,
1540,1580,1430,1430,1430
,1430,1470,1430,1440,1560,15
60,1510,1670,1430
1390 GOTO 1160
1400 IF INT(RND*20)<>THEN 11
90 :: PRINT "YOU WERE CAUGHT
 IN A WEB !!"
1410 PRINT "YOU HAVE NO WAY
TO SAVE":"YOUSELF FROM THE S
PIDER'S":"BITE !!" :: GO
TO 1190
1420 GOTO 1190
1430 RETURN
1440 IF INT(RND*5)<>1 THEN 1
190 :: PRINT "YOU LOOKED AT
THE GORGON'S"
1450 PRINT "FACE.YOU HAVE BE
EN TURNED":"INTO STONE." ::
GOTO 1190
1460 RETURN
1470 E=E+INT(RND*3)+1 :: RET
URN
1480 IF H>6 THEN 1210
1490 PRINT "YOU HAVE BECOME
A WEREWOLF.":"YOUR QUEST IS
OVER." :: GOTO 1210
1500 RETURN
1510 IF INT(RND*5)<>1 THEN 1
190 :: PRINT "CRUNCH!!! YOU
HAVE BEEN"
1520 PRINT "CAUGHT IN THE GI
ANTS DEADLY":"""HUG"".." :: G
OTO 1190
1530 RETURN
1540 IF INT(RND*10)=1 THEN 1
920
1550 RETURN
1560 IF INT(RND*5)=1 THEN PR
INT "YOU HAVE BEEN SWALLOWED
":"WHOLE." :: GOTO 1190
1570 RETURN
1580 IF INT(RND*5)<>1 THEN 1
200
1590 PRINT "YOU'VE BEEN KILL
ED BY THE":"SPECTRE'S DEATH
TOUCH." :: GOTO 1200
1600 RETURN
1610 REM**FLEE SEQUENCE**
1620 IF M<>16 THEN PRINT "RU
N, MORTAL COWARD." ELSE PRIN
T "YOU CAN'T FLEE FROM A
":" MINOTAUR!!!" :: GOTO 100
0
1630 GOSUB 460
1640 IF INT(RND*5)<2 THEN PR
INT "YOU HAVE ESCAPED." :: G
OSUB 460 :: GOTO 1100
1650 PRINT "YOU FAILED. NOW
MY MONSTER":"WILL KILL YOU !
!!!"
1660 T=T-INT(RND*100):: H=H-
INT(RND*3):: GOTO 1160
1670 IF INT(RND*5)<2 THEN RE
TURN
1680 PRINT "THE DRAGON SPEWS
 FIRE AT":"YOU." :: H=H-INT(
RND*E)+HB*2 :: RETURN
1690 CALL CHAR(128,"E0E0E02F
3F19191F1E0E0F1A3F27E0C00707
07F4FC9898F87870F058FCE4
0703"):: CALL SCREEN(2)
1700 CALL MAGNIFY(4):: FOR Y
=1 TO 12
1710 CALL SPRITE(#Y,128,16,I
NT(RND*192)+1,INT(RND*255)+1
,INT(RND*30),INT(RND*30)
)
1720 NEXT Y :: GOTO 1720
1730 IF INT(RND*3)=1 THEN PR
INT "YOU WERE KILLED BY THE
":"POISON." :: GOTO 1200
1740 RETURN
1750 REM**MAGIC SWORDS**
1760 PRINT "DO YOU WANT THE
SWORD":"<WARNING-IT MAY BE A
  CURSED BLADE> ? ";
1770 ACCEPT VALIDATE("YN")SI
ZE(1):SW$
1780 IF SW$="N" THEN 1100
1790 HB=INT(RND*5)-1 :: PRIN
T :"THE SWORD IS A ";
1800 IF HB>0 THEN PRINT "PLU
S";HB;"SWORD." :: GOTO 1090
1810 IF HB=0 THEN PRINT "NOR
MAL SWORD." :: GOTO 1090
1820 PRINT "CURSED SWORD." :
: GOTO 1090
1830 REM**PITS**
1840 HL=INT(RND*6):: FOR Y=1
 TO HL+2
1850 PRINT TAB(Y+10);"A" ::
NEXT Y :: PRINT TAB(Y+11);"A
H" :: H=H-HL :: IF H<1 T
HEN 1190
1860 PRINT "YOU HAVE ONLY";H
;"HIT";"POINT(S) LEFT." :: G
OTO 980
```

```
1870 REM*STAFF RESISTANCE*
1880 IF RND<.5 THEN PRINT "T
HE WARRIOR'S SHIELD BLOCKS":
"YOUR STAFF-BOLT."
1890 C=C-1 :: GOTO 1000
1900 GOTO 1070
1910 REM*THIEF'S STEALING*
1920 IF T<250 THEN RETURN EL
SE PRINT "HE STOLE";
1930 ST=INT(RND*100)+(E*5)
1940 PRINT ST;" GOLD PIECES
AND FLED." :: GOTO 1090
1950 REM**VICTORY!!!!**
1960 CALL CLEAR :: FOR Y=1 T
O 16 :: CALL SCREEN(Y):: FOR
 TL=1 TO 10
1970 NEXT T :: NEXT Y
1980 DISPLAY AT(10,12);"GOOD
 WORK.": :"  YOU HAVE WON YO
UR QUEST."
1990 " (13,3) YOUR SCORE WAS
";T-15000+(C*100)+(H*50);"."
:
2000 PRINT " HIT 'Q' FOR ANO
UTHER GAME"
2010 CALL KEY(1,Y,S):: IF Y<
>18 THEN 2010 ELSE RUN
```



ASCII CHARACTER CODES

The defined characters on the TI-99/4A Computer are the standard ASCII characters for codes 32 through 126. The following chart lists these characters and their codes.

ASCII CODE	CHARACTER	ASCII CODE	CHARACTER	ASCII CODE	CHARACTER
32	(space)	65	A	97	a
33	! (exclamation point)	66	B	98	b
34	" (quote)	67	C	99	c
35	# (number or pound sign)	68	D	100	d
36	$ (dollar)	69	E	101	e
37	% (percent)	70	F	102	f
38	& (ampersand)	71	G	103	g
39	' (apostrophe)	72	H	104	h
40	((open parenthesis)	73	I	105	i
41	) (close parenthesis)	74	J	106	j
42	* (asterisk)	75	K	107	k
43	+ (plus)	76	L	108	l
44	, (comma)	77	M	109	m
45	- (minus)	78	N	110	n
46	. (period)	79	O	111	o
47	/ (slant)	80	P	112	p
48	0	81	Q	113	q
49	1	82	R	114	r
50	2	83	S	115	s
51	3	84	T	116	t
53	5	86	V	118	v
54	6	87	W	119	w
55	7	88	X	120	x
56	8	89	Y	121	y
57	9	90	Z	122	z
58	: (colon)	91	[(open bracket)	123	{ (left brace)
59	; (semicolon)	92	\ (reverse slant)	124	¦
60	< (less than)	93	] (close bracket)	125	} (right brace)
61	= (equals)	94	^ (exponentiation	126	~ (tilde)
62	> (greater than)	95	_ (line)	127	DEL (appears on screen as a blank.)
63	? (question mark)	96	` (grave)		
64	@ (at sign)				

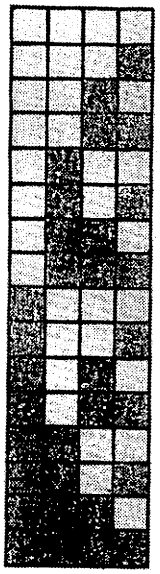
These character codes are grouped into twelve sets for use in color graphics programs.

Set#	*Character Codes*	*Set#*	*Character Codes*	*Set#*	*Character Codes*
1	32-39	5	64-71	9	96-103
2	40-47	6	72-79	10	104-111
3	48-55	7	80-87	11	112-119
4	56-63	8	88-95	12	120-127

Two additional characters are predefined on the TI-99/4A Computer. The *cursor* is assigned to ASCII code 30, and the *edge character* is assigned to code 31.

CONVERSION TABLE

PATTERN-IDENTIFIER CONVERSION TABLE

BINARY CODE (0=off;1=on)		HEXADECIMAL CODE
0000		0
0001		1
0010		2
0011		3
0100		4
0101		5
0110		6
0111		7
1000		8
1001		9
1010		A
1011		B
1100		C
1101		D
1110		E
1111		F

COLOR CODES

COLOR	CODE#	COLOR	CODE#
Transparent	1	Medium Red	9
Black	2	Light Red	10
Medium Green	3	Dark Yellow	11
Light Green	4	Light Yellow	12
Dark Blue	5	Dark Green	13
Light Blue	6	Magenta	14
Dark Red	7	Gray	15
Cyan	8	White	16

MUSIC

The following table gives frequencies (rounded to integers) of four octaves of the tempered scale (one half-step between notes). While this list does not represent the entire range of tones — or even of musical tones — it can be helpful for musical programming.

Frequency	*Note*
110	A
117	A#,B♭
123	B
131	C (low C)
139	C#,D♭
147	D
157	D#,E♭
165	E
175	F
185	F#,G♭
196	G
208	G#,A♭
220	A (below middle C)
220	A (below middle C)
233	A#,B♭
247	B
262	C (middle C)
277	C#,D♭
294	D
311	D#,E♭
330	E
349	F
370	F#,G♭
392	G
415	G#,A♭
440	A (above middle C)

Frequency	*Note*
440	A (above middle C)
466	A#,B♭
494	B
523	C (high C)
554	C#,D♭
587	D
622	D#,E♭
659	E
698	F
740	F#,G♭
784	G
831	G#,A♭
880	A (above high C)
880	A (above high C)
932	A#,B♭
988	B
1047	C
1109	C#,D♭
1175	D
1245	D#,E♭
1319	E
1397	F
1480	F#,G♭
1568	G
1661	G#,A♭
1760	A

ADDITIONAL MUSIC CAPABILITIES

Page 124 of the Beginners Basic Manual gives a rundown of the various notes and the frequency values for each. Using these values one can produce music and chords etc. The notes stop at A below low C. This is not sufficiently low for many base notes and makes it difficult to get the full chord. However, the TI-99/4A has much more capability than it gets credit for. Notes can be played lower than that using special harmonics. An example of the input structure is listed below and the values to use down to the next full octave are also listed. If you desire lower notes they can be produced by dividing the next higher value of the same note in half, for example - get the next G# divide the last G# in half. (1557 divided by 2 = 7/8) All three notes and the noise are required to get the full harmonic

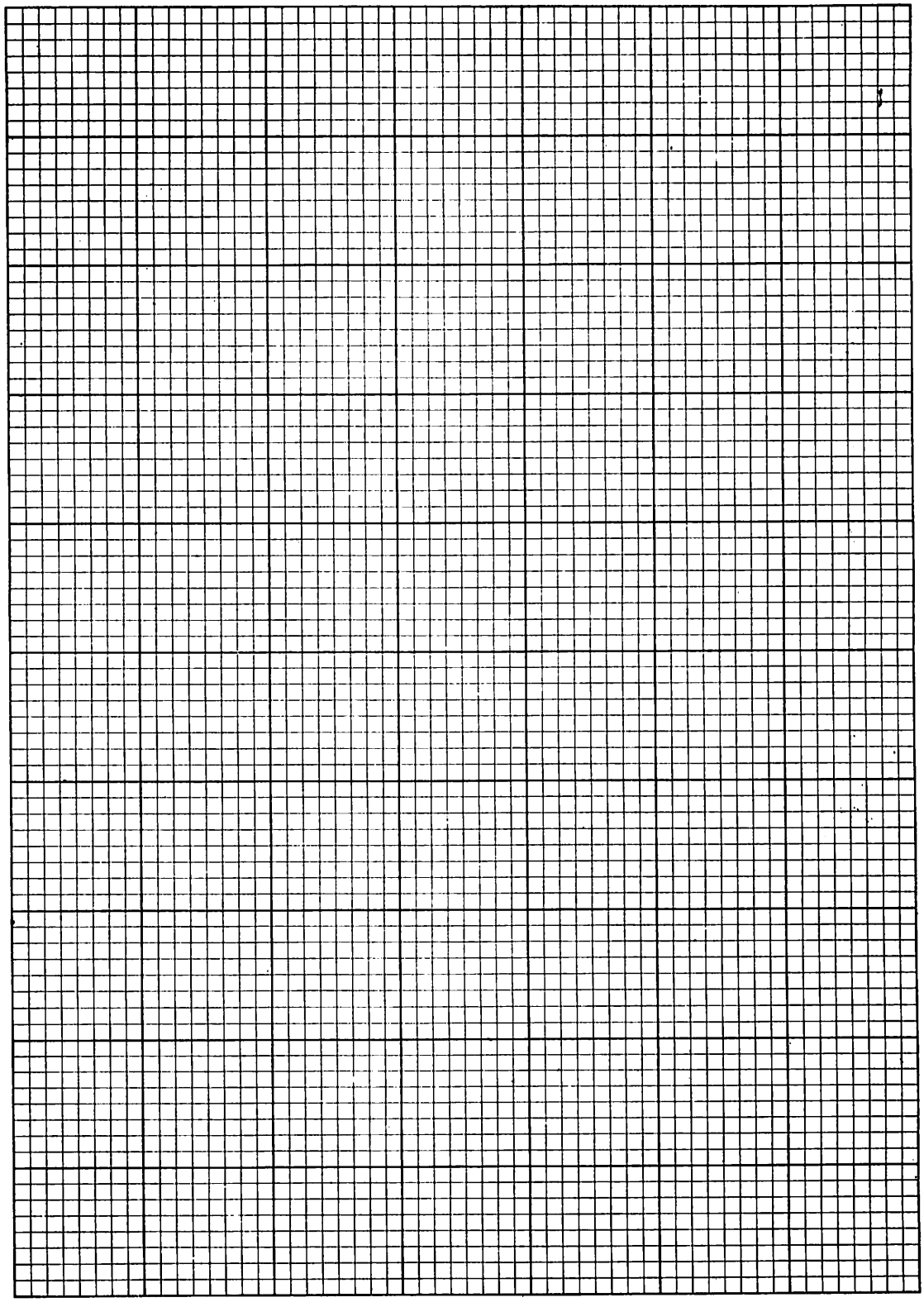
Here is the sample statement:

CALL SOUND (1000,440,10,311,10,1470,30,-4,10)

In the above statement the first two notes are normal, the third note is the low note you want played, at a volume of 30, and the last -4 noise played at the volume at which you wish to hear the low note. You don't hear the noise, you hear the low note. If you were to lower the volume of notes one and two to 30, you would hear the low note. Using this system you can play any note you want, even below the piano keys!

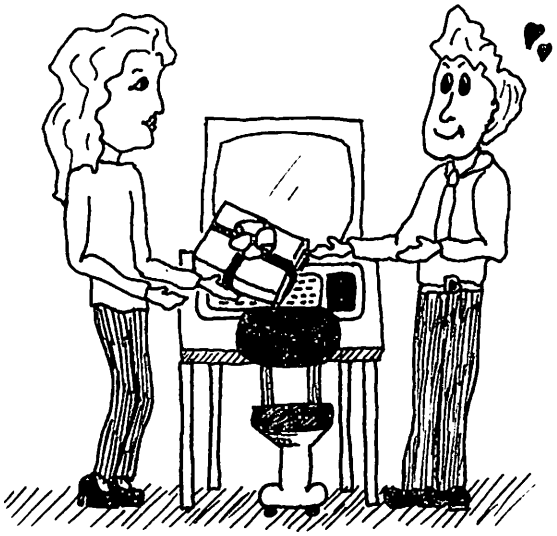
NOTE	FREQUENCY
A (normal 110)	1650
A♭ ,G#	1557
G	1470
G♭ ,F#	1387
F	1310
E	1236
E♭ ,D#	1167
D	1101
D♭ ,C#	1039
C	981
B	926
B♭ ,A#	874
A	825

GRAPH PAPER



NOTES

SEND ME TO A FRIEND!



PLEASE RUSH MY GOOD FRIEND...

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ERROR NOTICES/CORRECTIONS

In formatting this book to 28 column listings, the printer was accessed through LIST rather than PRINT. The TI-99/4A is designed to accomodate only 80 cloumns per program line when listed through the RS-232. Due to this, an error went unnoticed and is located at several places throughout the book. At the following page and line numbers, you'll notice a four column space immediately after the 80th column of print. DELETE THESE 4 SPACES !

page #	line #	page #	line #	page #	line #
50	840	95	1200	133	940
53	980	96	1640	133	1170
54	1250	100	1670	134	1380
80	210	100	290	134	1410
82	540	118	2990	134	1620
94	960	122	680	134	1690
94	1050	129	280	134	1710
94	1080	132	680	134	1850
94	1130	133	880		

There are six other errors that need to be corrected.

1. Page 5, lines 100, 110 and 120 should be REM Statements.
2. Page 50, line # 770 should read:

```
770 C=ABS(C+B-32) :: C=C+B :: CALL HCHAR(R,C,CHAR) :: GOTO 1180
```

3. Pages 57 and 58 should be reversed.
4. Page 72, Variations should read:

```
#1- 720 Y=(SIN(X/1.5)+SIN(X/3))*7+24
#2- 720 Y=LOG(X^8)
#3- 720 Y=((ABS(X-32))/3)^2+3
#4- 295 FOR T=0 TO 12 STEP 2
    705 NEXT T
    720 Y=(SIN((X-T)/6)*(22-T))+24
#5- 295 FOR T=1 TO 3
    350 ON T GOSUB 720, 730, 750
    440 ON T GOSUB 720, 730, 750
    705 NEXT T
    720 Y=(30*SIN((X-4)16))*EXP(-1*(X/20)))+24
    735 Y=(30*EXP(-1*((X-4)/20)))+25
    740 RETURN
    750 Y=-1*(30*EXP(-1*((X-4)/20)))+23
    760 RETURN
#6- 720 Y=((SIN(X/(3-X/64)))*(22-X*.3))+24
#7- 295 FOR T=1 TO 2
    350 ON T GOSUB 720, 740
    440 ON T GOSUB 720, 740
    705 NEXT T
    683 CALL CHAR(136,"000000FFFF")
    684 CALL COLOR(14,7,1)
    685 CALL HCHAR(13,1,136,32)
    720 Y=SIN(X/4)*20+24
    740 Y=COS((X+6)/4)*10+24
    750 RETURN
```

5. Page 84, line # 960 should read:

```
960 IF LEN(IT$(I))<7 THEN 980
965 GOSUB 2510
```

6. Page 58, add these two lines to improve the program:

```
1731 FOR DELAY=1 TO 75
1732 NEXT DELAY
```

If you have any problems, feel free to call or write the editor:

Mr. Bob Wartman
513 Scienic Avenue
Park Hills, KY 41011
606-431-1369

Thank you for your patience and understanding !

Remo A. Loreto

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