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**HANDS ON REVIEW**  
**LEADING EDGED**  
**HOT IBM COMPATIBLE**

# FAMILY COMPUTING

## Earn Money With Your Computer

**Best Software for Your Business**

**The Latest in Low-Cost Printers**

**Hints: Get More from Your Machine**

**Home Control Systems**

**K-POWER for Kids**

**24 AT-A-GLANCE SOFTWARE REVIEWS**

ORIGINAL PROGRAMS FOR ADAM, APPLE II SERIES & MACINTOSH, ATARI 400, 800, 600/800XL & 130 XE, COMMODORE 64/128 & VIC 20, IBM PC & COMPATIBLES, TANDY COCO & MODELS III & 4, TI-99/4A



# FAMILY COMPUTING

## FEATURES

### 31 EARN MONEY WITH YOUR COMPUTER

by Tan Summers

Make extra cash or start up a home business with the hardware, software, and skills at your command.

### 34 LET'S GO TO WORK! INTRODUCING BETTER SOLUTIONS FOR YOUR BUSINESS TASKS

by David Hallerman and Robin Raskin

Computers can perform the essential tasks that make small businesses tick. Investigate ways to computerize accounting, payroll, inventory, appointments, mailing lists, and correspondence.

### 39 THE REAL-LIFE MAGIC OF WIZARDRY

by James L. Mount

Find out how the popular adventure game, *Wizardry*, strengthened a father-son relationship.

### 40 BUYER'S GUIDE TO PRINTERS UNDER \$600

by Roger Hart

See the fruits of your work on the computer without spending a fortune—there are low-cost dot-matrix and letter-quality daisywheel printers available.

Page 34

### 44 HANDS-ON REVIEW: LEADING EDGE MODEL "D"

by Phil Wiswell

Check out this IBM-compatible computer: it's got all the speed, power, and flexibility of the PC, plus all the options are included in the sticker price.

### 46 HELPFUL HINTS

Edited by Roxane Farmanfarman

A panel of experts reveals the tricks, tips, and secrets they use to get the most from their computers.

## K-POWER

### 71 Cartoonist Danny Marks Has a Mac Attack

A young California artist uses his computer as a graphics tool.

### 72 Game Strategies: AutoDuel

Your mission: Survive the highways of the future.

### 74 Microtones

With the original music program *Fanfare*, you can add a zippy program introduction, punctuate game points, or run it solo.\*

### 75 Compuopia

Try to outsmart your computer with *Guess My Number!*\*

### 75 Contest

Win \$25 in our Computer Masterpiece Contest.

Page 40

## PROGRAMMING

### 51 THE PROGRAMMER

### 52 BEGINNER PROGRAM

Have fun and improve your typing speed with *Letter Getter*. Program for Adam, Apple, Atari, Commodore, IBM PC & compatibles, Tandy, and TI computers.\*

### 55 FEATURE PROGRAM

*Maze Creator* generates an almost inexhaustible series of mazes. Three levels of play for Adam, Apple, Atari, Commodore, IBM PC & compatibles, and Tandy computers.\*

### 69 TIPS TO THE TYPIST

## WHAT'S IN STORE

### 76 NEW HARDWARE

### 78 SOFTWARE GUIDE AND REVIEWS

Brief reviews of 24 new and noteworthy programs.

\*See program for specific computers covered.

Page 52



## DEPARTMENTS

### 4 EDITOR'S NOTE

### 6 LETTERS

### 8 HOME-SCHOOL CONNECTION

by Linda Williams

Technology helps bridge two generations in an innovative computer literacy program for senior citizens at an Evanston, Illinois middle school.

### 14 HOME/MONEY MANAGEMENT

by Lester Brooks

The future is here with home control—find out how to program your computer to save you time and money.

### 18 GAMES

by James Delson

Check out the state of the art in computer games.

### 22 TELECOMPUTING

by Nick Sullivan

Electronic bulletin boards offer a wealth of information to computer users.

PLUS: HOW TO START A BBS

### 26 COMPUTING CLINIC

### 89 CLASSIFIEDS

### 92 ADVERTISERS' INDEX

COVER PHOTOGRAPH BY JOEL WHITE

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# the PROGRAMMER

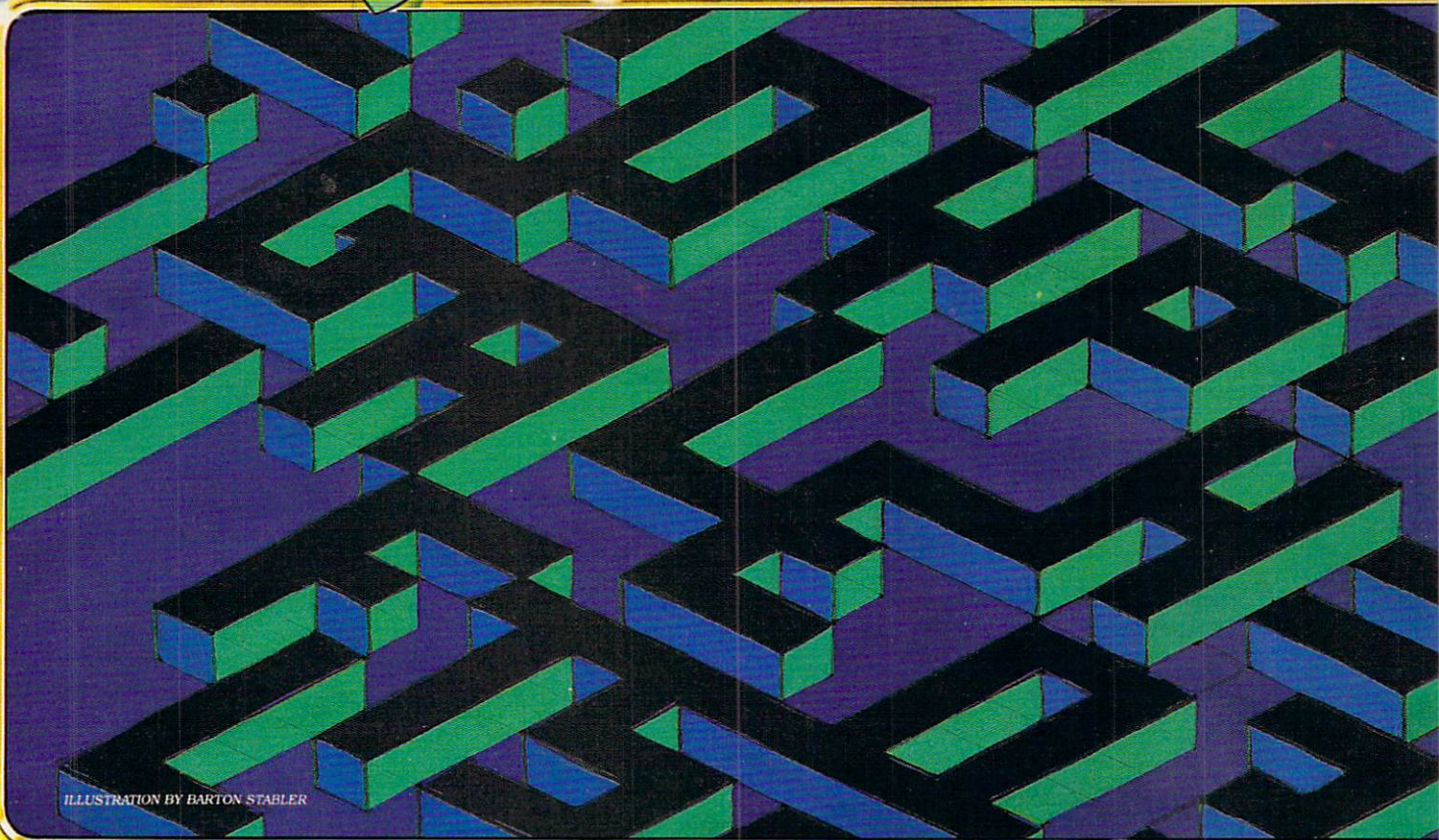


ILLUSTRATION BY BARTON STABLER

★ M A Y ★

**TIPS TO THE TYPIST**

Page 69

How to type in FAMILY COMPUTING's programs, and what to do if a program doesn't work.

**BEGINNER PROGRAM**

Page 52

Improve your typing speed with *Letter Getter*, and learn to stalk the wily keystroke!

**FEATURE PROGRAM**

Page 55

Let *Maze Creator* knit up an unlimited number of labyrinths for your unraveling.

Explore on-screen, or print your mazes out for fun anytime!

**MORE PROGRAMS IN K-POWER**

Page 71

ILLUSTRATION BY JAMES CHERRY III

Cherry

# LETTER GETTER

BY JOEY LATIMER

Want to improve your typing speed and have fun at the same time? *Letter Getter* is a program that sweetens the chore of typing practice with the fun of gaming. We're not saying *Letter Getter* can teach you how to type—but if you already know which fingers to use, this little program can go a long way toward sharpening your reflexes and shoring up your keyboard skills!

In *Letter Getter*, a randomly chosen letter appears at the bottom of the screen and moves swiftly upward. If you can press the corresponding key before the letter reaches the top, points are added to your score and a new round begins. The quicker your fingers fly, the more points you get. If the letter escapes off the top of the screen, the game is over and you must begin again.

## USING LETTER GETTER

Type *Letter Getter* into your computer and SAVE it to disk or cassette. Before typing RUN, make sure your keyboard is set to type all capital letters (the program won't recognize lowercase input).

After using *Letter Getter* for a while, you may want more of a challenge. You can increase the game's speed by decreasing the value assigned to variable DT (Delay Timer), set near the start of the program.

## PROGRAMMER'S NOTEBOOK: STALKING THE WILY KEYPRESS

When your computer encounters an INPUT expression (e.g., INPUT AS), it displays a "?" prompt and waits for you to type something. Until you press RETURN or ENTER, each character you type is displayed on the screen. Afterward, what you've



typed becomes the value of the variable mentioned in the INPUT expression.

But what if you don't want your program to pause or display a "?" each time it "expects" input from the keyboard? What if you don't want a user's typing to mess up your carefully-crafted screen display? For situations like these, special commands and techniques exist to let a program "know" if a key has been pressed—and, if so, which key—without pausing or printing something in the process.

*Letter Getter* shows these techniques at work in two different ways. During the game, the program is alternating—without pause—between moving a letter up the screen and checking "on the fly" to see if you've pressed a corresponding key. When you're asked to PRESS ANY KEY TO PLAY AGAIN at the game's conclusion, the program waits until you've pressed a single key (it isn't necessary to press RETURN or ENTER) before starting over.

Because techniques differ between computers, we've provided notes for each version of *Letter Getter*, explaining briefly how each version "reads" the keyboard and processes the information coming from it.

## Adam/Letter Getter

```

10 LOMEM: 29000
20 FOR i = 28000 TO 28005
30 READ a
40 POKE i,a
50 NEXT i
58 REM --"POKE 16953,0" TURNS OFF THE CURSOR--
59 REM --"POKE 16953,95" WILL TURN IT BACK ON--
60 POKE 16953,0
70 dt = 150
80 s = 0
90 HOME
100 CALL 28000
110 ch = INT(RND(1)*26)+65
120 HTAB INT(RND(1)*31)+1
130 VTAB 24
140 PRINT CHR$(ch);
150 r = 23
160 p = PEEK(64885)
170 IF p <> ch THEN 240
180 HOME
190 s = s+i
200 PRINT TAB(15);s
210 FOR de = 1 TO 1000
220 NEXT de
230 GOTO 90
240 FOR de = 1 TO dt
250 NEXT de
260 PRINT
270 IF r > 0 THEN i = i-1:GOTO 160
280 HOME
290 PRINT "Your score was ";s;"."
300 PRINT
310 PRINT "Press any key to play again."
320 GET k$
330 GOTO 80
1000 DATA 62,0,50,117,253,201
    
```

Each time a key is pressed, its ASCII code is stored in memory location 64885. Line 160 PEEKS this location and saves the value found there in variable p. p is then compared with ch (the ASCII code of the "target" character) to see if you've pressed the right key.

A short machine-language routine is used to "clear" 64885 between rounds so that the final keystroke of one round isn't interpreted as the first keystroke of the next. Line 10 reserves free memory for storing this routine. Lines 20-50 READ numeric machine-code instructions in from the DATA statement (line 1000). 64885 is cleared in line 100, using the expression CALL 28000, which executes the routine stored at this address.

GET k\$ in line 320 pauses the program until a key is pressed, then makes k\$ equal the corresponding character.

## Apple II series/Letter Getter

```

10 DT = 150
20 S = 0
30 HOME
40 POKE -16368,0
50 CH = INT(RND(1)*26)+65
60 HTAB INT(RND(1)*38)+2
70 VTAB 24
80 PRINT CHR$(CH);
90 I = 23
100 P = PEEK(-16384)-128
110 IF P <> CH THEN 190
120 HOME
130 S = S+I
140 HTAB 20
150 PRINT S
160 FOR DE = 1 TO 250
170 NEXT DE
180 GOTO 30
190 FOR DE = 1 TO DT
200 NEXT DE
210 PRINT
220 IF I > 0 THEN I = I-1:GOTO 100
230 HOME
    
```

## FEATURE PROGRAM

```

250 f = 0:lc = max:c = 1:cx = 2:cy = 2
260 pt%(1,0) = 2:pt%(1,1) = 2:mp%(2,2) = 2
270 GOSUB 1000:IF v <> 0 THEN 320
280 r = mp%(cx,cy):mp%(cx-cd(r,1)/2,cy-cd(r,2)/2) = -1
290 mp%(cx,cy) = 0:c = c-1
300 pt%(lc,0) = cx:pt%(lc,1) = cy:lc = lc-1
310 cx = pt%(c,0):cy = pt%(c,1):PRINT "-";:GOTO 270
320 r = rp(RND(1)*v+1)
330 tx = cx+cd(r,1):ty = cy+cd(r,2)
340 IF (r = 1 AND (tx = 2 OR tx = qx)) OR (r = 4 AND (
ty = 2 OR ty = qy)) THEN 320
350 mp%(cx+cd(r,1)/2,cy+cd(r,2)/2) = 5
360 c = c+1:cx = tx:cy = ty:mp%(cx,cy) = r
370 pt%(c,0) = cx:pt%(c,1) = cy:PRINT "+";
380 IF cx <> qx OR cy <> qy THEN 270
390 PRINT:mp%(qx,qy) = 5:IF c = max THEN 520
400 f = 1:w = 4:l = 1
410 PRINT "#";:cx = pt%(l,0):cy = pt%(l,1)
420 IF mp%(cx,cy) = 5 THEN 490
430 GOSUB 1000:IF v = 0 THEN mp%(cx,cy) = 5:GOTO 490
440 r = rp(RND(1)*v+1):c = c+1
450 mp%(cx+cd(r,1)/2,cy+cd(r,2)/2) = 5
460 cx = cx+cd(r,1):cy = cy+cd(r,2)
470 mp%(cx,cy) = r:pt%(c,0) = cx:pt%(c,1) = cy
480 PRINT "a";:GOTO 430
490 l = l+w:IF l < c THEN 410
500 IF c = max THEN 520
510 PRINT:l = 1:w = w-(w = 4)*3:GOTO 410
520 HOME:IF ms = 1 THEN GOSUB 4000:GOTO 870
530 PRINT "Play level 1 is the easiest; 3 is the harde
st."
540 PRINT "At which level do you want to":PRINT "play?
";
550 GOSUB 3000:ls = k-48:IF ls < 1 OR ls > 3 THEN 550
560 HOME:PRINT "Do you want to print a copy of"
570 PRINT "the maze before you begin?"
580 GOSUB 3000:IF k <> 78 AND k <> 89 THEN 580
590 IF k = 89 THEN HOME:GOSUB 4000
600 HOME:lm = INT(15.5-mx/2):cx = 2:cy = 2:sc = 0
610 INVERSE:FOR y = 1 TO my:VTAB y:HTAB lm+1:PRINT sp$
;
620 HTAB lm+mx:PRINT sp$;:NEXT y
630 FOR x = lm+2 TO lm+qx:VTAB 1:HTAB x:PRINT sp$;
640 VTAB my:HTAB x:PRINT sp$;:NEXT x:NORMAL
650 VTAB 2:HTAB lm+1:PRINT "S";
660 VTAB qy:HTAB lm+mx:PRINT "E";:IF ls <> 1 THEN 700
670 INVERSE:FOR y = 2 TO qy:FOR x = 2 TO qx
680 IF mp%(x,y) = -1 THEN VTAB y:HTAB lm+x:PRINT sp$;
690 NEXT x:NEXT y:NORMAL
700 VTAB cy:HTAB lm+cx:PRINT "*";CHR$(8);
710 GOSUB 3000
720 dx = (k = 76)-(k = 74):dy = (k = 75)-(k = 73)
730 IF dx = 0 AND dy = 0 THEN 710
740 tx = cx+dx:ty = cy+dy
750 IF mp%(tx,ty) <> -1 THEN 810
760 PRINT CHR$(7);:IF ls = 1 THEN 710
770 sc = sc+1:VTAB 24:HTAB 11-INT(LEN(STR$(sc))/2)
780 PRINT "Blunders ";sc;:IF ls = 3 THEN 710
790 IF tx = 1 AND ty = 2 THEN 710
800 INVERSE:VTAB ty:HTAB lm+tx:PRINT sp$;:NORMAL:GOTO
700
810 VTAB cy:HTAB lm+cx:PRINT sp$;
820 cx = tx:cy = ty:IF cx <> qx OR cy <> qy THEN 700
830 VTAB cy:HTAB lm+cx:PRINT "*";
840 FOR l = 1 TO 10:PRINT CHR$(7);:NEXT l
850 VTAB 24:HTAB 31:FOR l = 1 TO 24
860 FOR d = 1 TO 150:NEXT d:PRINT:NEXT l
870 HOME:PRINT "Do you want to generate another";:PRIN
T "maze?";
880 GOSUB 3000:IF k <> 78 AND k <> 89 THEN 880
890 IF k = 89 THEN RUN
900 POKE 16953,95:END
1000 v = 0:FOR z = 1 TO 3:t = rd(mp%(cx,cy),z)
1010 x = cx+cd(t,1):y = cy+cd(t,2)
1020 IF x < 2 OR x > qx OR y < 2 OR y > qy THEN 1040
1030 IF mp%(x,y) < f THEN v = v+1:rp(v) = t
1040 NEXT z:RETURN

```

```

2000 PRINT:PRINT "The ";t$;" must be an odd"
2010 PRINT "number between 9 and ";a$;"."
2020 PRINT "What ";t$;" do you choose";:INPUT k$
2030 IF k$ = "" THEN 2020
2040 k = INT(VAL(k$)):IF k < 9 OR k > a OR k/2 = INT(k
/2) THEN 2000
2050 RETURN
3000 GET k$:k = ASC(k$):IF k = 3 THEN END
3010 k = k-32*(k > 96)*(k < 123):RETURN
4000 PRINT TAB(4);"Press <RETURN> when your"
4010 PRINT TAB(8);"printer is ready."
4020 GOSUB 3000:IF k <> 13 THEN 4020
4030 HGR2:PRINT
4040 PRINT CHR$(4);"PR# 1":PRINT
4050 FOR y = 1 TO my:FOR x = 1 TO mx
4060 IF y = 2 AND x = 1 THEN PRINT "S";:GOTO 4090
4070 IF y = qy AND x = mx THEN PRINT "E";:GOTO 4090
4080 PRINT CHR$(32+10*(mp%(x,y) = -1));
4090 NEXT x:PRINT:NEXT y:PRINT
4100 PRINT CHR$(4);"PR# 0"
4110 TEXT:PRINT:RETURN
5000 DATA 1,2,4,1,2,3,2,3,4,1,3,4
5010 DATA 0,-2,2,0,0,2,-2,0

```

Note: The program begins by turning off the cursor; it turns it back on again when you answer N to the question, DO YOU WANT TO GENERATE ANOTHER MAZE? If you exit from the program abnormally (e.g., if you have a syntax error or press CONTROL-C), you can turn the cursor back on by typing POKE 16953,95 and pressing RETURN.

### OPTION FOR THE ADAM VERSION

If you would like to use a joystick to move around the maze, change lines 710 and 720 to read as follows:

```

710 j = PDL(5):dx = (j = 2)-(j = 8)
720 dy = (j = 4)-(j = 1)

```

### Apple II series w/printer/Maze Creator

```

10 DIM CD(4,2),RD(4,3),RP(3),XR(2),YR(2):NORMAL
20 MS = 2:SP$ = CHR$(32):FOR I = 1 TO 4
30 FOR J = 1 TO 3:READ RD(I,J):NEXT J,I
40 FOR I = 1 TO 4:FOR J = 1 TO 2:READ CD(I,J):NEXT J,I
50 XR(1) = 59:XR(2) = 39:YR(1) = 59:YR(2) = 23
60 HOME:PRINT TAB(53);"* MAZE CREATOR *":PRINT
70 PRINT "PRESS <D> TO DISPLAY THE MAZE ON YOUR"
80 PRINT TAB(6);"SCREEN OR <P> TO PRINT IT OUT.";
90 GOSUB 3000:MS = (K = 80)+2*(K = 68)
100 ON (MS = 0) GOTO 90:HOME
110 PRINT "THE PROGRAM IS NOW SET TO GENERATE A"
120 PRINT "MAZE OF SIZE ";XR(MS);" X ";YR(MS);" (WIDTH
X HEIGHT).";
130 PRINT "DO YOU WANT TO CHANGE THE SIZE?"
140 GOSUB 3000:IF K <> 78 AND K <> 89 THEN 140
150 IF K = 78 THEN MX = XR(MS):MY = YR(MS):GOTO 190
160 POKE -16368,0
170 T$ = "WIDTH":A = XR(MS):GOSUB 2000:MX = K
180 T$ = "HEIGHT":A = YR(MS):GOSUB 2000:MY = K
190 QX = MX-1:QY = MY-1:MAX = QX+QY/4
200 HOME:DIM MP%(MX,MY),PT%(MAX,1)
210 PRINT TAB(6);"I'M NOW GENERATING YOUR MAZE."
220 FOR X = 1 TO MX:FOR Y = 1 TO MY
230 MP%(X,Y) = -1:NEXT Y,X
240 F = 0:LC = MAX:C = 1:CX = 2:CY = 2
250 PT%(1,0) = 2:PT%(1,1) = 2:MP%(2,2) = 2
260 GOSUB 1000:IF v <> 0 THEN 310
270 R = MP%(CX,CY):MP%(CX-CD(R,1)/2,CY-CD(R,2)/2) = -1
280 MP%(CX,CY) = 0:C = C-1
290 PT%(LC,0) = CX:PT%(LC,1) = CY:LC = LC-1
300 CX = PT%(C,0):CY = PT%(C,1):PRINT "-";:GOTO 260
310 R = RP(RND(1)*v+1)
320 TX = CX+CD(R,1):TY = CY+CD(R,2)
330 IF (R = 1 AND (TX = 2 OR TX = QX)) OR (R = 4 AND (
TY = 2 OR TY = QY)) THEN 310
340 MP%(CX+CD(R,1)/2,CY+CD(R,2)/2) = 5

```

# COMPU COPIA

SHORT PROGRAMS BY JOHN JAIN SCHIGG

## Guess My Number!

This little program demonstrates "binary searching," an efficient method of finding a specific value within a sorted list or range of values. A binary search works by dividing the range of values into two parts and determining which part contains the target value. Then, that part is itself divided in half, and so on. Pretty soon, only one value is left. Before *Running Guess My Number!*, make sure your computer is set to produce all capital letters.

### ADAM & APPLE II SERIES/GUESS MY NUMBER!

```
10 PRINT "WHAT IS A NUMBER"
20 PRINT "GREATER THAN 0";
30 INPUT UB
40 IF UB < 1 THEN PRINT:GOTO 10
50 PRINT
60 PRINT "PLEASE THINK OF A NUMBER"
70 PRINT "BETWEEN 0 AND ";UB;"."
80 PRINT "I WILL FIND YOUR NUMBER WITH"
90 PRINT "NO MORE THAN ";INT(LOG(UB+1)/LOG(2)+0.9999);"
QUESTION(S)."
```

```
100 PRINT
110 LB = 0
120 P = INT((UB-LB)/2)
130 PRINT "IS YOUR NUMBER ";
140 IF UB-LB > 1 THEN PRINT:PRINT "GREATER THAN ";
150 PRINT LB+P;
160 INPUT QS:QS = LEFT$(QS,1)
170 IF QS <> "Y" AND QS <> "N" THEN 160
180 IF UB-LB < 2 THEN 220
190 IF QS = "Y" THEN LB = LB+P+1:GOTO 210
200 UB = LB+P
210 IF UB <> LB THEN 120
220 IF UB-LB <> 1 OR QS = "N" THEN PRINT "YOUR NUMBER
IS ";LB+(UB <> LB);"."
```

### COMMODORE, IBM PC & COMPATIBLES /GUESS MY NUMBER!

```
10 PRINT "WHAT IS A NUMBER"
20 PRINT "GREATER THAN 0";
30 INPUT UB
40 IF UB<1 THEN PRINT:GOTO 10
50 PRINT
60 PRINT "PLEASE THINK OF"
70 PRINT "A NUMBER BETWEEN"
80 PRINT "0 AND";UB
90 PRINT
100 PRINT "I WILL DETERMINE YOUR"
110 PRINT "NUMBER WITH NO MORE"
120 PRINT "THAN";INT(LOG(UB+1)/LOG(2)+.9999);"QUESTION
(S) "
```

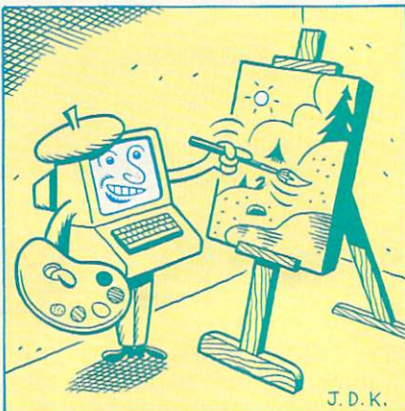
```
130 PRINT
140 LB=0
150 P=INT((UB-LB)/2)
160 PRINT "IS YOUR NUMBER";
170 IF UB-LB>1 THEN PRINT:PRINT "GREATER THAN";
180 PRINT LB+P;
190 INPUT QS:QS=LEFT$(QS,1)
200 IF QS<>"Y" AND QS<>"N" THEN 190
210 IF UB-LB<2 THEN 250
220 IF QS="Y" THEN LB=LB+P+1:GOTO 240
230 UB=LB+P
240 IF UB<>LB THEN 150
250 IF UB-LB<>1 OR QS="N" THEN PRINT "YOUR NUMBER IS";
LB-(UB<>LB)
```

### MODIFICATIONS FOR ATARI 400/800, 600/ 800XL, & 130XE

Use the Adam and Apple II series version. Remove the expression :QS=LEFT\$(QS,1) from line 160. Then, add line 5, below:

```
5 DIM QS(1)
```

## COMPUTER MASTERPIECE CONTEST



Attention, all you computer artists out there: Harness your computer's graphics capabilities and win \$25! We'll select three of the best computer-generated works of art, award the cash, and publish your art and your

photo in an upcoming issue of K-POWER. All you need to do is use your computer to create this masterpiece. You can use any kind of computer or software, and a graphics tablet or light pen, if you want. (Computer art, created by 13-year-old Danny

Marks using a Macintosh and MacPaint software, appears on page 71.) Just send your art (comics accepted, too) along with this filled-out entry form to Computer Masterpiece Contest, K-POWER, 730 Broadway, New York, NY 10003, before May 23rd.

Name \_\_\_\_\_ Birthdate \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
Telephone (\_\_\_\_) \_\_\_\_\_  
Computer(s) you used to create your masterpiece \_\_\_\_\_  
Software and/or peripherals you used \_\_\_\_\_  
Title of art or comic strip and explanation \_\_\_\_\_

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DIRECT ACCESS is a unique advertising section. Created for mail-order advertisers, it serves as the shopping guide for the more than 375,000 computer using households reached by FAMILY COMPUTING. Each month the newest and best in computer related products and novelties can be found in DIRECT ACCESS.

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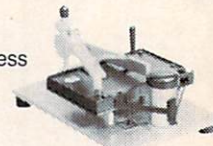
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