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October 1989

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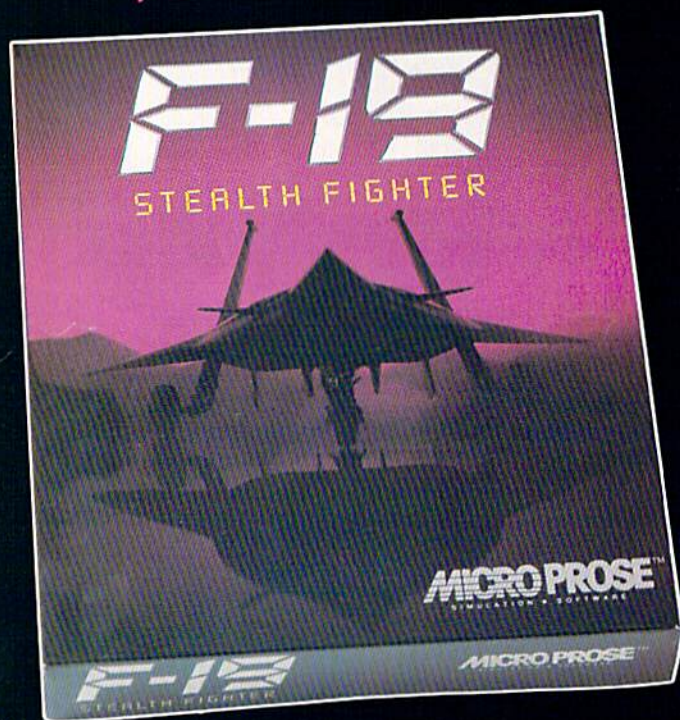


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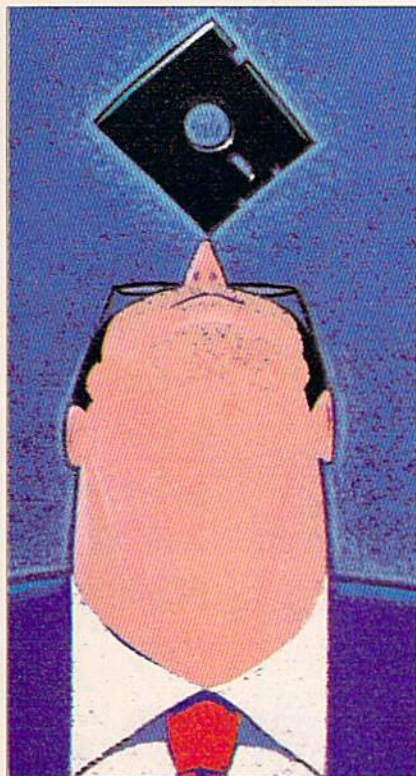
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\* If you find typing in these listings too tedious, they are available on the September-October 1989 ReRUN disk for \$16.47. To order, see page 36.



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# ***RUNNING RUMINATIONS***

What new software can Commodore owners look forward to in the coming months?

For those computerists with an itchy firebutton finger and rapid-fire reflexes, the news is as refreshing as the return of Indiana Jones. But, if your idea of fun is turning on sprites or looping For-Next statements, then the steady diet of game software is about as welcome as a Rambo remake.

Since consumer buying patterns dictate the direction of the market, many users are obviously purchasing entertainment software. But this emphasis on games may be accelerating the demise of the market.

I occasionally receive letters from readers explaining their decision to abandon their Commodore eight-bits for an Amiga or IBM clone. They generally cite the need to move to a "more serious" computer, away from "toy" machines and a market preoccupied with games.

Some Commodore users whose computing needs have changed *should* upgrade to a new computer—even though some models may carry a higher price tag than a BMW.

Most users, however, will get along just fine with their existing computers. How many times have you heard a Commodore owner exclaim, "I can do this, that and the other thing with my little eight-bit that would cost as much as a college education on another computer." They take pride in their ability—and in their machine's capacity for performing at a level of some of the higher-priced computers—to write an article, maintain records, publish banners or newsletters, create music, teach math or spelling skills, and so forth.

As *RUN*'s feature article details, games are hot right now. Software developers are running over one another trying to get the best games out on the market. As you've probably heard before, any activity in the market—even games—is better than none. And obviously these products are satisfying a need among consumers, Commodore owners and *RUN* readers; otherwise, these developers wouldn't stay in business for long.

But anyone who sees only games when looking at the Commodore eight-bit computers isn't paying attention. Commodore computers can be used for much more than just games. Millions of users know that. Now, if someone would just tell the software developers.

When *former* Commodore owners outnumber *present* Commodore owners, it'll be time to ask what has happened to the market. Has the development community, with their collective eyes on the success of the Nintendo craze, failed to keep up with the needs of the user? Or is the user guilty of a lack of imagination in getting the most from his or her computer?

*Remember  
when  
Commodore  
owners were  
in the  
majority?*

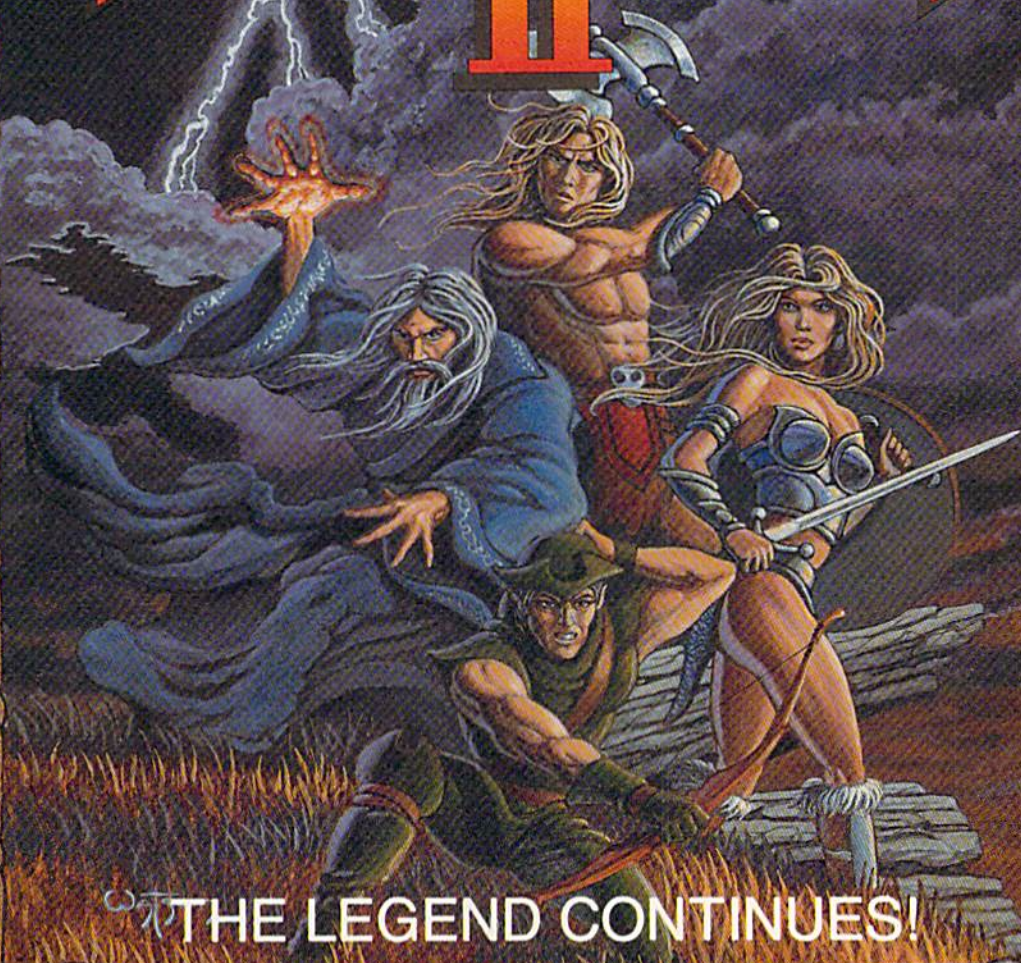


*Dennis Brisson*

**Dennis Brisson**  
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# MAGIC

*A pumpkin, 80-column characters and a whirling-dervish effect for the C-64 are but a sampling of the pure graphics bonanza in this month's Magic!*

Compiled by TIM WALSH

## \$555 IT'S THE GREAT PUMPKIN, CHARLIE BROWN!

Just in time for trick-or-treat season, *RUN* readers can prepare for Halloween by typing in C-64 Halloween Treat. The glowing, spooky pumpkin will delight children of all ages. Set your computer monitor in a window so that little ghosts and goblins can see it as they make their neighborhood rounds.

```
Ø REM C-64 HALLOWEEN TREAT - KURT EHRLAND
:REM*245
1Ø FOR T=832 TO 894:READA:CK=CK+A:POKE T,A
: NEXT:PRINTCHR$(147)
:REM*33
2Ø IF CK <> 6719 THENPRINT "ERROR IN DATA
":END
:REM*22
3Ø CK=Ø:FORT=49151 TO 49198:READ B:CK=CK+B
:POKE T,B:NEXT
:REM*3
4Ø IF CK <> 5Ø58 THENPRINT"ERROR IN DATA":
END
:REM*5Ø
5Ø B=53248:POKEB+21,1:POKE2Ø4Ø,13:POKEB+39
,8:POKEB+38,Ø:POKE B+27,1
:REM*145
6Ø POKE B,163:POKE B+1,12Ø:POKE B+23,1:POK
E B+29,1:POKE B+32,Ø:POKE B+33,Ø:REM*51
7Ø SYS 49152:POKE 646,15:POKE B+28,1:POKE
B+37,5
:REM*55
8Ø DATA Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,Ø,5,Ø,Ø,2Ø,Ø,Ø,8
Ø,Ø,2,17Ø,Ø,1Ø,17Ø,128,42,17Ø,16Ø
:REM*188
9Ø DATA 17Ø,17Ø,168,171,171,168,175,171,23
2,17Ø,186,168,17Ø,186,168,17Ø,17Ø
:REM*121
1ØØ DATA 168,19Ø,238,248,175,255,232,17Ø,2
54,168,42,17Ø,16Ø,1Ø,17Ø,128,Ø,Ø,Ø
:REM*1Ø5
11Ø DATA Ø,12Ø,169,15,141,2Ø,3,169,192,141
,21,3,16Ø,Ø,88,96,174,Ø,193,232:REM*9Ø
12Ø DATA 142,Ø,193,224,4,176,8,169,7,141,3
8,2Ø8,76,49,234,169,Ø,141,38,2Ø8
:REM*2Ø2
13Ø DATA 17Ø,142,Ø,193,76,49,234,32
:REM*126
```

—KURT EHRLAND, PHOENIXVILLE, PA

## \$556 Two C-64 Screens

After you type in, save and run Two C-64 Screens, you get just that—two independent 40-column screens displayed on the C-64. Just press the Commodore and control keys at the same time to toggle between the two screens. You can execute commands from each screen, display notes or di-

rectories on an unused screen, and find many uses for putting this interesting and unique technique to work within your own programs.

```
Ø REM TWO C-64 SCREENS - DAVE PAMPREEN
:REM*158
1Ø FOR T= 49152 TO 49266:READ D:POKE T,D:C
K=CK+D:NEXT
:REM*72
2Ø IF CK <> 14792 THEN PRINT"ERROR IN DATA
...":END
:REM*41
3Ø SYS 49152:FOR A =52224 TO 53224:POKE A,
32:NEXT
:REM*5Ø
4Ø DATA 162,1Ø6,16Ø,192,142,2Ø,3,14Ø,21,3,
96,76,49,234,174,141,2,224,6
:REM*1Ø2
5Ø DATA 2Ø8,246,162,Ø,189,Ø,4,188,Ø,2Ø4,15
7,Ø,2Ø4,152,157,Ø,4,189,2ØØ,4
:REM*228
6Ø DATA 188,2ØØ,2Ø4,157,2ØØ,2Ø4,152,157,2Ø
Ø,4,189,144,5,188,144,2Ø5,157
:REM*14Ø
7Ø DATA 144,2Ø5,152,157,144,5,189,88,6,188
,88,2Ø6,157,88,2Ø6,152,157,88,6:REM*219
8Ø DATA 189,32,7,188,32,2Ø7,157,32,2Ø7,152
,157,32,7,232,224,2ØØ,2Ø8,186
:REM*4Ø
9Ø DATA 32,159,255,174,141,2,224,6,24Ø,246
,76,11,192,166,2Ø7,224,Ø,2Ø8
:REM*52
1ØØ DATA 155,76,14,192
:REM*91
```

—DAVE PAMPREEN, BELLEVILLE, MI

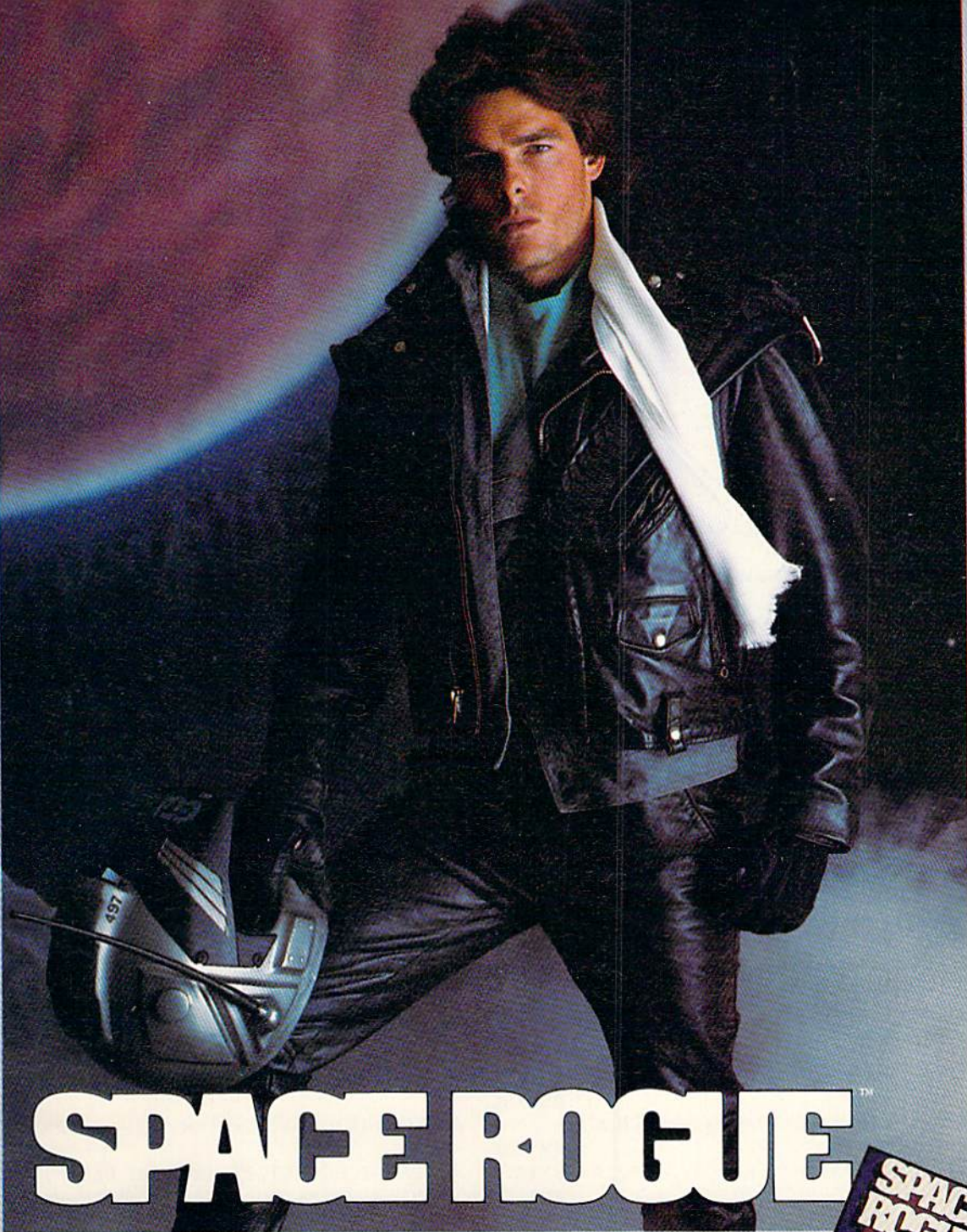
## \$557 80-COLUMN C-64 CHARACTERS

A bit-mapped graphics screen, such as GEOS, used to be the only easy way to display 80-column characters on the C-64's 40-column screen. My Magic trick, 40 Into 80, solves that problem by creating a 20-block sequential file with 40-column characters that are half their normal width. When run, 40 Into 80 also shrinks any characters on the screen into half their size.

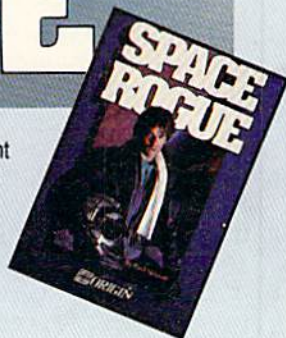
Clever and ambitious programmers can use the sequential file of half-width characters to create an 80-column screen editor for putting those characters to use. The *C-64 Programmer's Reference Guide* is an excellent source of information for performing such a feat.

```
Ø REM 4Ø INTO 8Ø - JAY TAPLIN
:REM*151
1Ø PRINT"ABCDEFGH IJKLMNOPQRSTUVWXYZ,./:;12
3456789Ø+~"
:REM*9
2Ø DIMY(512):OPEN2,8,2,"@Ø:CHARADATA,S,W"
:REM*139
3Ø POKE52,48:POKE56,48
:REM*58
4Ø POKE56334,PEEK(56334)AND254
:REM*193
5Ø POKE1,PEEK(1)AND251
:REM*56
6Ø FORI=ØTO511:Y(I)=PEEK(I+53248):NEXT
```





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## MAGIC

```

:REM*185
70 POKE1,PEEK(1)OR4 :REM*35
80 POKE56334,PEEK(56334)OR1 :REM*171
90 POKE53272,(PEEK(53272)AND240)+12 :REM*4
100 FORQW=1TO2:Z=128:IFQW=2THENGOSUB210 :REM*128
:REM*128
110 FORR=0+NT0511+N:C=0:T=Z:Q=64:W=Y(R-N):
D=1:FORJ=0TO7 :REM*189
120 IFD=1THEND=2:GOTO140 :REM*19
130 IFD=2THEND=1 :REM*187
140 IFJ=7THENGOTO190 :REM*234
150 IFQ>WANDD=1THENQ=Q/2:T=T/2:NEXTJ:NEXTTR
:GOTO210 :REM*165
160 IFQ>WANDD=2THENQ=Q/2:NEXTJ:NEXTTR:END
:REM*100
170 IFD=2THENC=C:W=W-Q:Q=Q/2:NEXTJ,R:END
:REM*15
180 IFD=1THENC=C+T:W=W-Q:Q=Q/2:T=T/2:NEXTJ
:NEXT :REM*211
190 POKER+12288,C:PRINT#2,C:NEXTJ:NEXTTR:NE
XTQW:CLOSE2 :REM*247
200 END :REM*73
210 Z=8:N=512:RETURN :REM*251

```

—JAY TAPLIN, HAMPDEN, ME

### \$558 20-COLUMN C-64 CHARACTERS

Residing at the other end of the C-64 screen spectrum is 40 Into 20, which creates screen characters twice as wide as the normal 40-column characters. A simple screen editor is built into this program to support the double-wide characters, which are not displayed by the standard 40-column screen editor.

To exit 40 Into 20, enter POKE 56576,(PEEK(56576)AND 252)+3:POKE 648,4. Pressing run-stop/restore will exit the program, but it also locks up the screen. Just enter POKE 648,4 to unlock the screen.

```

0 REM 40- INTO 20-COLUMNS - DAVID FICKEN :REM*56
10 REM SYS49152 ACTIVATES NEW CHSET :REM*226
20 FORI=49152TO49431:READA:POKEI,A:X=X+A:N
EXT :REM*157
30 IFX<>34524THENPRINT"ERROR IN DATA":END
:REM*139
40 SYS49152 :REM*214
50 DATA 173,0,221,41,252,170,232,232,142,0
,221,169,68,141,136,2,169,0,133:REM*210
60 DATA 253,133,251,169,208,133,252,169,80
,133,254,160,0,169,210,141,60,3:REM*249
70 DATA 32,63,192,169,0,133,253,133,251,16
9,212,133,252,169,82,133,254 :REM*75
80 DATA 169,214,141,60,3,32,63,192,96,169,
0,141,14,220,169,51,133,1,177 :REM*137
90 DATA 251,141,23,193,169,55,133,1,169,1,
141,14,220,32,127,192,24,165 :REM*187
100 DATA 251,105,1,133,251,165,252,105,0,1
33,252,24,165,253,105,1,133,253
:REM*122
110 DATA 165,254,105,0,133,254,165,251,208
,200,165,252,205,60,3,208,193,96

```

```

:REM*77
120 DATA 169,0,141,21,193,141,22,193,173,2
3,193,41,128,240,8,173,21,193,9
:REM*104
130 DATA 192,141,21,193,173,23,193,41,64,2
40,8,173,21,193,9,48,141,21,193
:REM*130
140 DATA 173,23,193,41,32,240,8,173,21,193
,9,12,141,21,193,173,23,193,41 :REM*41
150 DATA 16,240,8,173,21,193,9,3,141,21,19
3,173,23,193,41,8,240,8,173,22:REM*101
160 DATA 193,9,192,141,22,193,173,23,193,4
1,4,240,8,173,22,193,9,48,141,22
:REM*76
170 DATA 193,173,23,193,41,2,240,8,173,22,
193,9,12,141,22,193,173,23,193 :REM*37
180 DATA 41,1,240,8,173,22,193,9,3,141,22,
193,173,21,193,145,253,165,254:REM*244
190 DATA 72,24,105,4,133,254,173,22,193,14
5,253,104,133,254,96,255,255,255
:REM*54
200 PRINT"{SHIFT CLR}{CTRL 2}{7 CRSR DNs}"
:REM*202
210 FORI=0TO127:POKE17408+I*2,I:POKE17408+
I*2+1,I+128:NEXT :REM*91
220 PRINTCHR$(160)CHR$(160)"(2 CRSR LFs)";
:GETA$:IFA$=""THEN220 :REM*82
230 PRINT"{2 SPACES}{2 CRSR LFs}"A$CHR$(18
)A$CHR$(146);:GOTO220 :REM*154

```

—DAVID M. FICKEN, TOPSAIL, Nfld., CANADA

### \$559 WHIRLING DERVISH 64

Set your entire text screen whirling with Whirling Dervish 64, a short machine utility that provides a truly spectacular animation effect. Just type in and save the program, run it, and enter SYS 49152 to activate it. Entering SYS 49155 stops the action, should you want to give your eyes a rest.

```

0 REM WHIRLING DERVISH 64 - JEFFREY PANICI :REM*73
10 PRINTCHR$(147)"CHECKING DATA";:CK=:S=4
9152:FORX=STOS+190:READD:CK=CK+D
:REM*242
20 POKEX,D:PRINT".":NEXT:IFCK<>16666THENP
RINT"ERROR!!!":END :REM*229
30 PRINT"{CRSR DN}SYS 49152 TO START EFFEC
T":PRINT"SYS 49155 TO STOP":END :REM*3
40 DATA 76,49,192,76,112,192,0,0,1,2,3,4,5
,6,7,7,7,7,6,5,4,3,2,1,0,0,0,4:REM*50
50 DATA 5,6,7,7,7,6,5,4,3,2,1,0,0,0,0,1,
2,3,4,120,169,88,141,20,3,169,192
:REM*25
60 DATA 141,21,3,169,1,141,26,208,169,0,14
1,18,208,173,17,208,41,119,141,17
:REM*237
70 DATA 208,173,22,208,41,247,141,22,208,8
8,96,173,25,208,41,1,240,11,169,1
:REM*172
80 DATA 141,25,208,32,150,192,76,49,234,10
4,168,104,170,104,64,120,169 :REM*69

```



## MAGIC

```
90 DATA 128,141,26,208,169,49,141,20,3,169
,234,141,21,3,173,22,208,41,240:REM*106
100 DATA 9,8,141,22,208,173,17,208,41,240,
9,11,141,17,208,88,96,174,6,192
:REM*253
110 DATA 173,22,208,41,248,29,7,192,141,22
,208,173,17,208,41,248,29,28,192
:REM*133
120 DATA 141,17,208,238,6,192,173,6,192,20
1,21,144,5,169,0,141,6,192,96:REM*212
```

—JEFFREY D. PANICI, SANDWICH, IL

## \$55A MOVIE FADE 64/128

When you've finished enjoying Whirling Dervish 64, above, try Movie Fade 64/128. As its name implies, this C-64 and C-128 (40- and 80-Column modes) utility makes screen text fade out as in opening movie credits. Also try running Whirling Dervish 64 with Movie Fade 64/128 to create dynamic special effects. Even Steven Spielberg couldn't draw more attention to your program!

```
0 REM MOVIE FADE 64/128 - JEFFREY PANICI
:REM*205
10 PRINTCHR$(147):POKE53281,,:POKE53280,,:
PRINT"{9 CRSR DNs}" :REM*51
20 A$="RUN MAGAZINE PRESENTS":GOSUB80:A$="
MOVIE FADE 64 & 128":GOSUB80 :REM*33
30 A$="MAGIC COLUMIST":GOSUB80 :REM*57
40 A$="{CTRL 9}TIM WALSH{CTRL 0}":GOSUB80
:REM*87
50 A$="THIS PROGRAM WAS WRITTEN BY":GOSUB80
0:A$="{CTRL 9}JEFFREY D. PANICI{CTRL 0}
":GOSUB80 :REM*73
55 A$="PRODUCED BY":GOSUB80:A$="{CTRL 9}ID
G COMMUNICATIONS/PETERBOROUGH{CTRL 0}":
GOSUB80 :REM*107
56 A$="EDITED BY":GOSUB80:A$="{CTRL 9}HARO
LD R.BJORNSEN{CTRL 0}":GOSUB80 :REM*133
57 A$="DIRECTED BY":GOSUB80:A$="{CTRL 9}{C
TRL 8}SWAIN PRATT{CTRL 0}":GOSUB80
:REM*74
60 GOTO20 :REM*184
70 REM FADER ROUTINE :REM*219
80 FORX=1TO40:NEXT:CL$="{CTRL 1}{CTRL 7}{C
OMD 7}{CMD 6}{CTRL 4}{CTRL 2}":TB=(40-
(LEN(A$)))/2 :REM*157
90 FORX=1TO6:C$=MID$(CL$,X,1):PRINTTAB(TB)
;C$;A$;"{CRSR UP}":NEXT :REM*13
100 FORX=1TO2000:NEXT :REM*60
110 FORX=6TO1STEP-1:C$=MID$(CL$,X,1):PRINT
TAB(TB);C$;A$;"{CRSR UP}":NEXT:REM*156
120 FORP=1TO500:NEXT:RETURN :REM*226
```

—JEFFREY D. PANICI, SANDWICH, IL ■

If you have an idea for a way to make computing easier, faster, more exciting and enjoyable, send it to: Magic, RUN Magazine, 80 Elm St., Peterborough, NH 03458.

RUN pays \$10 to \$40 for each trick published in the column. If you'd like a copy of the latest edition of RUN's Magic Trick Writer's Guide, send your request with a self-addressed, stamped, business-size envelope; you'll receive a copy in two or three weeks.

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# NEWS AND NEW PRODUCTS

*Commodore hires away another Apple exec, more games for the C-64 appear, and, for a change, there's an application for the C-128.*

Compiled by HAROLD R. BJORNSEN

## COMMODORE PICKS AN APPLE

WEST CHESTER, PA—Commodore President Harold Copperman has appointed former Apple Computer executive C. Lloyd Mahaffey as Commodore's Vice President, Marketing. Copperman said he chose him to spearhead the company's more aggressive marketing. Mahaffey was instrumental in Apple's efforts in both education and the Federal Systems Group.

As vice president of marketing, he will work closely with Copperman in his effort to increase sales and marketing support of Commodore products in the business, education, government and consumer markets. "As my associate at Apple, Lloyd was very effective in developing and expanding our efforts in government and education. He is an expert in the marketing of unique micro-computer technology and is an invaluable addition to the Commodore team," said Copperman.

In other news, Commodore has joined the Library of Congress and the American Library Association to act as co-sponsor of the travelling exhibition, "To Make All Laws: The Congress of the United States." The exhibit, based on the Library's permanent exhibition on the history and development of Congress, will visit 30 major American cities.

## THE CUTTING EDGE

JAFFREY, NH—Trim Right is a tool that allows for quick separation of computer paper perforations and also cuts precision edges with an included pen-knife-type blade. A clamping feature holds paper securely to remove perforations, and an adjustable ruled squaring device keeps paper aligned for exact trimming. It's available for \$14.95. Curtis Manufacturing Company, Inc., 30 Fitzgerald Drive, Jaffrey, NH 03452.

Check Reader Service number 402.

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Check Reader Service number 401.

## IT OUT

TUSTIN, CA—Book is a personal checking system available on separate disks for the C-64 and C-128. The program features a non-accounting approach to personal checking management. It handles 17 different types of checking transactions, such as checks, A.T.M. withdrawals, automatic payments, interest and service charges. It also stores names of payees and allows scheduling of periodic transactions. Provided are custom categories to sort out the checking account activity, and these have main and sublevels for specific grouping. The system also handles overdraft protection, does monthly balancing and provides optional password protection for each account. It prints out checks and has an on-screen calculator.

Included with the program is a utility package that features partitioned directory support and backups for 1581 disk drives. The C-128 version requires an 80-column monitor, and both versions require at least one disk drive.

Both versions support a variety of printers. Available from Computer Craftware, 17966 Arbolada Way, Tustin, CA 92680 for \$34.95, plus \$2.50 s/h.

Check Reader Service number 403.

## FOUR FROM ACCOLADE

SAN JOSE, CA—Accolade (550 S. Winchester Blvd., Suite 200, San Jose, CA 95128) has released four new games for the C-64, at \$14.95 each.

Three games in one, **Mental Blocks** challenges the player in a series of brain teasers. In the first game, *Free Fall*, your task is to place falling geometric shapes into a defined space. The *California Achievement Cubes* gives you and another player a cube test, in which you must identify the unfolded version of a cube before your opponent does. In *What's Next Pussycat*, the left side of your brain is put to the test as you attempt to be the first to identify the next geometric shape in a logical sequence of four.

**Shoot 'Em Up Construction Kit** provides players with tools to create shoot-'em-ups of their own. Three pre-designed games are included on the disk, and game designers can choose to tailor any of these to their own specifications or start from scratch to create a unique game. You can build backgrounds, create animation sequences and sound effects, determine the number of game levels and decide the amount of time between each enemy attack wave.

In **Harrier 7**, enemy forces have captured seven military bases in the Straits of Hormuz, cutting off the major oil supplies of the free world. As the pilot of a Harrier fighter jet, you must manipulate your aircraft through the Persian Gulf to locate and destroy the seven enemy rocket bases.

You have eight hours and 12 minutes in **Frightmare** to wake yourself up from your worst nightmare. In this game of over 80 levels, you travel through seven dream states, each more horrifying than the last. With each level you conquer, you gain six minutes on the clock toward waking up.

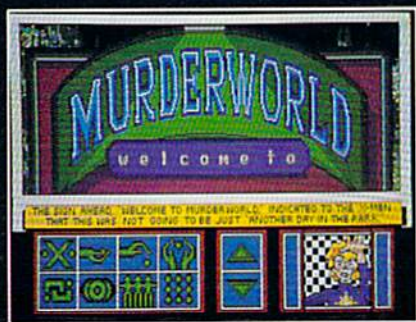
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# MAIL RUN

*Bemoaning RUN's thinner issues, petitioning for Commodore 8-bit support, and gaining extra game lives.*

## TWINS?

Michael Cavanaugh's review of Time-works' GEOS Writer 64 (Software Gallery, *RUN*, April 1989) sounded like a review of Spinnaker's BetterWorking Word Publisher. Are the two programs actually the same program marketed under different names? If so, GEOS owners should be warned so that they won't purchase both.

—ROBERT A. HUNTER  
WINDSOR, Nfld., CANADA

Mark L. Goldberg, President of Time-works, states: "Spinnaker's Word Publisher and Timeworks' GEOS Writer 64 are both similar in function. They were created from the same basic design. However, that's where the similarity ends."

"The Timeworks program includes several fundamental user-interface differences that make it easier and faster to learn and use. The manual was written completely by the Timeworks editorial staff and is quite comprehensive by comparison."

—EDITORS

## HUGs, Not BUGs

As *RUN*'s editor-in-chief, Dennis Brisson, pointed out in May's *RUNning Ruminations*, Commodore 64 and 128 users feel as if they're being abandoned by Commodore. In light of this, the Heartland Users' Group (HUG) is organizing a nationwide petition campaign of user groups asking that the 8-bit machines be supported, if not by Commodore, then by someone else. User groups may get information by writing HUG, PO Box 281, Cape Girardeau, MO 63702.

—LEE PASBORG  
SECRETARY, HUG

## HONEY, I SHRUNK RUN MAGAZINE

In his July 1989 editorial about the decline in the C-64/128 market, Dennis Brisson stated, "Far from giving up on the market, we see an opportunity here to serve—through the magazine and

special disk products—needs that aren't being met." If these brave words are true, then why has there been a decrease in the size of *RUN* since the February 1989 issue?

—GERALD P. O'DONNELL  
SAVANNAH, GA

*Thinner issues after the winter season in no way indicate a lessening of RUN's commitment to its readers, but simply the economic fact of life in the computer publishing business that the volume of ads, always lower after Christmas, has decreased sharply this year.*

—EDITORS

## IN COMMODORE WE TRUST?

I'm writing in reaction to Commodore's decision to discontinue the C-128 and C-128D line of computers. This is an ill-fated decision that the company will come to regret, and I'm disappointed that it has so little regard for its customers.

It appears that Commodore is attempting to maneuver its customers into a position of purchasing a higher-priced Amiga system by withholding service, parts and accessories. This would also mean that hundreds of dollars' worth of software must be abandoned by each user for lack of compatibility.

I appreciate my machine, and I have every intention to use it until it dies. Will I ever buy another Commodore computer? I don't think so. I have lost my trust in Commodore.

—JOHN D. MILLER  
PITTSBURGH, PA

## LIKES H-P'S DESKJET

I found Lou Wallace's article on laser printers ("A Dynamite Combo!," *RUN*, July 1989) interesting and informative. However, if a C-64/128 user is interested in 300 dots-per-inch printing of both graphics and text, the Hewlett-Packard Deskjet is probably a more economical choice. The output is virtually indistinguishable from laser output, the

printer has both parallel and serial ports, it takes up less space, and is very quiet. Also, when printing from RAM disk from within GEOS, its speed is really quite impressive.

—T. D. FIFER  
HAMTRAMCK, MI

*We solicited Hewlett-Packard for just that printer to be reviewed along with the others, but they would not cooperate by lending us a machine to evaluate.*

—EDITORS

## THAT'S WHY WE CALL IT "FAST-FOOD FRENZY"

I have a couple of tips for your arcade game, "Fast-Food Frenzy," published in last August's issue of *RUN*. You can stop the game at any time by pressing the run-stop/restore key combination. Entering SYS 49152 and pressing the firebutton restarts the game where you left off. Also, if you press run-stop/restore after losing all your lives, but before the "Game Over" message, type in the above SYS command and press the firebutton, and you'll get back the screen with zero lives. Play one round until the screen flashes, press the firebutton, and you'll have 255 lives to your credit!

—BEN SEREBRIN  
LAKELAND, FL

*We followed your suggestions, Ben, and they work fine. But try hitting the burgers at level nine. Whew!*

—EDITORS

## GREAT LAKES MISTAKE

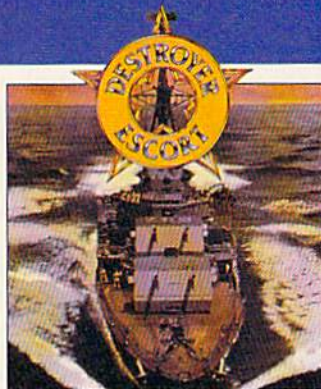
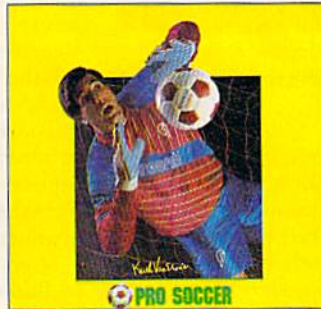
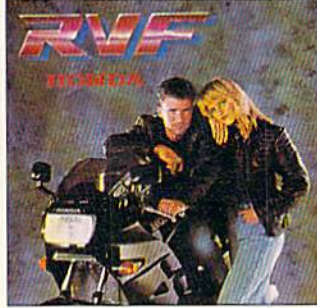
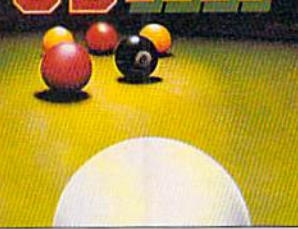
If anyone from the Show Me state says, "Oh, sure. Prove to me that this Beach guy is really from Missouri," their well-known skepticism will be well founded. In your August feature article, "Sculptor, Lawyer, Editor-in-Chief," you list my hometown of Elwell as being in Missouri. It's actually in Michigan!

—DALE BEACH  
ELWELL, MI ■



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SOFTWARE**HEWLETT***Featured in*

# MEDAL MADNESS

PLAY TO  
WIN!**DR. DOOM'S REVENGE!****STARGLIDER II****ELIMINATOR****NETHERWORLD****WERO DYNASTY****XENOPHOBE****CARRIER  
COMMAND****3D POOL**

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## MEDALIST INTERNATIONAL

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# SOFTWARE GALLERY

*In conjunction with Computer Learning Month, here are reviews of programs from math and science to grammar and writing.*

Compiled by BETH S. JALA

## HIGH/SCOPE SURVEY OF EARLY CHILDHOOD SOFTWARE ..... A

*Before You Buy for  
Your Small Fry,  
Take a Good Look at this Book!*

When it comes to educational software for children, it's a jungle out there. Confused parents encounter many vines waiting to entangle them: Some programs are outdated; not all software runs on all computers; and the child might not fall into the target age for which the software was designed.

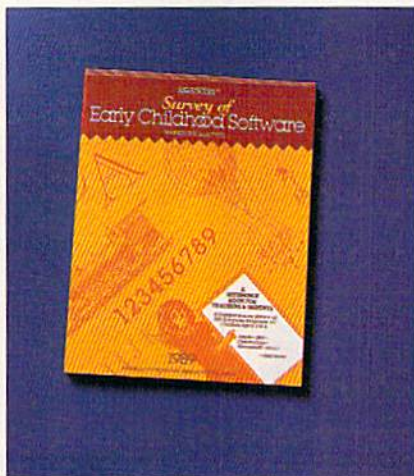
Fortunately, there is a machete on the market that can chop through this mess: High/Scope's Survey of Early Childhood Software. High/Scope is a non-profit organization and receives no money from either publishers or distributors for reviewing the software. This is the fifth year that author Warren Buckleitner has produced the survey.

The 1989 version of the paperback evaluates 355 educational programs and rates them in terms of user friendliness, educational value and instructional design. It covers software designed for children of ages three to ten.

Surprisingly, Commodore-compatible programs make a good showing. Of the 355 programs, 124 are available for Commodore computers, ranking them far ahead of Atari titles (43), slightly ahead of IBM (115), but a distant second behind Apple (307). Most of the highly rated titles are available for several computers, including Commodore.

The book's reviews don't waste words. Nearly all are accompanied by a print-out of a sample screen from the program. Here's a synopsis of one review, Baudville's Rainy Day Games.

It has an overall rating of 83 out of a possible 100 points. It was published in 1985 with a suggested retail price of \$29.95 and is available for the Apple, C-64, Atari and Macintosh computers. It is designed to help a child's classification abilities using memory practice. Following that overview is the com-



High/Scope's survey evaluates a lot of educational computer programs, including many for the C-64/128.

ment: "Contains three card games on one disk: Concentration, Old Maid and Go Fish. Child uses mouse, joystick, arrow keys or Koala Pad to move cards. Three difficulty levels offer range in content. Well designed. Offers good

### REPORT CARD

#### A Superb!

An exceptional program that outshines all others.

#### B Good.

One of the better programs available in its category. A worthy addition to your software library.

#### C Average.

Lives up to its billing. No major hassles or disappointments here.

#### D Poor.

This program has some problems. There are better on the market.

#### E Failure.

Many problems; should be deep-sixed!

level of child control. Up to three players can play against the computer."

Of the programs reviewed, only 12 percent have a "most recent copyright date" of 1987-88. But just because a program may have been produced three or four years ago, doesn't mean it can't contend with today's releases. Indeed, several of the "outstanding" programs chosen by High/Scope date back to 1984 and 1985.

And child-education software is still coming out for the Commodore. Among the 1987-88 releases are: Dinosaurs Are Forever, Holidays & Seasons, and Letters for You, all from Polarware, Inc.; Simon Says, from Sunburst Communications; and Teddy Bear-els of Fun, from DLM.

Other nice features of the book include a directory of early-childhood software producers; a list of the 355 products reviewed grouped by the conceptual areas they help develop; and worksheets to show how ratings of the products were done.

High/Scope's survey is an excellent addition to parents', educators' and user groups' libraries. [Editor's note: Educators may be interested in contacting Commodore's Education department (1200 Wilson Drive, West Chester, PA 19380) for a copy of their Directory of Educational Software. Prepared by the EPIE Institute, it is a comprehensive listing of educational software for the C-64/128; however, the packages are not rated.] (High/Scope Press, 600 N. River St., Ypsilanti, MI 48198. \$19.95.)

—LONNIE BROWN  
LAKELAND, FL

## COMP-U-SOLVE ..... A—

*Sharpen Your Wits  
With Tough Puzzles*

The idea behind Comp-U-Solve is that all of us in this complex world need to possess well-developed problem-solving skills, and that these can be strengthened through practice with solving puzzles such as this program provides. Whether or not you fully ac-



# "I Challenge You To Win A Caribbean Vacation!"

— Major "Wild Bill" Stealey

President, MicroProse

## Enter "The Major's Mission" Contest and take off to the Caribbean!

Just ask your retailer for details on how to receive your Top Secret documents. They contain your mission orders and a tough set of questions on four of our hottest games: F-19 STEALTH FIGHTER, RED STORM RISING, F-15 STRIKE EAGLE II and M1 TANK PLATOON. To find the answers, read through your documents. Then send in your answers to win!

You'll get to preview these four games, plus you'll have the chance

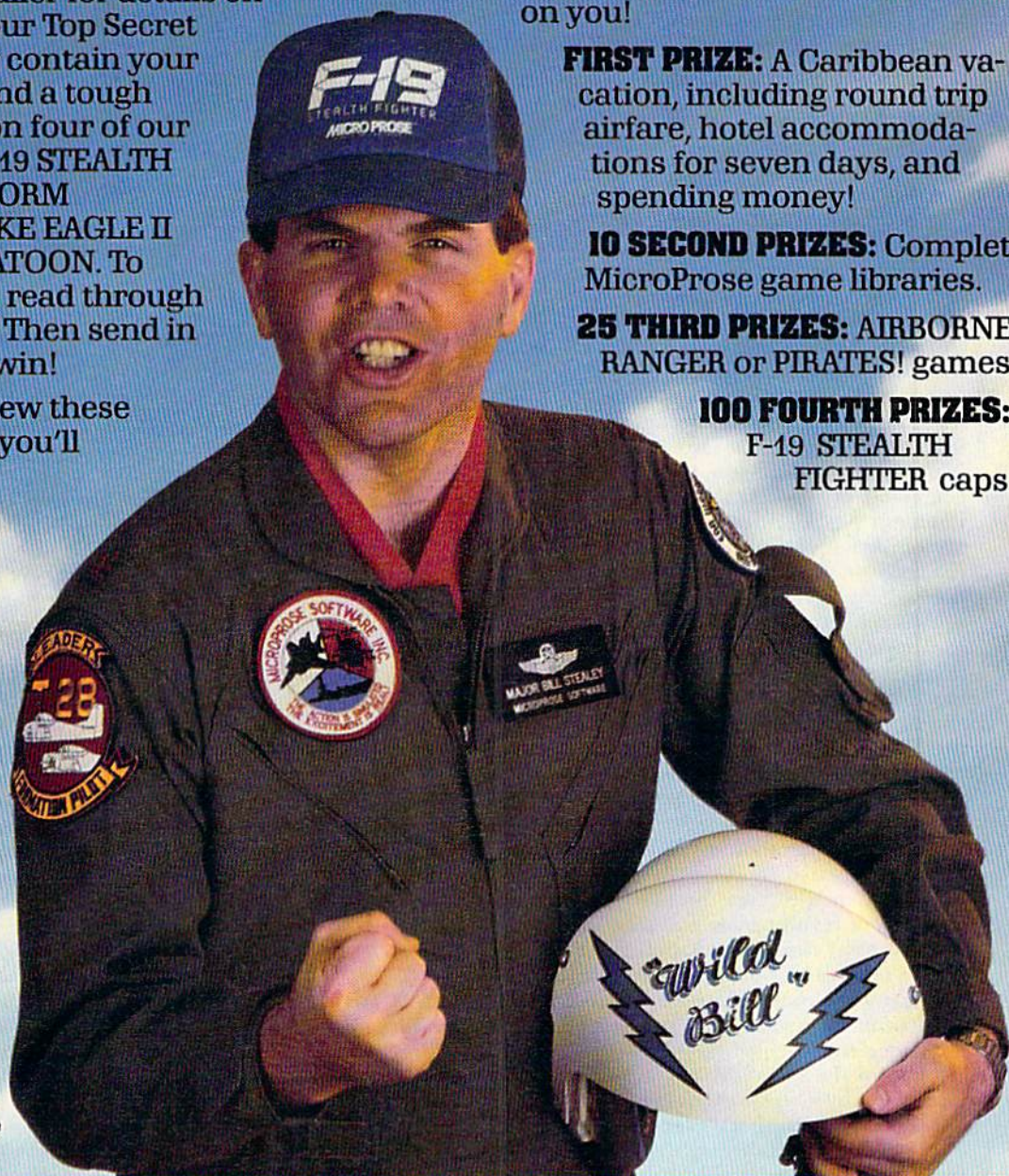
to win a fabulous Caribbean vacation, or one of 135 other awesome prizes! So enter now. The Major is counting on you!

**FIRST PRIZE:** A Caribbean vacation, including round trip airfare, hotel accommodations for seven days, and spending money!

**10 SECOND PRIZES:** Complete MicroProse game libraries.

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**100 FOURTH PRIZES:** F-19 STEALTH FIGHTER caps.



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cept this rationale, the puzzles themselves are interesting, challenging and fun. They are all variations of classical brain-teasers that have been around for hundreds of years, and they are not easy at first encounter. Once you've solved them a few times, of course, you recall their secrets, but the initial trials are engrossing.

Ten puzzles, presented on two disks, are chosen from main menus, and then, when the individual game menus appear, you can choose Instructions, Regular mode or Contest mode. There is some computer interaction in Regular mode, where the program asks if you want a hint when it detects that you're going off in a wrong direction, but in Contest mode you're on your own. Instructions are clear, and you work through the puzzles by using easily learned keystrokes. Patience on your part is, however, an advantage, not only in seeking solutions, but during some long waits while the program sets up and when it goes to excessive lengths in congratulating your successes. But this is a minor quibble.

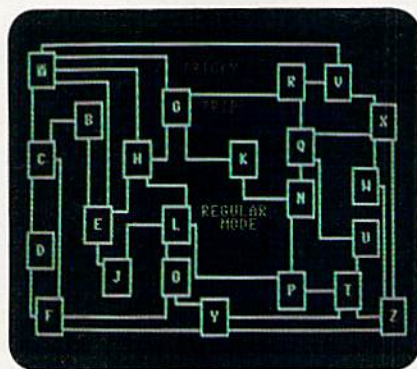
Perhaps the easiest game is Electro-Connection, in which you have to draw non-intersecting lines connecting similarly lettered boxes. The second puzzle, Number Hop, displays a 12x20 grid composed of the digits 1 through 4, randomly placed. After a flashing cursor on one square starts you off, the challenge in Regular mode is to hop horizontally or vertically the number of squares indicated by the digit of the square you're on until you've made 100 hops. Contest mode gets harder by giving you successive goals of 2, 4, 8, 16 and 32 hops, but adding the condition that the average of the squares you hop to must always remain greater than 3 (with the start always on a 4).

Another good challenge is taking a journey on a map showing 23 lettered "cities" connected by various "roads." The problem is to pass through each city without revisiting any and without traversing any road a second time. This Tricky Trip, as it's called, is great until you learn the route; there's only one configuration, so subsequent trips hold little interest.

Some of the other puzzles involve: identifying, by successive weighings, the one coin out of nine that is either lighter or heavier than the other eight; moving seven different-sized dishes from one stack to another without ever placing a larger one on a smaller (the ancient Towers of Hanoi puzzle); pouring water back and forth among three beakers of different volume to achieve equal

amounts in two of them; and a variation on the old poser of the farmer getting three animals across a river one at a time without ever leaving alone a pair of natural enemies, one of which would devour the other.

Although Comp-U-Solve's clear and comprehensive documentation, which, by the way, includes explanations and solutions, recommends ranges of grade levels (from 2 to 12) appropriate to the difficulty of the various puzzles, I have a problem believing that many children under age nine or ten would have the



Challenge yourself or your students with this Comp-U-Solve puzzle, Tricky Trip.

interest and perseverance, let alone ability, to get far with them. I think the games are fine for upper elementary grades and above, and certainly many adults can have fun with them. I did.

This well-conceived and well-executed program serves a worthwhile purpose and entertains you in the bargain. (*Educational Activities, Inc., Freeport, NY 11520. C-64/\$109 for both disks, with a total of ten games; \$59.95 for one disk of five games.*)

—SWAIN PRATT  
RUN STAFF

## Rocky's Boots ..... A

### These Boots Were Made for Learning

Rocky's Boots, originally copyrighted in 1985, has earned a reputation as an educational classic, but it deserves to be more widely known in the Commodore community. In the first place, the object of the game is to teach problem-solving skills by using the logical tools employed in both programming and electronic circuit design. In other words, Rocky's Boots is really about computers. Secondly, it's pure fun from the opening of the first on-screen tutorial. Finally, Rocky's Boots demonstrates what ex-

citing results imaginative C-64 programming can achieve without resorting to technical razzle-dazzle.

Rocky's world consists of a series of interconnected rooms. In the tutorials, you move from room to room, encountering a collection of electronic machine parts and the wires that are used to join them. There are no spectacular graphics or sound effects here. Everything is uncompromisingly two-dimensional, but, remarkably, all the electronic parts are functional. You can put them together, turn them on, watch the electricity flow and see the machine that you've constructed start to work... or not work. If you've got a glitch, you simply grab your splitter, pull out the offending section and rebuild as much as necessary. It's up to you to play around, try things out and observe what happens.

Sometimes, there are surprises—my first experimental machine ran away from me. (I'd sort of hoped it would work that way, but I didn't trust the software to play fair; it does, though!) After a while, I found myself behaving as if I were working in the real world, trotting back and forth between rooms looking for the splitter and cannibalizing the demonstration machines for interesting parts to use in my own constructions. I felt that I'd finally been given the Erector Set I'd always wanted as a child.

Once familiar with the available parts, you can move on to the games: first Rocky's Boots and then Rocky's Challenge, which has complicated pieces and more difficult puzzles. Your job is to build a kicking machine that will select specific targets and boot them as they pass by. If you have trouble designing a machine to do the job, the excellent manual provides some solutions (but try not to peek!). The games have a Debugging mode that runs your machine in slow motion, so you can spot mistakes and correct them.

There are no penalties for failures and no high scores to encourage competition. However, Rocky himself comes out to help you celebrate when you've built a successful machine. It's surprisingly nice to watch someone else hop up and down when you think you've been particularly clever.

When you've solved all of Rocky's puzzles, you can create your own brain-teasers. And, when you're finally ready to put the disk away, you may find that the fun has just begun. If you're not all thumbs, you might experience an irresistible urge to grab a soldering iron and continue the game outside of the



# BAD TO THE BONE

These are the streets. And there are no rules when you do battle here.

*STREETFIGHTER* is strictly survival of the fittest against 8 of the baddest dudes from around the world. Watch out for flying scissor kicks, lethal Ninja weapons, and other evil tricks. Block their attacks while you counter with jabs and roundhouse kicks. Don't drop your guard cause these guys aren't just b-b-b-bad. They're "Bad to the Bone."

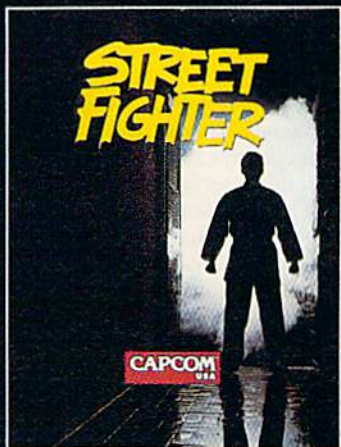
So see your favorite software retailer or call Capcom U.S.A. 408-727-1665. You don't want to keep these guys waiting!



Try a roundhouse kick against an English street tough.



Dodge the lethal Ninja weapons of Geki.



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computer environment, or if programming is your hobby, you may find you've developed new skills to use there as well.

The Learning Company recommends the program for ages nine and up. Judging from my own experience, that age range should extend way, way up. I think Rocky's Boots deserves a place in your library whether or not there are children around to share it. (*The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555. C-64/\$49.95.*)

—BARBARA MINTZ  
LEXINGTON, MA

## GERTRUDE'S SECRETS ..... A—

*Classifying Colors and Sorting Shapes Increase Your Child's Problem-Solving Skills*

Ducky! That's how to describe Gertrude's Secrets, a captivating C-64 educational game from The Learning Company. Hosted by a feathered barnyard friend (who's actually a goose), it's designed to teach four- to seven-year-olds to recognize similarities and differences and to use deductive reasoning—both important skills for reading and math. The game is clever, clearly presented, colorful and entertaining, and it provides room for a child's initiative.

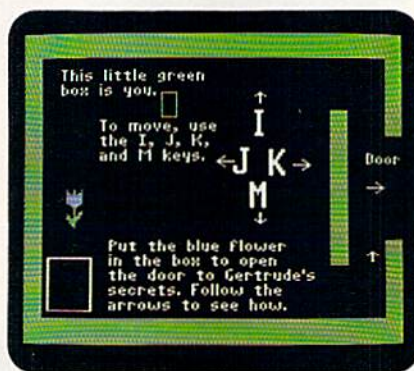
The basic design of Gertrude's Secrets can be likened to an adventure game: You move a large cursor from room to room to get instructions, view sample puzzle solutions and then solve the randomly generated puzzles. Children in the targeted prereading group will need help getting started, since instructions both in the manual and on-screen must be read. However, after the first time through, the typical child can probably go it alone. Simple direction signs at many doors may even get the child reading. The program runs without any glitches, and it doesn't need to access the disk after loading.

At the first screen, you can go directly through the secret door into the game area, or you can choose to go through the general-instruction rooms. In these rooms, you learn to move the cursor using the keyboard or a joystick, to make the cursor go fast or slow, to pick up and drop puzzle pieces and to toggle the occasional sound sequences off and on.

The first screen opens the door to Gertrude's Secrets. Just inside is her room, where she rests when not busy and where other doors lead to three puzzle areas: arrays, trains and loops.

Each type of puzzle calls for identifying similar pieces and deducing a rule for arranging them. The two array puzzles— $3 \times 3$  and  $4 \times 4$ —are solved by placing similarly shaped or colored pieces (sets) in each row or column.

The three train puzzles consist of six rectangles strung together. In the first puzzle, the pieces placed in successive rectangles must be different in one respect, either in shape or in color; in the second, they must differ in both shape



In Gertrude's Secrets, your child can use a joystick or the keyboard to move between rooms and puzzles.

and color; and in the third, they must have one or two differences, depending on whether the connecting lines are single or double.

The first loop puzzle is a large rectangle to be filled with either a color or shape set. The second consists of two overlapping rectangles (a Venn diagram), each to be filled with a different set. If one loop gets colors and the other shapes, any pieces having the same attributes go into the overlap area.

A correctly placed piece stays in a puzzle. If it's incorrectly placed, it drops down out of the puzzle, and you can pick it up to try again.

By completing a puzzle you earn a treasure, which Gertrude stores in the Treasure Room. You can visit there any time you want to see how many goodies you have. Unfortunately, some of the treasures are too small to make out what they are.

Although neither the program nor the manual makes it clear, you can abandon a puzzle at any time by finding Gertrude in her nest and picking her up. You can also see a list of the program-control keys by pressing the ? key. Inappropriately for prereaders, however, the list is mostly in prose.

The puzzle pieces come from the Storeroom. If you take a break from solving a puzzle to look there, you see that, sure enough, the pieces you're us-

ing are gone. Next to the Storeroom is the New Puzzle Piece room, where you can obtain alternate sets of pieces. An especially nice feature of the program is the Shape Edit room, which lets you alter the built-in pieces to your heart's content.

Even as a card-carrying adult, I had fun wandering through the maze of rooms, experimenting with the program. Trying to work out and remember the configuration of the maze was an interesting exercise, too. The manual does include a map of Gertrude's world, but I'd suggest you not look until you've figured it out for yourself.

The writers of Gertrude's manual have done well in producing text an adult can read to a child and both will understand and enjoy. Screen shots help refresh your memory regarding rooms other than the one you're in. The manual also provides lists of the skills taught by each puzzle, summaries of the keyboard and joystick controls, a small glossary of program-related concepts, schemes for playing Gertrude's Secrets in noncomputer settings, the map and a list of hardware requirements.

Curiously, the latter doesn't include the Commodore, although program controls for the Commodore are specified elsewhere. However, the program worked fine on my C-128, 1571, 1701 system, and my C-64 and 1541 with a third-party color monitor.

I would recommend Gertrude's Secrets as a learning tool for young children. For those of us who are older... well, I suppose buying it doesn't make sense, but it certainly is fun! (*The Learning Company, 6493 Kaiser Drive, Fremont, CA 94555. C-64/\$29.95.*)

—PEG LEPAGE  
RUN STAFF

## LETTER-GO-ROUND ..... A

*Round and Round*

*The Ferris Wheel Goes...*

As incredible as it seems, more than 20 years have passed since the Sesame Street television show began its mission of teaching and entertaining children. One of the TV program's offshoots is a software series that has brought the show's successful educational formula to the C-64. A fine example of these programs is Hi Tech Expression's Sesame Street Letter-Go-Round.

This program teaches simple spelling, word formations and letter recognition and matching to an intended audience of children from three to six.



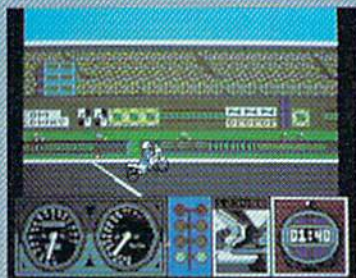
# SANTA CLAUS IS COMING TO TOWN

Better watch out!

After a test ride on Pocket Rockets, the high-speed motorcycle simulation game, Santa picked up a new sleigh that will make this year's rounds faster than ever. And whether you've been naughty or nice, you could win this Suzuki 600 Katana during "Santa's Sleigh Giveaway" in January.

Meanwhile, experience all the thrills and spills of high-speed racing with machines that take you from zero to 60 in under four seconds. Already gaining critical acclaim, Pocket Rockets lets you choose from four of the quickest, most exotic bikes on the planet. The action's as real as the adrenaline you'll feel.

Then, enter "Santa's Sleigh Giveaway" from Capcom U.S.A. Besides the chance to win a new Suzuki motorcycle, you could get a Bell full coverage helmet, or Capcom computer game software. Look to enter in all Capcom computer game packages or visit your favorite computer game retailer for more information. Capcom's belated Christmas giveaway is just around the bend so don't miss out on your chance to win!



LEFT: Try your skill against the clock with a couple of laps around the test track. RIGHT: Drag racing demands a quick wrist and fast shifting. Just don't blow the engine!

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## POCKET ROCKETS



### SWEEPSTAKES RULES How to Enter:

1. NO PURCHASE NECESSARY. Fill out and mail official entry found in package or you can enter by hand printing your name, address and zip code on a 3" x 5" piece of paper and mailing it to CAPCOM Santa's Sleigh Giveaway, 3303 Scott Blvd., Santa Clara, CA 95054. Enter as often as you wish. Each entry must be mailed separately by JANUARY 15, 1990. No mechanical reproductions of entry will be accepted and all mail-in entries must be received at the above address by JANUARY 31, 1990. No responsibility is assumed for lost, late, misdirected, or damaged entries.
2. Prize winners will be determined by means of a random drawing to be conducted by an independent judging organization whose decision shall be final. All prizes listed will be awarded, but there can be only one prize winner per household, group or organization. Odds of winning depend on the number of entries received. Approximate grand prize retail value is as follows: Suzuki Katana \$4,495.00. Winners will be notified by mail by FEBRUARY 15, 1990 and may be required to execute affidavits and advertising release. Taxes on prize winnings are solely the responsibility of the winners.
3. Sweepstakes is open to U.S. residents except employees of CAPCOM U.S.A. and their immediate families, its subsidiaries and affiliates, its advertising and promotional agencies, and the judging firm. Prizes won by minors may be awarded to parent or legal guardian. Void where prohibited or restricted by law. All Federal, State and Local regulations apply. For a list of major prize winners send a stamped, self-addressed envelope to CAPCOM Santa's Sleigh Giveaway Winners List, 3303 Scott Blvd., Santa Clara, CA 95054 by MARCH 31, 1990.

**CAPCOM**  
USA

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It contains six types of games. The first three vary according to a game's length and whether upper- or lowercase letters are displayed. In each, play begins with a Muppet bringing a letter to the screen. The child then uses a function key to pick a matching character when it reaches the bottom of a spinning ferris wheel.

The fourth game is called One Little Word. Its goal is to choose the letters on the wheel that duplicate those in a word. In What's Missing, a child tries to find a character that correctly completes a word. The last type of game has a youngster attempt to discover the three letters that make up a secret word.

In all six games, a correct choice causes the selected letter to fly into the air and become part of a tower. At the end of each game, the last letter hits a bell in the completed tower as Big Bird, Cookie Monster and Bert perform a lively little dance.

My only criticism of the program involves its documentation. Although the instructions indicate otherwise, the ferris wheel's speed cannot be reduced below its default setting; however, few members of the software's intended audience would have problems with the wheel's speed during the game.

More than making up for the manual's shortcomings are the program's positive elements. The graphics, for instance, are rich and appealing, and the sound effects are excellent. And, best of all, the program's carefully crafted design guarantees many enjoyable hours of practice in important early reading skills.

While software packages that are inspired by television often turn out to be disappointments, this is definitely not the case with Letter-Go-Round. This low-priced computer program is every bit as good as the illustrious broadcast series, now in its third decade, that it was derived from. (*Hi Tech Expressions*, 584 Broadway, New York, NY 10012. C-64/\$9.95.)

—WALT LATOCHA  
OAK PARK, IL

## COLONIAL TIMES DATABASES . . A—

*Jump Into This Time Capsule  
For an Educational Trip  
To Colonial America*

Picture a time when blacksmiths pulled teeth, children played with corn husk dolls, and teeth were cleaned with honey and pulverized charcoal. By en-

gaging in activities that use Colonial Times Databases, a set of files designed for use with Bank Street Beginner's Filer and Bank Street School Filer, students can get a feel for the history and day-to-day life of colonial America.

The software's stated goal is to help history "come alive" for students in elementary and junior high school, by providing them with historical, social and personal information about colonial times. Students develop research and analytic skills as they learn to manipulate the database. The files include travelog information (demographics and history), colonial news, patriot biographies, job descriptions, recipes and game instructions, family life facts and a glossary that contains information about the vocabulary used within each of the files.

If students are not acquainted with the Bank Street programs or with how to use a database, the teacher will have to spend some time familiarizing them with the procedures for accessing and manipulating the databases.

The Teacher's Guide contains an overview of the material in each file. This includes a rationale, descriptions of fields and a bibliography. Novice and advanced activities, including reproducible student worksheets and answer keys, are provided as well.

For the most part, the activities seem clever, workable and worthwhile; they should not only engage the student in a productive database search, but should provide accurate and interesting information. For example, students are asked to simulate an advertising campaign on behalf of a particular colony; to do this, they must discover what aspect of the colony is unique. Other activities involve creating timelines, comparing colonies through the use of a Venn diagram, creating want ads for colonial occupations and engaging in historically accurate game-playing.

There are some limitations to a database like this. It isn't always clear that the screen must be scrolled to the right to get a complete entry. Also, the glossary should include pronunciations. And some of the entries could be more complete. For example, picture the student who finds, to his or her great delight, the entry on the game "bilbo catcher." There is no help in the entry or the glossary for the teacher when the child asks why the game is called that. (A bilbo, according to the Oxford English Dictionary, could be either a slender sword or a long iron bar that fettered a prisoner's feet.)

The Resource Section could be ex-

panded as well. Some of the drawings could be replaced or supported by photographs. In addition, a list of appropriate historical fiction, as well as a listing of historical exhibits throughout the country, would be a boon to teachers.

But these are mostly sins of omission. Although a database like this is no replacement for a library, it doesn't really pretend to be. It is an exceptional tool for helping children become computer literate, and it should provide any elementary or junior high classroom with plenty of information for a fascinating trip back in time. (*Sunburst Communications*, 39 Washington Ave., Pleasantville, NY 10570. C-64/\$59; lab pack \$177.)

—SHARON G. WEINER  
CHICAGO, IL

**THE INCREDIBLE  
LABORATORY . . . . . B+**  
*Bubble, Bubble, Toil . . .  
And Learn!*

The last decade has seen a new and exciting focus on critical thinking skills in the schools. Far too few textbooks or software products effectively address these important skills. The Incredible Laboratory is one of the exceptions. It helps children develop a few specific problem-solving skills in an engaging, entertaining context.

The Incredible Laboratory is a logic game appropriate for grades 3 and up. In addition to fostering note-taking habits, it develops analytic skills that are called, in the accompanying teacher's guide, "successive scanning" or "trial and error." The user must develop strategies for identifying which chemical causes what effect in the creation of a monster. Young children will quickly figure out that they must jot down notes in order to remember what mixtures cause what effects.

There are three ability levels—novice, apprentice and scientist—each with two modes. In Play mode, the user chooses chemicals to produce a monster, and then through a process of trial and error, deduces which chemical produced which body part. The levels are successively more difficult, with more chemicals to add to the mixture, and with chemicals that combine to result in new effects. At the more advanced scientist level, the chemicals produce different monster parts each time the program is run. In Challenge mode, two players collaborate in choosing chemicals to concoct a monster; both players then identify which of three



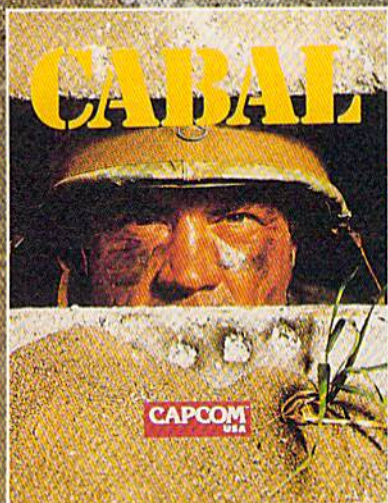
# ANOTHER ONE BITES THE DUST

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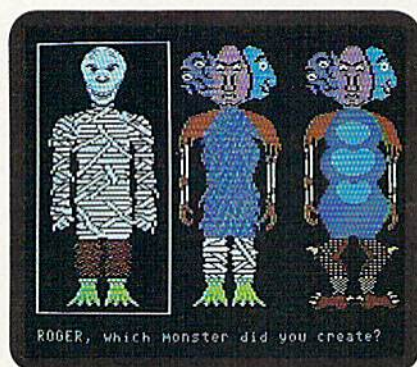
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Circle 35 on Reader Service card



monsters displayed on the screen is the monster they created.

The Challenge mode lets students brainstorm and cooperate, both excellent strategies for problem solving. The on-screen instructions for this mode are confusing, however. It's not clear from the prompts that it's meant for two players to cooperatively create the monster. Further, there will be times when a player wants to challenge him- or herself, which can be done, but only by



Monsters and mummies and whatever, oh my! Create them all in *The Incredible Laboratory*.

typing in two names (or one name twice). And, unfortunately, in either mode, once a chemical is selected, there's no turning back.

The Incredible Laboratory has clever graphics: a beaker containing the chemicals heats up, the chemicals vaporize and the monster appears in a connected container. The monster parts themselves are amusing, ranging from three very silly connected heads to cowboy boots. The sound effects are especially wonderful when, in Challenge mode, the imposter monsters dissolve with a slurpy, relatively realistic sound.

The teacher's guide, presented in a looseleaf binder, includes directions and worksheets. It also comes with classroom lessons on note taking and trial-and-error procedure. Most of the suggestions will be helpful to classroom teachers. The note-taking lesson, however, is based on identifying the main ideas and supporting details of a Paul Bunyan story; it's quite a jump from this to the type of note taking required for a chemistry experiment. An activity clearly based on scientific method might more effectively help children learn strategies necessary for a successful experiment in *The Incredible Laboratory*.

The lack of sufficient classroom materials could affect some teachers' success with this program. Suggestions for integrating the program within a cur-

riculum—including activities to precede and follow its use within various subject areas—would also help a school district justify both the use and the cost of the program. Teachers would also be well served by a discussion of additional strategies that children can use with this program.

The Incredible Laboratory could be a delightful addition to any school (or home) software library. The strategies it fosters should help students in areas throughout the curriculum, from language arts to science and math. This is a genuinely challenging program that's both educational and fun. After all, what self-respecting kid is able to resist experimenting with a bit of alien oil, bubbling mud or fuzzy mold? (*Sunburst Communications*, 39 Washington Ave., Pleasantville, NY 10570. C-64/\$65; 10-disk lab pack \$195.)

—SHARON G. WEINER  
CHICAGO, IL

## FRACTIONS: AN INTRODUCTION . . . B MATH FOOTBALL: PERCENT . . . B+

### Correct Answers Get You

### Into a Mountain Or the Endzone

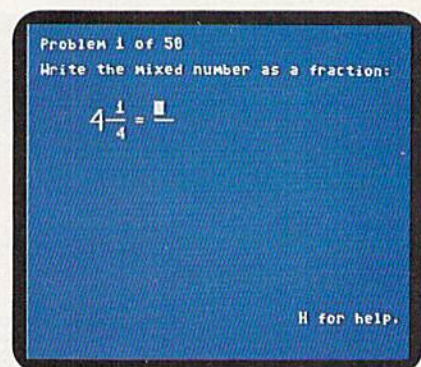
As many adults can testify from their own experience, learning fractions—both common and decimal—and the mysteries of percentage is often an excruciating process for children in the middle elementary school grades. With a thorough introduction, however, followed by consistent practice, the painful struggle can give way to the satisfaction of success. Fun can even ensue, if the practice is motivated by programs like *Fractions: An Introduction* and *Math Football: Percent*, both of which contain game aspects.

The title of the *Fractions* package is a bit misleading, for it's by no means an introduction. It does, however, provide a wealth of practice—with fairly simple examples that many children could do in their heads—on basic operations in transforming common fractions.

Three lessons are offered, each with several levels of complexity. The first deals with simplifying by reducing to lowest terms and changing improper fractions to mixed numbers; the second with finding lowest common denominators; and the third with the processes of expansion, or the reverse of simplification.

The formats and on-screen instructions are generally clear, and the ex-

amples change upon replaying the levels, so there is little repetition. One drawback—easily repairable, I should think—is that you cannot, at will, abandon the level you're in to return or advance to another lesson or level. If you want to escape, your only recourse is to press F1, which puts you back at the beginning of the whole program. This is not mentioned in the on-screen directions, and only obscurely in the otherwise adequate documentation.



*Fractions: An Introduction* provides practice with finding lowest common denominators and all sorts of transformations.

Two sections of teacher management are available: one for viewing, printing or deleting records of students' scores, which the program keeps, and the other for altering the number of problems in a level run, the percent of correct answers you need to play the reward game, time limits, and so on.

The reward game, which didn't grip me, but would, I suppose, appeal to younger children, is *Magic Mountain*, wherein you climb ladders, avoiding trap doors and bats, to escape through a door at the top. You earn a chance to play it by getting a certain percentage of problems correct in a given level (the default values are eight out of ten). I found it hard to make the little man do what I wanted, and twice during game play the computer froze up on me, so I shunned the pleasure thereafter.

The *Fractions* program surely provides suitable practice for fifth or sixth grade children and would be good remedial review for older students, but it does assume that basic instruction has been given, including, for example, the meaning of "greatest common factor." But, of course, anyone past sixth grade knows what that means.

The game aspect in *Math Football: Percent* is of an entirely different order. You play a football game throughout, solving problems to take your own team downfield or to defend against the ad-

*Continued on p. 60.*

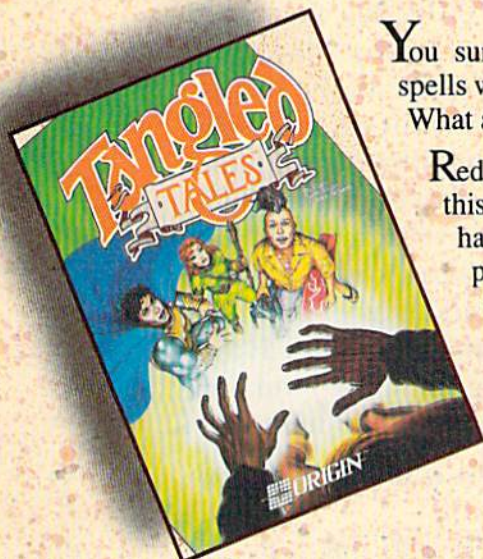


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Screens shown are for Apple II.



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# The Entertainer

*Once again, CES shows the Commodore 64 to be  
the premiere game machine.*

# W

hen you think of Chicago, you might imagine the Cubs, all-night blues clubs or some of the greatest restaurants in the country. However, each June Chicago is also the place to go for a glimpse of the hot new software titles that will appear on store shelves in the fall. The event is the International Consumer Electronics Show (CES), and if you can find your way past all the CD players, VCRs, fax machines and cellular car phones, it offers a rare opportunity to see what leading software publishers have in the works.

In partial contradiction to all the current reports (self-fulfilling prophecies?) that the C-64 market is dying and that most software publishers are shifting toward the MS-DOS environment, I was happy to find several companies still vigorously supporting the 64 with dozens of new sports simulations, war games, graphics adventures, role-playing games and action-packed arcade games. However, those of you who were hoping for a C-64 version of Lotus 1,2,3 or some serious project-management soft- ▶



B y B O B G U E R R A









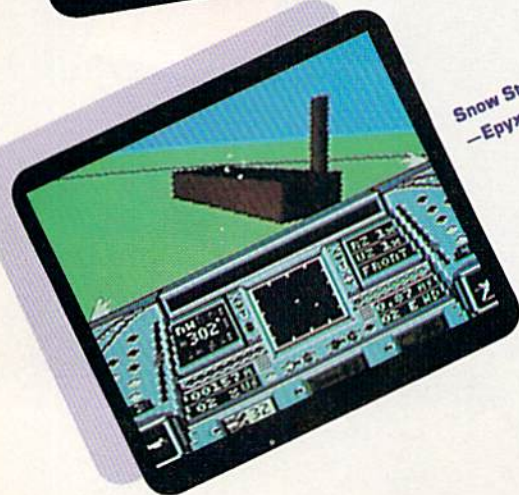
**Kings of the Beach:  
Professional  
Beach Volleyball**  
—Electronic Arts—



**Heroes  
of the Lance**  
—SSI—



**Curse of the  
Azure Bonds**  
—SSI—



**Snow Strike**  
—Epyx—

ware for your C-128 will have to wait until next year—at this CES, the focus was definitely on fun.

### ACCENT ON SPORTS

As in previous years, software publishers are busy bringing the thrill of victory and the agony of defeat home to your computer screen with sports simulations based on everything from grand prix motorcycle racing to soccer. Some of the simulations you can expect to see this fall include a pair of motorcycle racing games, *The Cycles*, from Accolade, and *Super Hang On*, from Data East.

Data East has also announced a new line of sports simulations, called MVP Sports, which will kick off this fall with ABC Monday Night Football. Other additions that Data East plans for the MVP line-up include basketball, baseball and auto racing. All games in the line will have a similar user interface and feature graphics that let you see the action from the player's perspective.

You'll also have a chance to occupy the driver's seat in Electronic Arts' Ferrari Formula One, or, for action that's hot but not quite as fast, to smack some volleyballs over the net in EA's *Kings of the Beach: Professional Beach Volleyball*.

Mastertronic is set to release four new sports simulations that, like John Elway's *Quarterback*, are endorsed by major figures. The titles to look for are Orel Hershisser's *Strike Zone*, Rick Davis's *World Trophy Soccer*, Greg Norman's *Ultimate Golf* and Magic Johnson's *Basketball*. In the same vein, Electronic Arts will release John Madden's *Football*, for all you armchair coaches who think you can make it to the Super Bowl. Another upcoming roundball game is *Omni-Play Basketball*, from SportTime, which will let you develop and coach your own teams and compete against 22 others. To enhance your game, you can also purchase additional "modules," such as *Pro League* or *College League*.

Epyx, the company that brought you *Summer, Winter, World* and *California Games*, has gone way out this time to come up with an athletic event that's out of this world. The game, called *Purple Saturn Day*, pits seven space aliens and an earthing against each other in four events: *Ring Pursuit*, *Brain Bowler*, *Tronic Slider* and *Time Jump*.

On the other hand, if you prefer your sports a little more down to earth, keep an eye out for Medalist International's *3-D Pool*, which should be available by the time you read this, and *Oriental Games*, scheduled for release in September.

### ADVENTURE/ROLE-PLAYING

Players looking for new dungeons to conquer will have plenty to choose from this fall, as several new fantasy/role-playing games hit the market. For example, Strategic Simulations will finally release *Heroes of the Lance* for the C-64, along with the long-awaited sequel to *Pool of Radiance*, called *Curse of the Azure Bonds*. SSI's Linda Blanchard assured me that *Curse of the Azure Bonds* won't be plagued by the inescapable 20-minute combat sessions that have frustrated *Pool of Radiance* players. SSI is also planning to release *Dungeon Master's Assistant, Vol. II: Characters and Treasure*, and they have clue books available for both *Hillsfar* and *Heroes of the Lance*.

If you've already fought your way through *Bard's Tales I, II and III*, you'll be glad to know you don't have to send your characters to the "retired adventurers" home just yet. Instead, you can transfer them to a new Interplay role-playing game called *Dragon Wars*. It features high-quality animated graphics, an extensive combat system, automapping and a convenient player interface with pop-up menus.

Perhaps the most exciting new role-playing game an-



nounced at CES was Origin's Knights of Legend, actually a master system plus the first of five modular games that create an immense role-playing world. This first installment, called The Realm of Ashtalarea, features more than 30 towns, hundreds of characters, excellent graphics animation and a combat system that lets you customize your characters' weapons and armor.

Origin will also release a sequel to Moebius called Wind-walker. Like Moebius, this role-playing game is set in the Orient and features animated martial arts combat sequences. The third Origin role-playing adventure to appear this fall will be Space Rogue, a unique game that combines a sophisticated space-flight simulator along with traditional role-playing elements.

Players who enjoyed Epyx's Space Station Oblivion now can get two more 3-D graphics adventures that use the same Freespace system of graphics modeling. These two games, Dark Side and Total Eclipse, from Spotlight Software, allow you to maneuver freely through three-dimensional worlds as you search for treasure and solve logic puzzles. The setting for Total Eclipse is a vast Egyptian pyramid, and Dark Side takes place in a futuristic military outpost.

Finally, for everyone who believes the best time to watch television is Saturday morning, Microillusions will release new graphics adventures based on Scooby Doo, The Flintstones and Johnny Quest. All these games feature story lines and graphics that are true to the originals, as well as arcade sequences that get you really involved in the action.

## WAR GAMES

War-gamers will see plenty of front-line action this fall, starting with Empire from Interstel, which puts you in command of invasion forces during a full-scale planetary war. You begin with control of a single city, and then must manage your troops and resources to gradually take over the world. Another strategic-level war game that armchair generals can look forward to is SSI's Storm Across Europe. Set during World War II, it lets you control several facets of the conflict, from naval attacks on enemy shipping to strategic bombing of production centers.

You'll be able to engage in head-to-head tank combat, too, with Microillusions' Fire Power, a "capture-the-flag" game featuring smoothly scrolling battlefields and your choice of three tanks. If you'd rather create your own armed conflicts, sign up for the Universal Military Simulator II, which should be available from Medalist International by the end of October. This simulation lets you build battles from the map up, using a variety of terrain types and weapons. Medalist will also release a naval simulation called Carrier Command.

There will be a couple of "striking" new aerial combat games to choose from this fall: Apache Strike, from Activision, and Snow Strike, from Epyx. Apache Strike puts you in control of an AH-64 Apache attack helicopter on a seek-and-destroy mission to knock out computers that control enemy nuclear arsenals. Snow Strike places you in the cockpit of an F-14 jet fighter, where your mission is to destroy targets involved in the production and transport of illegal drugs in South America.

One of the most intriguing new military simulations shown at the June CES was a cybertank construction kit called Omega, from Origin. Here, instead of controlling a tank that's already built, you build your own by selecting from ten chassis types and drive systems, plus a variety of weapons, scanners and special items. Because cybertanks fight on their own, you must also create the artificial intelligence that will govern your tank's actions. This is done either by choosing

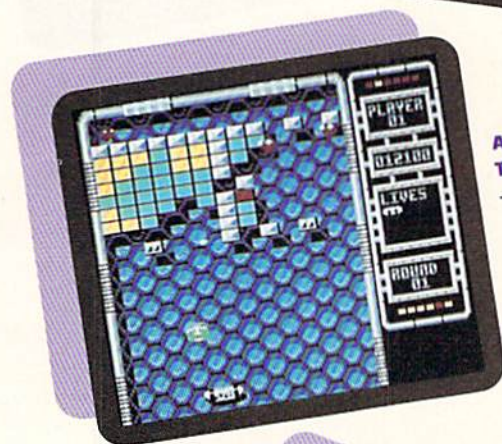
Rambo III  
—Taito—



Licence to Kill  
—Broderbund—



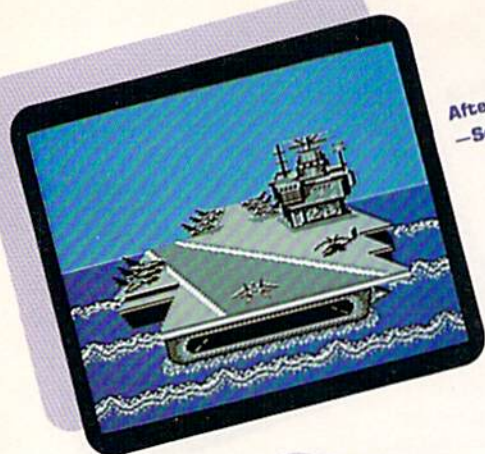
Arkanoid II:  
The Revenge of Doh  
—Taito—



Shinobi  
—Sega—

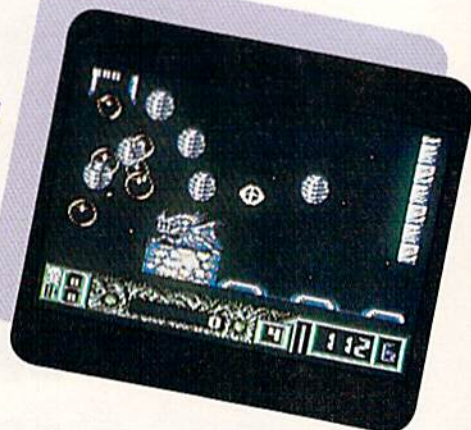






After Burner  
—Sega—

Netherworld  
—Medalist—



predesigned capsule routines from pull-down menus or by using the built-in, English-based, Cybertank Command Language. Omega is especially exciting because cybertanks created on a C-64 can battle against those created with any other version of the program. This feature is significant, since cybertank files can be up- and downloaded through electronic bulletin boards.

A similar game, Combots from Avalon Hill, will let you build heavily armored combat robots that can jump, swim, walk or fly around the battlefield. Each Combob is between 12 and 300 feet tall and manned by a pilot plus up to six crew members. The game comes with eight scenarios, in which you can play against a friend, against the computer, or with a friend against the computer.

### SEQUELITIS

If you went to the movies at all this past summer, there's a good chance you saw a sequel to a film that had already proven itself a winner at the box office. There was *Indiana Jones and the Last Crusade*, *Ghostbusters II*, *Karate Kid III*, *Lethal Weapon 2* and several others. Well, like Hollywood, the entertainment software industry understands that people are often more likely to spend money on something familiar than on a product that's new to them. Thus, many of the new arcade games announced at CES are either sequels to previous software hits or adaptations of popular movies, comic books or coin-operated arcade games.

Taito, for instance, announced *Rambo III*, an action game that follows the plot of the movie. In the computer version, your mission is to singlehandedly defeat the Soviet Army in Afghanistan and free Colonel Trautman from a heavily guarded fortress.

Activision will turn the summer blockbuster *Ghostbusters II* into a computer game late this fall. Some of the Ghostbusting activities that fans of both the movie and the original computer game can look forward to include driving the Ecto-mobile through New York, sampling the river of slime flowing beneath the city, and, of course, blasting plenty of ghosts and slimers.

Another summer movie that's being translated into a computer game is *Indiana Jones and the Last Crusade*. This Lucasfilm title features several action sequences familiar to anyone who has seen the movie. To win, you must fight your way through the moving circus train, make it past the rat-infested catacombs of Venice, and survive the three trials of the Grail Temple to reach the Holy Grail itself.

The most recent movie to turn up as a computer game for the C-64 is James Bond's *Licence to Kill*. The game, a British import from Domark that will be marketed in the U.S. by Broderbund, places you in the role of Bond on a mission to defeat a powerful drug lord. As 007, you pilot planes and helicopters, swim in shark-infested waters and shoot it out with the enemy.

### PLEASE INSERT COIN

Some of the action-packed arcade sequels that will give your joystick a workout this fall include Mastertronic's *Double Dragon II*, Mindscape's *Gauntlet II* and Taito's *Arkanoid II: The Revenge of Doh*. In addition, *Defender*, a classic coin-op from the past, will become available from Epyx. *Revenge of Defender*, as the new program is called, is an enhanced version of the original horizontally scrolling space shoot-'em-up and features seven strange new worlds to defend.

Mindscape, meanwhile, is scheduled to release C-64 versions of two recent arcade hits, Sega's *Shinobi* and *After Burner*. *Shinobi* sends you on a hostage rescue mission,



C-64



where you must use martial arts and magic to defeat thugs, mongos, ninja leaders and, would you believe it, an evil helicopter. After Burner is yet another F-14 jet combat game in which you dogfight your way to victory with guided missiles while performing graceful barrel rolls at Mach 2.

Data East announced the release of two popular arcade titles, Vigilante and Heavy Barrel. Vigilante puts your martial arts skills to the test, while Heavy Barrel sets you to eliminating terrorists.

### MAVERICK ENTRIES

Now here's a quick look at some of the new games that don't fit neatly into any category.

One that I just can't wait to get my hands on is Spotlight's 21st-century hockey game of sorts, called Speedball. In this anything-goes sport, the object is to knock a solid steel ball through your opponent's goal. There's a twist, too: During the game you can collect tokens for later use in improving your team or, if all else fails, in bribing the officials.

Another promising new title is Hot Rod, from California Dreams. This racing simulation/construction set lets you choose one of 25 classic cars, customize it with a variety of performance parts and paint jobs, and race it either on a drag strip or a winding road.

Also watch for a trio of space fantasy shoot-'em-ups from Medalist International, called Exolon, Netherworld and Eliminator. These games will be followed by Savage and Xenophobe, with X-Men arriving in late fall.

Not to be left out, Batman, the Caped Crusader, will wing his way from Gotham City to your C-64, thanks to Data East. Based on the comic-book hero, this game charges you to help Batman defeat his enemies, Penguin and Joker.

Intracorp will also bring a comic-book hero—Superman—to your computer screen, as well as the two TV heroes from Miami Vice. Whether you choose to be the Man of Steel in Superman, or Crockett and Tubbs in Miami Vice, adventure is sure to be on your agenda.

Finally, the award for the most bizarre new title goes to Psygnosis for Captain Fizz Meets the Blaster-Trons, a split-screen game that lets you team up with another player to defeat the evildoers. Interestingly, Psygnosis has just recently begun supporting the C-64 after producing software in other formats. Apparently users aren't the only ones who feel there's plenty of life left in the C-64. ■

*Bob Guerra, an editor working in the cardiac unit of the Massachusetts General Hospital, has written numerous articles and reviews for RUN.*

Table 1. Manufacturers' addresses.

**The Avalon Hill Game Company**  
4517 Harford Rd.  
Baltimore, MD 21214

**Accolade**  
550 S. Winchester Blvd.  
Suite 200  
San Jose, CA 95128

**Activision**  
(See Mediagenic, below)

**Broderbund**  
17 Paul Drive  
San Rafael, CA 94903

**California Dreams**  
780 Montague Expwy.  
#403  
San Jose, CA 95131

**Data East**  
470 Needles Drive  
San Jose, CA 95112

**Electronic Arts**  
1820 Gateway Drive  
San Mateo, CA 94404

**Epyx**  
600 Galveston Drive  
PO Box 8020  
Redwood City, CA 94063

**Interplay Productions**  
(Distributed by Mediagenic)  
1575 Corporate Drive  
Costa Mesa, CA 92626

**Interstel**  
(Distributed by Electronic Arts)  
PO Box 57825  
Webster, TX 77598

**Intracorp**  
14160 SW 139th Court  
Miami, FL 33186

**Lucasfilm Games**  
(Distributed by Electronic Arts)  
PO Box 10307  
San Rafael, CA 94912

**Mastertronic**  
711 W. 17th St.  
Suite G9  
Costa Mesa, CA 92627

**Medalist International**  
(Division of Microprose)  
180 Lakefront Drive  
Hunt Valley, MD 21030

**Mediagenic**  
3885 Bohannon Drive  
Menlo Park, CA 94025

**Microillusions**  
(Distributed by Mediagenic)  
17408 Chatsworth St.  
Granada Hills, CA 91344

**Mindscape**  
3444 Dundee Rd.  
Northbrook, IL 60062

**Origin**  
136 Harvey Rd.  
Building B  
Londonderry, NH 03053

**Psygnosis Ltd.**  
PO Box 483  
Addison, IL 60101

**Sega**  
(See Mindscape, above)

**SportTime**  
3187-G Airway Ave.  
Costa Mesa, CA 92626

**Spotlight Software**  
(Distributed by Cinemaware)  
4165 East Thousand Oaks Blvd.  
Westlake Village, CA 91362

**Strategic Simulations Inc.**  
(Distributed by Electronic Arts)  
675 Almanor Ave.  
Sunnyvale, CA 94086

**Taito**  
267 West Esplanade  
North Vancouver, B.C.  
V7M 1A5 Canada



# Maze Run

*Lose yourself for hours in an endless series of mazes.*



By LYSLE SHIELDS

**W**hether you're an old maze addict or have just come to the pastime, Maze Run will amuse you for hours with its infinite supply of puzzles to be solved in a race against the clock. As you start the program, it generates a new maze every two seconds until you press the space bar to select one. Then you must maneuver the glowing ball from the upper-left corner of the maze to the E in the lower-right corner within the time allotted and with the least re-tracing of steps.

Each time the ball passes a fresh space, the computer emits a beep and adds a point to your score. If you send the ball back over a previously traveled space, a lower-pitched beep sounds and you lose a point. If the ball passes through the same space several times, you lose a point each time, but Maze Run doesn't use negative numbers, so




your score can't go below zero.

When the ball reaches the E at the end of the maze, you get a bonus of 100 points for each second left on the clock. If you run out of time, the game ends,

and you can choose another maze.

At first, a full minute is allowed, but whenever you complete a maze before time runs out, the program calculates the allotted time for your next race by adding five seconds to one-and-a-half times the seconds you had left.

As you play, the top of the screen always shows your highest score so far in the session, the number of seconds left to solve the current maze and your score so far for the current maze.

Type in Listings 1 and 2, using RUN's Checksum program to detect typing errors, and be sure to save them to disk before running. Then load and run Listing 2 to create the MAZE.OBJ program. To play, load and run Listing 1. To guide the ball through the maze, use a joystick plugged into either port. 

*Lysle Shields wrote this program last year when he was a junior in high school.*

**Running Instructions:** Type in Listings 1 and 2 and save them to disk. Then load and run Listing 2 to create MAZE.OBJ. To play, load and run Listing 1.

**Listing 1. Loader program. (Available on ReRUN disk. See page 36.)**

```

5 IF Q=1 THEN SYS 12288 :REM*80 60 IF X=21 THEN PRINT"(CTRL 2)" :REM*146
10 POKE 53280,0:POKE 53281,0:PR ; :REM*111 150 PRINT"{HOME}{11 CRSR DNs}{C
INT"(SHFT CLR){CTRL 2}"; 70 PRINTTAB(X*.77);"MAZE RUN" TRL 8}";TAB(19)"BY{CRSR DN}
:REM*207 :REM*166 " :REM*129
20 FOR X=1 TO 21 :REM*223 80 NEXT X :REM*131 160 PRINTTAB(10);"{COMD 7}LYSLE
30 IF X=1 THEN PRINT"{COMD 4}"; 100 PRINT"{HOME}"; :REM*42 {2 SPACES}E. SHIELDS JI"
:REM*38 :REM*35 :REM*100
40 IF X=8 THEN PRINT"{COMD 5}"; 120 PRINTTAB(X*.77){8 SPACES}" 170 Q=1:LOAD"MAZE.OBJ",8,1
:REM*116 :REM*2 :REM*228
50 IF X=15 THEN PRINT"{COMD 8}" 130 NEXT X :REM*181
; :REM*222 140 FOR X=1 TO 15:PRINT:NEXT X

```

**Listing 2. MAZE.OBJ creator program. (Available on ReRUN disk. See page 36.)**

```

0 REM THIS LIST 2 CREATES (AND 5 OPEN 8,8,8,"MAZE.OBJ,P,W" 10 READ A$:IF A$="-1" THEN CLOS
SHOULD NOT BE CALLED) MAZE.OB :REM*250 E8:PRINT:PRINT"ALL DONE!":EN
J :REM*253 6 CT=0:PRINT"(SHFT CLR)":REM*56 D :REM*129

```

RUN it right: C-64; joystick



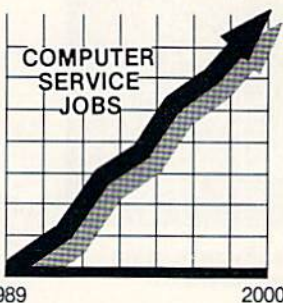
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# MAZE RUN

```

12 PRINT "{HOME}READING LINE "+S
   TR$(CT):CT=CT+1 :REM*141
15 IF LEN(A$)<62 THEN 55 :REM*254
20 B$=MID$(A$,1,20)+MID$(A$,22,
   20)+MID$(A$,43,20) :REM*242
25 FOR I=1 TO 30 :REM*181
30 C$=MID$(B$, (I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
   :REM*209
35 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55 :REM*85
40 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55 :REM*136
45 BY=H*16+L:PRINT#8,CHR$(BY);
   :REM*67
50 NEXT:GOTO 10 :REM*115
55 IF LEN(A$)<21 THEN B$=A$:GOT
   O 70 :REM*184
60 IF LEN(A$)<42 THEN B$=LEFT$(
   A$,20)+RIGHT$(A$, (LEN(A$)-21
   )):GOTO 70 :REM*176
65 B$=LEFT$(A$,20)+MID$(A$,22,2
   0)+RIGHT$(A$,LEN(A$)-42)
   :REM*140
70 FOR I=1 TO LEN(B$)/2:REM*221
75 C$=MID$(B$, (I*2)-1,2):H$=LEF
   T$(C$,1):L$=RIGHT$(C$,1)
   :REM*140
80 H=VAL(H$):IF H$>"9" THEN H=A
   SC(H$)-55 :REM*56
85 L=VAL(L$):IF L$>"9" THEN L=A
   SC(L$)-55 :REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
   :REM*148
95 NEXT:GOTO 10 :REM*160
100 REM MAZE RUN ML :REM*124
101 DATA 0030A937850120DF3020*D
   33220B23220BD32208F*3120863
   920613620EF36 :REM*67
102 DATA 20B23220BD32200F3720*C
   43420DF3420D33220A9*35200F3
   7A9038D5861A9 :REM*203
103 DATA 068D5961A9248D5661A9*1
   58D5761205B300820A3*3720583
   52890DC205333 :REM*89
104 DATA 4C1C30206D3120933320*4
   43420AC322CD0323024*2092302
   04434208231AD :REM*113
105 DATA 5861CD5661D0EAAD5961*C
   D5761D0E220BD322087*3220363
   218603860202E :REM*8
106 DATA 3120AD34204434202633*2
   0713320C332200632B1*0249FF8
   D5A61AD01DC2D :REM*251
107 DATA 00DC49FF2D5A61290FDD0*0
   160C901F00DC902F00D*C904F00
   DC908F00D060CE :REM*19
108 DATA 596160EE596160CE5861*6
   0EE586160A2008A9D00D*4E8E01
   900F8A9058D05 :REM*163
109 DATA D4A90F8D18D4A9078D0C*D
   4A9878D07D4A9218D08*D460A9C
   38D00D4A9108D :REM*253
110 DATA 01D4A9108D04D4A9118D*0
   4D460A9618D00D4A908*8D01D4A
   9108D04D4A911 :REM*43
111 DATA 8D04D460200632AD5861*C
   D8031D009AD5961CD81*31D0016

```



Time goes by quickly in this game, so get through the maze as fast as you can!

```

0AD58618D8031 :REM*133
112 DATA AD59618D8131A5032903*0
   91C8503B102C900F009*2016339
   00320FB3260A9 :REM*129
113 DATA FF910220E03260A2008A*9
   D001C9D001D9D001E9D*001FE8D
   0F1600000AC8E :REM*84
114 DATA 31A200CAD0F8D8D0FA60*4
   078AD14038DA831AD15*038DA93
   1A9AA8D1403A9 :REM*54
115 DATA 318D1503586000002CD0*3
   23053CE0532AE0532E0*FFD02EA
   9808D0BD4A93C :REM*193
116 DATA 8D0532CED232AED232E0*2
   FD01AA9398DD232CED1*32AED13
   2E02FD00BA930 :REM*30
117 DATA 8DD1328DD23220BD3220*C
   332201732A281ADAB32*C900D00
   320BD32C900AB0 :REM*251
118 DATA 02A2218E0BD46CA8313C*A
   E5961BD76508502BD90*508503A
   C586160ADD232 :REM*59
119 DATA 290F8DAB32ADD132290F*A
   AE000F00C18A90A6DAB*328DAB3
   2CAD0F4602017 :REM*47
120 DATA 32ADAB328DAA324EAB32*1
   8ADAB326DAA328DAB32*ADAB321
   869058DAB32C9 :REM*228
121 DATA 5A9005A95A8DAB322062*3
   260A200ADAB328DAA32*ADAB323
   8E90A8DAB3290 :REM*159
122 DATA 03E8D0ECADAA3209308D*D
   2328A09338DD1326020*1732AEA
   B32A064E000F0 :REM*38
123 DATA 168A48984820E0322026*3
   368A868AA88D0EFA064*CAD0EA6
   00000A9008DD0 :REM*13
124 DATA 3260A9368DD132A9308D*D
   23260A9FF8DD03260AD*D1328D6
   304ADD2328D64 :REM*91
125 DATA 0460000600A200A9009D*4
   133E8E006D0F860A005*B941331
   86901C90AD008 :REM*251
126 DATA A9009941338810EE9941*3
   320043160A005B94133*38E901C
   9FFD008A90999 :REM*169
127 DATA 41338810EE9941332019*3
   160A005B94133C900D00*058810F
   618603860A005 :REM*184
128 DATA B941330930996F048810*F
   5A000B94D33996904C8*C006D0F

```

```

56000000000000 :REM*220
129 DATA 00000000000000013030F*1
   2052DA200BD4133DD47*33F003B
   00760E8E006D0 :REM*10
130 DATA F060BD41339D4733E8E0*0
   6D0F5A200BD47330930*9D5304E
   8E006D0F3A200 :REM*74
131 DATA BD8E339D5904E8E005D0*F
   5602D08090708A9288D*F8078DF
   829A9298DF907 :REM*106
132 DATA 8DF929A200BDBA339D00*0
   ABDFF339D400AE8E040*D0EF20C
   A3460000003C :REM*58
133 DATA 00006E000005E00007E00*0
   07E00003C0000000000*0000000
   000000000000 :REM*115
134 DATA 0000000000000000000*0
   0000000000000000000*0000000
   000000000000 :REM*42
135 DATA 000000000000000007E00*0
   0600000780000600000*6000007
   E00000000000 :REM*198
136 DATA 0000000000000000000*0
   0000000000000000000*0000000
   000000000000 :REM*44
137 DATA 0000000000000000000*0
   0000000EAA908D5561*AE5861A
   C596120813490 :REM*231
138 DATA 05A9018D55618E00D08C*0
   1D0AE5661AC57612081*349009A
   9020D55618D55 :REM*208
139 DATA 61EA8E02D08C03D0AD55*6
   18D10D060980A0A0A18*6932A8A
   9008D5B618A0A :REM*105
140 DATA 2E5B610A2E5B610A2E5B*6
   11869189003EE5B61AA*AD5B61D
   00218603860AE :REM*248
141 DATA DE34BDD0348D27D08D28*D
   0E8E00ED002A2008EDE*3460A90
   08D15D060A903 :REM*221
142 DATA 8D15D0600F00C0B04060E*0
   30D05070809020A0020*0A3372C1
   E38306820CF35 :REM*61
143 DATA A9008D7250A9188D7350*A
   9008D7450A9278D7550*203737A
   9018D7250A903 :REM*58
144 DATA 8D7350A9028D7450A925*8
   D7550203737A9058D72*50A9168
   D7350A9028D74 :REM*73
145 DATA 50A9258D755020373720*F
   835A200BD50359D5F04*E8E008D
   0F52071332026 :REM*134
146 DATA 3320F235AD01DC2910D0*9
   0600D011A0502012150E*20CF35A
   9008D7250A918 :REM*173
147 DATA 8D7350A9008D7450A927*8
   D7550203737A9018D72*50A9038
   D7350A9028D74 :REM*12
148 DATA 50A9258D7550203737A9*0
   58D7250A9168D7350A9*08D745
   0A9258D755020 :REM*221
149 DATA 373720713320F8354CF2*3
   520CF35A9018D7250A9*038D735
   0A9028D7450A9 :REM*255
150 DATA 258D7550203737207133*2
   0263320C3324CF235A2*00BD000
   49D0028BD0005 :REM*29
151 DATA 9D0029BD00069D002ABD*0
   0079D002BE8D0E5A9A8*8D18D06

```








# MAZE RUN

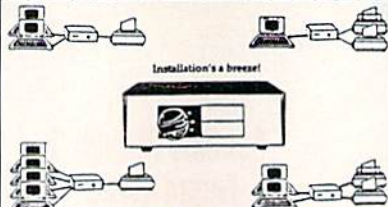
0A9188D18D060	:REM*201	10260BD765085	:REM*1	6398D0650C8C8	:REM*187
152 DATA A9F08504A9048505A20C*A		166 DATA 02BD9050850360A9008D*1		180 DATA 686048AD01DC2910D005*A	
006A9038D0B5020F438*AD04504		E38A9028D7150207C38*A20EA00		9FF8D1E38205C396891*0260205	
A8D0450AD0650	:REM*16	8A9088D0A50A9	:REM*202	C39B10260BD0D	:REM*209
153 DATA 0A8D0650AD05500A0A8D*0		167 DATA 022042392C1E38100160*2		181 DATA 508502BD3F50850360AD*1	
550AD0350D00450D005*50D065		0CE38B006201F381890*EF20F43		2D04D0508D0050D01*508D015	
0498F8D035098	:REM*72	8A902204239AD	:REM*109	04D02508D0250	:REM*217
154 DATA 48AC0B50AD0350910468*A		168 DATA 0350C901F018AD0450C9*0		182 DATA 60A9008D715020A53860*A	
8EE0B50AD0B50C925F0*06C8C8C		1F01BAD0550C901F01E*AD0650C		9AD8502A9508503A200*A5029D0	
04AD0BA18A928	:REM*12	901F0214C7D39	:REM*200	D50A5039D3F50	:REM*114
155 DATA 650485049002E605E8E*E		169 DATA E8A902204239E84CBE37*C		183 DATA E031F00FE818A9486502*8	
02CD0A26078A5014904*8501A90		AA902204239CA4CBE37*C8A9022		5209002E6031890E3A9*008502A	
085FDA92885FE	:REM*180	04239C84CBE37	:REM*218	9048503A200A5	:REM*246
156 DATA A9FF85FBA9D785FCA000*B		170 DATA 88A902204239884CBE37*0		184 DATA 029D7650A5039D905018*A	
1FB0A91FDC6FBA5FBC9*FFD002C		08E0C502067392903AA*8E0B50B		928650285029002E603*E8E019D	
6FCC6FDA5FDC9	:REM*94	D0350C900F00A	:REM*100	0E66081410000	:REM*151
157 DATA FFD002C6FEA5FDC9000D*E		171 DATA E8E004D0F4A2001890EF*E		185 DATA 0000838355500000000*8	
1A5FEC920D0DBA9FF85*FBA91F8		003F015E002F01EE001*F027AE0		3838141000000000FFFF*5550000	
5FCA000B1FD29	:REM*1	C50E8A9012042	:REM*48	00000FFFFF8181	:REM*154
158 DATA 558DEE360A0DEE368DEE*3		172 DATA 39E84C4239AE0C5088A9*0		186 DATA 80808080838355958080*8	
691FD29554A411FB91*FBE6FBD		1204239884C4239AE0C*50C8A90		0808383818180808080*FFFF959	
002E6FCE6FDD0	:REM*85	1204239C84C42	:REM*169	580808080FFFF	:REM*122
159 DATA 02E6FEA5FDC9000D06A5*F		173 DATA 39AE0C50CAA901204239*C		187 DATA 43430303030383835757*0	
EC928D0D0A000B9D239*990024C		A4C4239A206A003A9000*E0C9000		3030303838383430303*0303FFF	
8C0E0D0F5A501	:REM*238	EE02CB00AC006	:REM*230	F575703030303	:REM*80
160 DATA 49048501586000AD02DD*0		174 DATA 9006C04AB0029003AD71*5		188 DATA FFFF8383838383838383*5	
9038D02DDAD00DD29FC*09038D0		0204239C8C04ED0E1E8*E030D0D		797838383838383838383*8383838	
0DDA9188D18D0	:REM*77	A60A206A003A9	:REM*144	3FFFFFFF00000000000000000000	:REM*226
161 DATA AD16D009108D16D060A9*0		175 DATA 00E00C9000E002CB00AC00*0		189 DATA FFFFFFFF00000000000000000000	
9A2009D00D89D00D9D0*00DA9D0		69006C04AB0029006AD*7150204		0A0000000000000000000000000000	
0DBE8D0F1A900	:REM*218	239C8C04ED0E1	:REM*243	0A0000000000000000000000000000	
162 DATA 8D20D0A90F8D21D0A90B*8		176 DATA E8E03D0DA6020173948*A		190 DATA A0A0A0A0A0A00000000000000000	
D22D0A90C8D23D060AE*7250A99		D0350C900F018AD0450*C900F01		00000000A0A0A0A0A0A0A0A0A0A0A0A0	
08DAA50A9918D	:REM*151	1AD0550C900F0	:REM*246	0A0A0A0A59555	:REM*159
163 DATA AB50A9928DAC50207937*A		177 DATA 0AAD0650C900F0036838*6		191 DATA 00000000005555550A0A*0	
9938DAA50A9948DAB50*A9958DA		068186048E82056398D*0350CAC		A0A0A5655550000000000000000000	
C50E8EC7350F0	:REM*196	A2056398D0450	:REM*54	90000000000050	:REM*78
164 DATA 062079371890F4A9968D*A		178 DATA E8C82056398D05508888*2		192 DATA 5060B0F0F00000000000000000	
A50A9978DAB50A9988D*AC504C7		056398D0650C8686048*E8E8205		0F0F0000000000008BAA*EEAA44	
937209837AC74	:REM*89	6398D0350CACA	:REM*112		:REM*127
165 DATA 50ADAA509102ADAB50C8*C		179 DATA CACA2056398D0450E8E8*C		193 DATA -1	:REM*51
C7550F00591021890F5*ADAC509		8C82056398D05508888*8888205			



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DB9, Y cable		1F 2M JSY	\$4.95			
DB9, 6 ft.	M.M.	DB9MM	\$7.95	M.F.	DB9MF	\$7.95
DB25, M.M.	3 ft. R3MM		\$7.95	6 ft. R6MM		\$8.95
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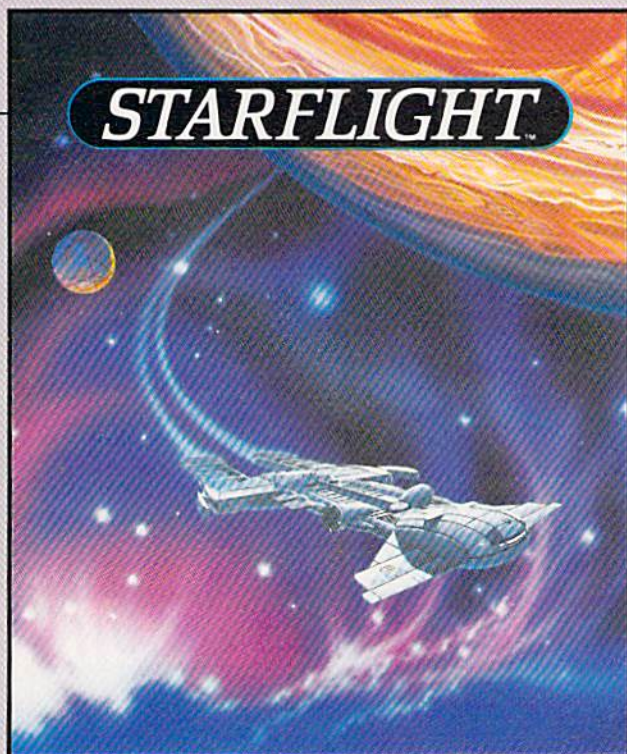
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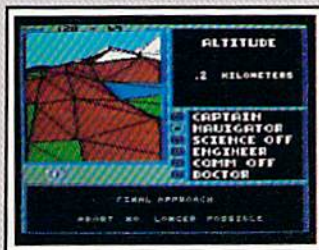
Your navigator zeroes in on a red dwarf star. Long-range scans show three planets: a gas giant, a frozen ice world, and a blue-oceaned paradise that looks just like heaven. A good place to land.

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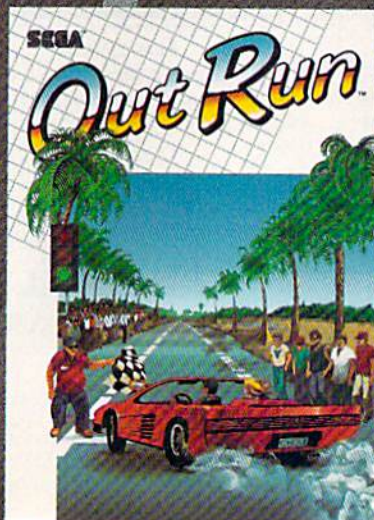


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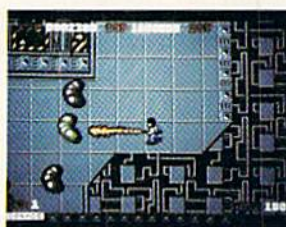
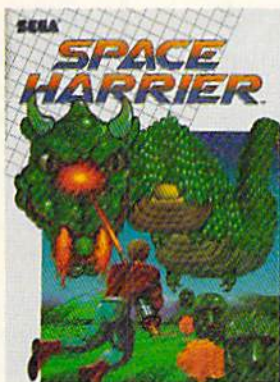
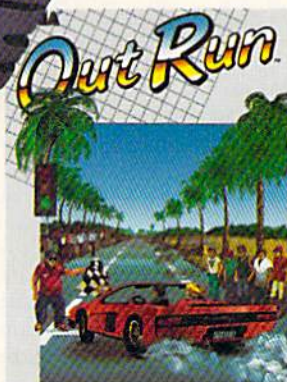
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# Functional Keys

*Redefine your C-64 function keys to handle such tasks  
as saving, loading and running programs.*



By ANDREW LITTLE

**U**ser-definable function keys are a boon to C-128 programmers, but unfortunately the C-64 doesn't offer them. My Function Key 64 program fills that gap. Written in 6502 assembly language, it lets you define the eight function keys on the C-64 just as on the C-128.

The program resides at memory address \$C000, so the SYS 49152 command turns it on. QUIT turns it off until you SYS 49152 again.

Enter the word KEY to display a list of the eight function keys as they are currently defined. Table 1 shows the definitions I've given them.

How do you install your own definitions? Try typing KEY 2, "LOAD" + CHR\$(34) + "\$" + CHR\$(34) + ",8" + CHR\$(13) + "LIST" + CHR\$(13) and pressing return. You have just defined F2 to print the following:

```
LOAD "$",8 <RETURN>
LIST <RETURN>
```


Now press F2 and see what happens. A listing of the disk directory appears, right? Wrong. Unlike user definitions on the C-128, these can be turned on and off as desired, which lets you run programs that expect the function keys

**Table 1. Function keys as defined in the program.**

```
Key 1—LOAD
Key 2—undefined
Key 3—SAVE
Key 4—undefined
Key 5—LIST+CHR$(13)
Key 6—undefined
Key 7—RUN+CHR$(13)
Key 8—undefined
```

to do what Commodore said. KEYON turns them on, and KEYOFF turns them off.

Your definitions must consist of strings in quotes, such as "LIST", and character controls, such as CHR\$(13), tied together with plus signs. Follow the same rules as for assigning string variables. You can assign up to 25 characters to each key. For example, "LIST" counts as four characters and CHR\$(13) as one. If you assign more than 25 characters to a key, it will overwrite the following key.

Add Function Key 64 to your programming repertoire. With it, you can make your programs a lot more versatile! 

*Andrew Little, a professional programmer, does most of his personal computing on a C-128, yet has written many small programs that make the C-64 easier to use.*

**Running Instructions:** Type in Listings 1 and 2; then run Listing 2 to create the machine language KEY64 file. To use, load and run Listing 1.

**Listing 1. Loader program. (Available on ReRUN disk. See page 36.)**

```
10 IF A=0 THEN A=1:LOAD"KEY64",
   8,1 :REM*165
20 SYS 49152 :REM*186
30 END :REM*158
```

**Listing 2. KEY64 machine language program creator. (Available on ReRUN disk. See page 36.)**

```
0 REM THIS LISTING CREATES (AND 20)+MID$(A$,43,20) :REM*242 O 70 :REM*184
  SHOULD NOT BE CALLED) KEY64 25 FOR I=1 TO 30 :REM*181 60 IF LEN(A$)<42 THEN B$=LEFT$(
  :REM*175 30 C$=MID$(B$, (I*2)-1,2):H$=LEF A$,20)+RIGHT$(A$, (LEN(A$)-21
5 OPEN 8,8,8,"KEY64,P,W":REM*24 T$(C$,1):L$=RIGHT$(C$,1) ):GOTO 70 :REM*176
6 CT=0:PRINT" {SHT CLR}":REM*56 :REM*209 65 B$=LEFT$(A$,20)+MID$(A$,22,2
10 READ A$:IF A$="-1" THEN CLOS SC(H$)-55 :REM*85 0)+RIGHT$(A$,LEN(A$)-42)
E8:PRINT:PRINT"ALL DONE!":EN D :REM*129 70 FOR I=1 TO LEN(B$)/2:REM*221
12 PRINT" {HOME}READING LINE "+S SC(L$)-55 :REM*136 75 C$=MID$(B$, (I*2)-1,2):H$=LEF
TR$(CT):CT=CT+1 :REM*141 45 BY=H*16+L:PRINT#8,CHR$(BY); T$(C$,1):L$=RIGHT$(C$,1)
15 IF LEN(A$)<62 THEN 55 :REM*67 80 H=VAL(H$):IF H$>"9" THEN H=A
:REM*254 50 NEXT:GOTO 10 :REM*115 SC(H$)-55 :REM*56
20 B$=MID$(A$,1,20)+MID$(A$,22,
```

RUN it right: C-64



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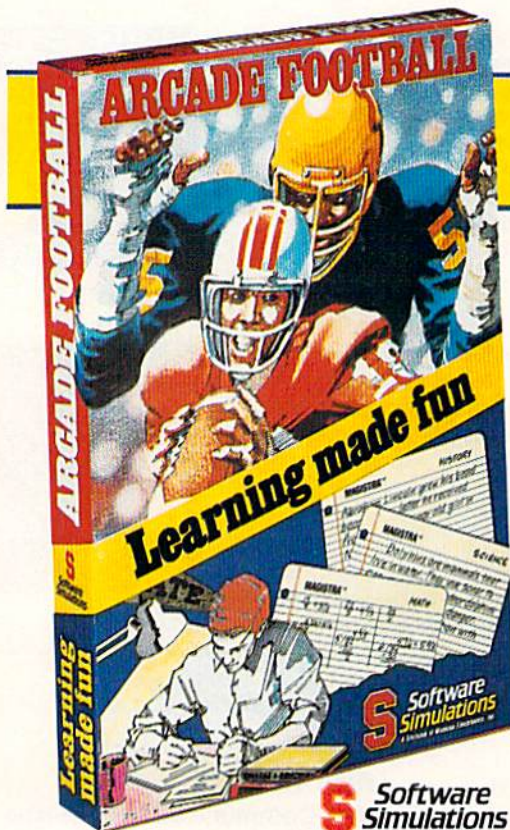


# FUNCTIONAL KEYS

```

85 L=VAL(L$):IF L$>"9" THEN L=A
SC(L$)-55:REM*84
90 BY=H*16+L:PRINT#8,CHR$(BY);
:REM*148
95 NEXT:GOTO 10:REM*160
100 REM KEY64 ML:REM*119
101 DATA 00C0A90EA2C08D04038E*0
5032093C2608C5102A0*00B9E3C
2F01CD90002D0:REM*248
102 DATA 04C84C13C0A000B9E8C2*F
020D90002D04C84C23*04C7CA
5A97CA2A58D04:REM*111
103 DATA 038E0503A9ECA0C2201E*A
B4C4FC1B90002D034C*77C0C94
FF0034CF5C1C8:REM*183
104 DATA B90002C94ED0034C40C1*C
946F0034CF0C1C8B900*02C946F
0034CF0C1C4CF:REM*182
105 DATA C1A000A98D20D2FFA200*B
DE8C2F00720D2FFE84C*80C0A92
020D2FF981869:REM*78
106 DATA 3120D2FFA92C20D2FFA9*2
020D2FF980A0A0A0A*AAA90008
D5702BD00CDF0:REM*83
107 DATA 7A8D5202C920902EC95B*B
02AAD5702F005A92B20*D2FFBD0
0CDF060E88D52:REM*224
108 DATA 02C92090AC95BB00620*D
2FF4CC8C0CAA9FF8D57*024CE8C
0AD5702F005A9:REM*150
109 DATA 2B20D2FFA94320D2FFA9*4
820D2FFA95220D2FFA9*2420D2F
FA92820D2FF8E:REM*191
110 DATA 53028C5402A900AE5202*2
0CDBDAE5302E8AC5402*A92920D
2FFA9FF8D5702:REM*13
111 DATA 4CAEC0A98D20D2FFC8C0*0
8B0034C7EC020D2FF4C*74A478A
95EA2C18D8F02:REM*213
112 DATA 8E9002584C74A478A948*A
2EB8D8F028E9002584C*74A4EE5
602A9FFCD5602:REM*89
113 DATA D008A9FF8D55028D5602*A
200AD8D02C901D001E8*A5CBC90
3D00EE000D005:REM*211
114 DATA A0074CCAC1A0084CCAC1*C
904D00EE000D005A001*4CCAC1A
0024CCAC1C905:REM*31
115 DATA D00EE000D005A0034CCA*C
1A0044CCAC1C906D00E*E000D00
5A0054CCAC1A0:REM*89
116 DATA 064CCAC14C48EB4C48EB*C
C5502F0208C55028898*0A0A0A0
A0AA8A200B900:REM*36
117 DATA CDF0089D7702E8C84CDC*C
186C6A94085CB60A20B*6C0003A
2FFA001867A84:REM*146
118 DATA 7B207300207300207300*2
0730090034CF0C138E9*310A0A0
A0A0A8D510220:REM*207
119 DATA 7300C92CF0034CF0C120*7
300D0034C88C2C92BF0*F4C922D
0034C73C2C943:REM*188
120 DATA F0034CF0C12073002073*0
0207300C924F0034CF0*C120730
0C928D0F6209B:REM*63
121 DATA B78AAC51029900CDC88C*5
102207900C929F0BA4C*F0C1C92
8F0DD4CF0C120:REM*32
122 DATA 7300F0D2C922F0A7AC51*0
29900CDEE51024C73C2*AC5102A
9009900CD4C74:REM*203
123 DATA A4A000A9FF8D55028C51*0
2A2008E5602AD51020A*0A0A0A0
AA8BDC7C2F00C:REM*235
124 DATA C92AF0129900CDC8E84C*A
BC2EE51029900CDE84C*A2C2604
C4F4144220000:REM*73
125 DATA 534156452200004C4953*5
40D000052554E0D0000*2A51554
954004B455900:REM*94
126 DATA 8D8D4B45592049532044*4
95341424C45448D8D53*5953203
4393135322054:REM*254
127 DATA 4F2052452D454E41424C*4
58D00:REM*25
128 DATA -1:REM*241

```



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The background of the cover art is a dynamic aerial battle scene. In the upper left, a fighter jet is engulfed in a large, bright orange and yellow explosion. To its right, a missile is shown in mid-flight, leaving a white smoke trail. On the right side of the frame, the nose and cockpit of a large, detailed fighter jet are visible, angled towards the viewer. The sky is a deep blue with wispy white clouds. The lower half of the image is dominated by a large, close-up, and slightly blurred image of a human eye, looking directly at the viewer. The eye has a brown iris and a white sclera. The overall color palette is dominated by the blues of the sky, the oranges and yellows of the explosion, and the browns of the eye.

# HEAVY METAL HEAVY METAL



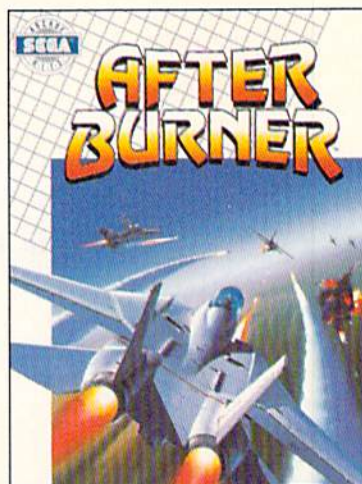


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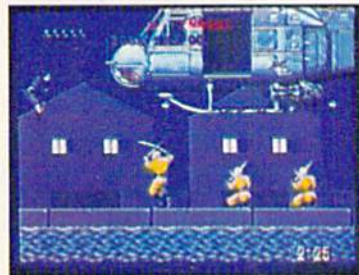
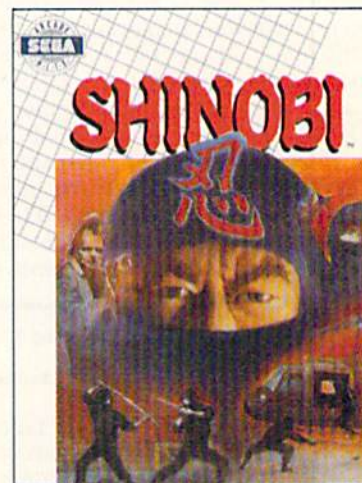
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# 3-D Surfaces

*Now you can merge mathematics with your C-128 to display intricate landscapes.*

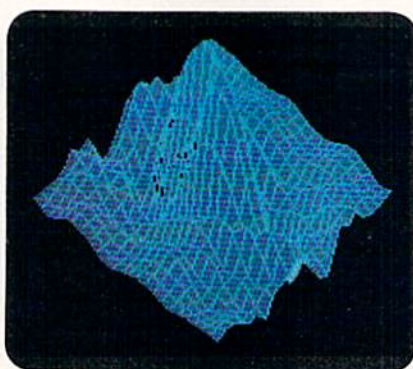


By BRANDON CORFMAN

**H**ave you ever been awed by those three-dimensional surface models in science-fiction movies and wished you could do the same on your home computer? Now, with 3-D Surfaces, you can create your own landscapes on your C-128. Using the multicolor screen, the program can generate surface models at three levels of complexity—and even turn them upside down!

## USING THE PROGRAM

When you run 3-D Surfaces, the program gives you a choice of several options. First, you can plot any one of eight different landscapes by pressing numbers 1 to 8 on the keyboard. You're next asked whether you want to plot your chosen landscape in low, medium or high resolution. (The higher the resolution, the longer your 128 takes in calculating and drawing time.) The final option is whether to plot the surface upside down. Once you've answered



One of eight hi-res landscapes produced by 3-D Surfaces.

yes or no to this question, you're well on your way.

To decrease execution time, 3-D Surfaces kicks the 128 into Fast mode for making all its calculations. Unless you are using the highest resolution, however, the computing time should not be very long. If you have an RGB monitor,

you can track the program's progress on the 80-column screen. The program returns to Slow mode when it's ready to plot.

## SAVING AND LOADING SCREENS

If you like a particular screen and want to save it to disk for use in your own programs or for later viewing, just break out of the program with the run-stop key and use the following command, with your own filename in place of "picture."

BSAVE "picture",B0, P7168 TO P16383

To load the same screen for viewing, use these commands:

BLOAD "picture":GRAPHIC 3

I hope you enjoy the landscapes 3-D Surfaces provides. ☐

*Brandon Corfman, a typesetter for a printing company, also runs his own word processing/desktop publishing business.*

**Running Instructions:** Type in Listing 1, using RUN's Checksum program, save it to disk and run it.

**Listing 1. 3-D Surfaces program. (Available on ReRUN disk. See page 36.)**

```

10 FAST:COLOR0,1:COLOR4,1:COLOR
  1,7:COLOR2,15:COLOR3,4:COLOR
  6,7:GRAPHIC3,1:GRAPHIC0:TRAP
  680 :REM*52
20 H=100:D=250:LX=-3:HX=3:LY=-3
  :HY=3 :REM*255
30 PRINT "{SHT CLR}{CTRL 8}"SP
  C(14)"{12 SHT Cs}":PRINTSPC
  (14)"3-D SURFACES":PRINTSPC(
  14)"{12 SHT Cs}":REM*35
40 PRINT "{2 CRSR DNs}{CTRL 4}W
  HICH FUNCTION? (1-8)":SLOW
  :REM*115
50 GETKEYFU$:FU=VAL(FU$):REM*22
60 IFFU=.ORFU=9THEN40 :REM*24
70 ONFUGOSUB600,610,620,630,640
  ,650,660,670 :REM*115
80 PRINT "{CRSR DN}{CTRL 9}L{CT
  RL 0}O, {CTRL 9}M{CTRL 0}ED
  OR {CTRL 9}H{CTRL 0}I-RES CA
  LCULATIONS?" :REM*85
90 GETKEYA$:IFA$<>"L"ANDA$<>"H"
  ANDA$<>"M"THEN90 :REM*207
100 IFA$="L"THENM=7:N=7:GOTO130
  :REM*222
110 IFA$="M"THENM=15:N=15:GOTO1
  30 :REM*102
120 M=23:N=23 :REM*180
130 PRINT "{CRSR DN}GRAPH UPSID
  E DOWN? (Y/N)" :REM*230
140 GETKEYA$:IFA$<>"Y"ANDA$<>"N
  "THEN140 :REM*146
150 IFA$="N"THENUD=1:GOTO170
  :REM*48
160 UD=-1 :REM*51
170 FAST:GOSUB340 :REM*83
180 DIMXC(M+1,N+1),YC(M+1,N+1):
  ZX=(HX-LX)/M:ZY=(HY-LY)/N
  :REM*116
190 PRINT CHR$(27)"X" :REM*5
200 PRINT "{SHT CLR}{CTRL 2}CO
  MPUTING VALUES" :REM*102
210 GOSUB 460:PRINT"{SHT CLR}{
  CTRL 9}{CTRL 0}SWITCH TO 40
  COLUMNS" :REM*239
220 GRAPHIC3:SLOW:FORX=DXTOTXST
  EPSX:FORY=DYTOTYSTEPSY
  :REM*138
230 X1=XC(X,Y)/4:X2=XC(X,Y+1)/4
  :X3=XC(X+1,Y+1)/4:X4=XC(X+1
  ,Y)/4 :REM*200
240 Y1=YC(X,Y):Y2=YC(X,Y+1):Y3=
  YC(X+1,Y+1):Y4=YC(X+1,Y)
  :REM*38

```

RUN it right: C-128 (40-Column mode)



```

250 DRAW0,X1,Y1TOX2,Y2TOX3,Y3TO
X4,Y4TOX1,Y1:XD=(X1-X3)/2:Y
D=(Y1-Y3)/2 :REM*148
260 IFABS(XD)<1 THEN IFABS(YD)<1 T
HEN310 ELSE280 :REM*214
270 IFABS(YD)<1 THEN310 :REM*201
280 PAINT0,X3+XD,Y3+YD,0
:REM*148
290 IFY1<Y3 THEN DRAW1,X1,Y1TOX2,
Y2TOX3,Y3TOX4,Y4TOX1,Y1:PAI
NT1,X3+XD,Y3+YD,0:GOTO310
:REM*130
300 DRAW3,X1,Y1TOX2,Y2TOX3,Y3TO
X4,Y4TOX1,Y1:PAINT3,X3+XD,Y
3+YD,0 :REM*204
310 DRAW2,X1,Y1TOX2,Y2TOX3,Y3TO
X4,Y4TOX1,Y1 :REM*32
320 NEXT Y,X :REM*92
330 GETKEY$:GRAPHIC0:RUN
:REM*147
340 IFRE<>1 AND RE<>2 THEN RE=1
:REM*151
350 IFRE=1 THEN HT=186:HH=93
:REM*106
360 IFRE=2 THEN HT=386:HH=193
:REM*30
370 IFLX>HX THEN Z=LX:LX=HX:HX=Z
:REM*109
380 IFLY>HY THEN Z=LY:LY=HY:HY=Z
:REM*60
390 DX=1:TX=M:SY=1:TY=N:SY
=1 :REM*255
400 IFGT<>2 THEN GT=1 :REM*195
410 IFRE<>2 THEN RE=1 :REM*191
420 IFGT=2 THEN BEGIN :REM*4
430 IFA<. THEN DX=M:TX=1:SY=-1
:REM*21
440 IFB<. THEN DY=N:TY=1:SY=-1:BE
ND :REM*34
450 RETURN :REM*82
460 M1=310/M:M2=160/M:N1=310/N:
N2=160/N:RD=180/(PI):X=240/
SQR(2):Y=240/SQR(2) :REM*63
470 PX=310+.8886207*(X-Y):PY=HH
-.4586429*(X+Y):X1=1.777241
*X/M:X2=1.777241*Y/N:Y1=.91
72858*X/M:Y2=.9172858*Y/N:G
=LX-ZX:I=. :REM*149
480 DOWHILE I<M+1 :REM*79
490 I=I+1:PRINT" {HOME} {2 CRSR D
Ns} "I" {CRSR LF} OUT OF" M+1

```



```

:G=G+ZX:J=. :Y=LY-ZY:REM*202
500 DOWHILE J<N+1 :REM*83
510 J=J+1:Y=Y+ZY:XC(I,J)=(PX+X2
*J-X1*I):YC(I,J)=PY+Y2*J+Y1
*I-H*FNZ(G)*UD :REM*111
520 IFYC(I,J)<SN THEN SN=YC(I,J)
:REM*6
530 IFYC(I,J)>SM THEN SM=YC(I,J)
:REM*103
540 LOOP:LOOP :REM*70
550 IFSM<HT AND SN>. THEN RETURN
:REM*91
560 AV=(SM+SN)/2:SM=SM-AV:SN=SN
-AV:MU=HT/(SM-SN) :REM*105
570 FORX=1 TOM+1:FOR Y=1 TON+1
:REM*222
580 YC(X,Y)=MU*(YC(X,Y)-AV)+HH
:REM*69
590 NEXT Y,X:RETURN :REM*213
600 DEFFNZ(X)=SIN(X{UP ARROW}2+
3*Y{UP ARROW}2)/(X{UP ARRO
W}2+5*Y{UP ARROW}2)*EXP(1-X
{UP ARROW}2-Y{UP ARROW}2)/2
:RETURN :REM*114
610 DEFFNZ(X)=(X{UP ARROW}2+5*Y
{UP ARROW}2)*EXP(1-X{UP AR
ROW}2-Y{UP ARROW}2)/2-SIN(3*
X{UP ARROW}2+Y{UP ARROW}2)/
(X{UP ARROW}2+Y{UP ARROW}2)
:RETURN :REM*95
620 DEFFNZ(X)=-X{UP ARROW}3/10-
(SIN(1-X{UP ARROW}2-Y{UP AR
ROW}2)+COS(1-X{UP ARROW}2-Y
{UP ARROW}2))/2:RETURN
:REM*73
630 DEFFNZ(X)=SIN(3*X)*SIN(3*Y)
/5+.7*SIN(2*X{UP ARROW}2+3*
Y{UP ARROW}2)/(X{UP ARROW}2
+Y{UP ARROW}2):RETURN
:REM*193
640 DEFFNZ(X)=COS(3*X)+2*SIN(X{
UP ARROW}2+Y{UP ARROW}2)/(X
{UP ARROW}2+Y{UP ARROW}2)-X
/2:RETURN :REM*72
650 DEFFNZ(X)=.3*(SIN(X{UP ARRO
W}2+Y{UP ARROW}2)+COS(Y{UP ARRO
W}2):RETURN :REM*234
660 DEFFNZ(X)=(SIN(4*X{UP ARRO
W}2+Y{UP ARROW}2)+2*SIN(X*Y)
)/(4*X{UP ARROW}2+Y{UP ARRO
W}2):RETURN :REM*100
670 DEFFNZ(X)=(SIN(3*X)+SIN(3*Y
)):RETURN :REM*10
680 GRAPHIC0:COLOR6,3:SCNCLR:SL
OW:END :REM*165

```





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F.S. Scenery Disks ..... Call

Hawaii Scenery ..... \$19

Jet ..... \$26

Stealth Mission ..... \$32

Thunder Chopper ..... \$19

Up Periscope ..... \$19

### TAITO



# TELECOMPUTING WORKSHOP

*Looking for a good commercial terminal program?*

*Check out these ratings.*

By LOREN LOVHAUG

THERE ARE A SUBSTANTIAL number of high-quality C-64 or 128 terminal-emulation programs available in the public domain, so it's not surprising that few companies have attempted to market commercial terminal packages for these computers. Those who do must, to make a profit, strive to create a commercial package that's better, easier to use or substantially different. Read on for an examination of some terminal programs currently on the market for the 64 and 128.

## BOBSTERM PRO

Just over four years ago, Bob Lentini wrote what was considered to be the consummate commercial eight-bit terminal package—BobsTerm Pro 64. To this day, many people feel that BobsTerm Pro 64 and its successor, BobsTerm Pro 128, are the finest terminal packages available for the 64 and 128. The programs earned this reputation by being extremely functional and easy to use.

Both versions of BobsTerm Pro are menu-driven and incorporate impressive-looking pop-up command windows and user-selectable screen fonts. They include full buffer editors that are as com-

plete as most word processing programs and can edit files larger than the buffer's capacity. Both of them support protocol uploading and downloading, as well as simple text transfer and capture.

In addition, an integrated mini-BBS program lets your computer act as a remote host. While this option couldn't serve as a replacement for a full BBS program, it's superb for those moments when you need to quickly receive programs and data or when you don't have time to babysit your computer during a transfer. Both BobsTerm versions also support user-definable function keys and phone book and include autodial/multidial support and a complete macro programming language that makes it possible to totally automate telecomputing sessions.

To all of this, add support for seemingly every modem on the market, the ability to create custom configurations and an excellent manual with easy-to-comprehend instructions, and it's easy to understand why BobsTerm is held in such high regard. (Running only on the 80-column screen, the 128 version gives you, in addition to the above, user-definable and pre-made mainframe terminal emulations, as well as built-in CP/M disk read/write capability.)

With all of these features included, is anything missing from the BobsTerm packages? Yes. Neither version supports Commodore RAM expansion units or Commodore ASCII for color graphics BBSing. Also lacking is support for file-transfer protocols other than Xmodem and Punter. A final drawback is that both the 64 and 128 packages are copy protected: the 64 version via a disk-based scheme and the 128 version through a dongle. However, for the serious telecommunicator, BobsTerm Pro is well worth the investment.

## SPEEDTERM

SpeedTerm is a command-driven, VT-52-based terminal emulation package for the 64 and 128 that's difficult to learn and vastly underpowered as a commercial entry. It begins by presenting a list of modems to choose from and then gives the user an MS-DOS- or CP/M-like command line. At this point, to access SpeedTerm's features and to adjust various parameters, it's up to you to type commands like BAUD, CLRB and CALL. Many of these commands have nebulous options that are difficult to remember. A simple, numbered menu would be much better. There's no reason why you should have to learn the equivalent of DOS commands to log on to a local BBS.

Once you are in Terminal mode, SpeedTerm is operated through key sequences activated at the press of the Commodore key and one other. Many of these commands control crucial settings. However, it seems that after protocol file transfer or dialed numbers, the settings return to their defaults. This could cause a beginner to become quite confused and frustrated.

Both versions of the program include support for Xmodem and Punter file transfers and have adequate capture buffers as far as size is concerned. Unfortunately, there's neither support for buffer editing nor an option for translating buffers between Commodore and normal ASCII.

Also missing from SpeedTerm are a

Table 1. Manufacturers' addresses.

**BobsTerm Pro**  
Progressive Peripherals  
and Software  
464 Kalamath St.  
Denver, CO 80204  
C-64 version: \$49.95  
C-128 version: \$59.95

**SpeedTerm**  
Abacus  
5370 52nd St. SE  
Grand Rapids, MI 49508  
C-64 and C-128 versions in  
one package: \$39.95

**Ultraterm III**  
c/o Steve Boerner  
PO Box 364  
Brockport, NY 14420  
\$25

**geoTerm**  
In GEOS Power Pak II  
c/o RUN Magazine  
80 Elm St.  
Peterborough, NH 03458  
C-64 and C-128 versions in  
one package: \$24.97



phone book facility and a number of other features you'd expect in a full-featured public domain terminal package. In view of these lacks, as well as its clumsy user interface, I don't see much reason to purchase SpeedTerm.

### ULTRATERM III

Until last year, no program for the C-128 could challenge BobsTerm Pro 128 for overall terminal program supremacy. However, Steve Boerner's Ultraterm III is a legitimate heir to the throne.

This program combines most of the features of BobsTerm Pro 128 and adds support for RAM expansion and Xmodem 1K. It also has no copy protection and is less expensive. On the other hand, Ultraterm III does not have BobsTerm Pro's macro programming capabilities or the mainframe terminal emulation support, and its buffer editor is not as robust.

However, the other bells and whistles

are in place and some are actually superior to BobsTerm. For example, Ultraterm's user interface is slightly more sophisticated in that it supports both pull-down menus and mnemonic keyboard commands. This makes the program easy for beginners to use, while affording experienced Ultratermers the luxury of not having to step through on-screen sub-windows and menus. Ultraterm also has slightly better printer support.

Overall, Ultraterm III is a good, inexpensive alternative for 128 owners.

### GEOTERM

One year ago, GEOS programmer Bill Coleman accomplished what was considered impossible. He created a functional terminal program to run under GEOS. Now, his latest versions of geoTerm 64 and 128, found on RUN's GEOS Power Pak II, are a must for telecommunications who download GEOS files.


The programs sport rather small 30K buffers, but since GEOS itself has extensive RAM expansion support, it's tolerable. GeoTerm, which has a nice phone book, supports Xmodem, Punter and Xmodem 1K, as well as disk-to-disk file transfers. Bill also provided keyboard shortcuts, in addition to the obligatory GEOS menus, and a built-in GEOS file converter.

GeoTerm has saved me many tedious hours of downloading GEOS files, rebooting GEOS and jumping between programs. ■

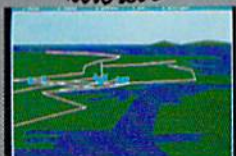
*Loren Lovhaug is a programmer and writer with lots of telecommunications experience. Along with being SYSOP of Q-Link's C-128 Special Interest Group, he publishes Twin Cities 128, a newsletter for C-128 users. You can write to him care of Telecomputing Workshop, RUN Magazine, 80 Elm St., Peterborough, NH 03458.*

*You can also send him electronic mail on QuantumLink (LOVHAUG) or Genie (Sparrow.J).*


*St. Louis*



*Hawaii*



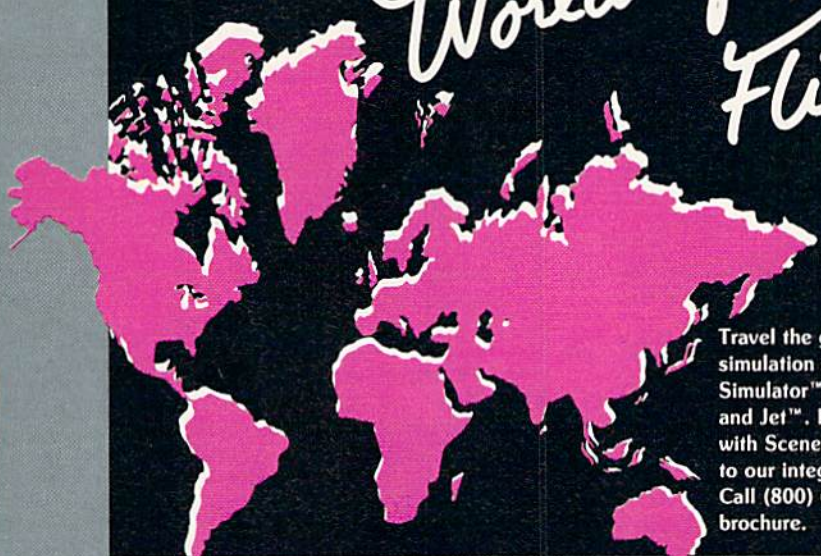
*Paris*





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# GEOWATCH

Breaking GEOS's 80-column color barrier!

By WILLIAM COLEMAN

ONE OF THE QUICKEST ways to convince me to write a program is to tell me it can't be done. Recently, a friend of mine mentioned that it's too bad GEOS 128 has only a monochrome screen. I told him that it has color; unfortunately, no one utilizes it. Unbelieving, he said it must be impossible because *everyone* says GEOS 128 doesn't have color.

I couldn't let this mind-set continue, so I created geoInvaders—an 80-column, color, arcade-style game for GEOS 128 that's a variation of the classic Space Invaders game.

Type in Listing 1 and save it to disk, using some filename other than geo-

Invaders. Next, place a GEOS disk in drive 8, making sure that it's a 1541 or 1571 drive and *not* a 1581. Then run the program; it creates geoInvaders on the disk.

To play, simply double-click on the geoInvaders icon from the 128 deskTop. (Take note that this program will *not* run with GEOS 64.) If you're not in 80-Column mode, the deskTop asks if you want to switch. Once the playing screen is drawn, you'll see four icons: New, Play, Info and Quit. To start or continue a game, click on the Play icon. To pause, press escape. Click on New to set up a new game.

The current and high scores are dis-

played, along with the number of the present round. S's located to the right of the round indicate the number of ships remaining.

The keyboard or mouse are the best input devices to use with geoInvaders. A joystick doesn't work as well—it's a bit jerky when the screen is full.

I hope this program puts to rest the misconception that GEOS 128 can't display color on an 80-column screen. Enjoy! ☐

William Coleman is the author of geoTerm, geoOrganizer and a number of other GEOS utilities. You can send him Email on GENIE (WC.COLEMAN).

Listing 1. GeoInvaders creator program. (Available on ReRUN disk. See page 36.)

```

0 REM * CREATES GEOS PROGRAM GE      "@ANDL$<"G")*(ASC(L$)-55)))
OINVADERS *                          :REM*204
2 DR=8:FI$="GEOINVADERS":TY$=CH      30 OPEN 15,DR,15:OPEN 2,DR,2,"#
R$(6):GOTO18                          :REM*17
4 HI=INT(A/256):PRINT#15,"M-R"C      :REM*252
HR$(A-HI*256)CHR$(HI):REM*252
6 GET#15,A$:A=ASC(A$+CHR$(0)):R      :REM*147
ETURN                                  :REM*147
8 PRINT#15,"U1:"2;0;TR;SC:RETUR      :REM*250
N                                      :REM*245
10 PRINT#15,"U2:"2;0;TR;SC:RETU      :REM*245
RN                                      :REM*245
12 PRINT#15,"B-P:"2;PS:RETURN        :REM*75
                                      :REM*75
14 GET#2,A$:A$=LEFT$(A$+CHR$(0)      :REM*185
,1):RETURN                             :REM*185
16 PRINT#2,CHR$(A$);:RETURN          :REM*150
                                      :REM*150
18 DIM D$(29):PRINT "WORKING...      :REM*186
" :OPEN3,DR,3,FI$+"U,W"              :REM*186
                                      :REM*161
20 READ A$:PRINT ".":IF A$="-1      :REM*161
" THEN CLOSE 3:GOTO 30               :REM*161
                                      :REM*161
22 FOR I=1 TO LEN(A$):IF MID$(A      :REM*212
$,I,1)="" THEN A$=LEFT$(A$,I-1)+MID$(A$,I,1) :REM*212
24 NEXT:FOR I=1 TO LEN(A$) STEP      :REM*255
2:H$=MID$(A$,I,1):L$=MID$(A$,I+1,1) :REM*255
26 H=16*(VAL(H$)-(H$>"@ANDH$<"      :REM*221
G")*(ASC(H$)-55))                   :REM*221
28 PRINT#3,CHR$(H+(VAL(L$)-(L$>

```

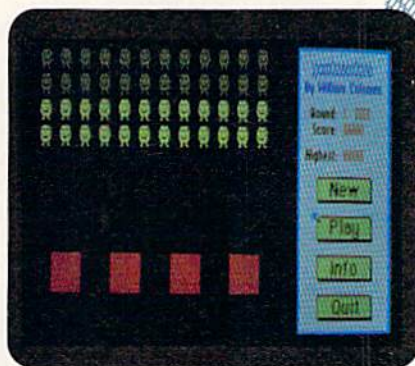
RUN it right: C-128 (80-Column mode); GEOS; mouse, keyboard or joystick for input.



```

C319209A1900153C4F E3209A190
003003B0420 :REM*173
62 DATA 9A190407003B05209A19 08
0B003B0D209A190C0F 003B09209
A191013003B :REM*134
63 DATA 08209A191415003B0BA9 08
A21A204D18A900A218 204D18A90
08580858178 :REM*77
64 DATA A9068DA084A9008D9F84 58
208C05203A09202505 4C7005A57
6D003207005 :REM*131
65 DATA A9068DA484A9258DA384 A9
148DA04A9638DA984 A9068D9C8
4A9A18D9B84 :REM*73
66 DATA 201306A9A88DB8848DB9 84
A9008DBB84A9078DBA 84A9018DB
D84A9CF8DBC :REM*199
67 DATA 84A90F8D18D4A9088D0B D4
8D12D4A57B853BA57A 853AA9058
503A9038502 :REM*76
68 DATA 4CDAC2FFFFFFFFFFFFFF FF
FFFFFFFFFFFFFFFF01 8003C007E
00FF01FF8FF :REM*93
69 DATA FFFFFFFFFFFFFFFFA2008E A3
848EA4848EA9848EA 848EB8848
E18D4200CC1 :REM*222
70 DATA A9008D9B848D9C84A9A0 8D
B98A90018DBB84A9E3 8DBA84A90
28DBD84A976 :REM*249
71 DATA 8DBC84A53B857BA53A85 7A
A9008503A90085024C DAC2A9048
576A9018574 :REM*166
72 DATA A900857E857F202010A9 00
857BA9E7857A4CA20C 209A19010
33D4EE220AE :REM*150
73 DATA C1F70110181A67656F49 6E
7661646572731B0020 AEC1EA011
B1842792057 :REM*15
74 DATA 696C6C69616D20436F6C 65
6D616E1B00209A1904 083D44E02
09A19040845 :REM*206
75 DATA 4EE820AEC1F4012B1852 6F
756E643A0020AEC1F7 013553636
F72653A0020 :REM*250
76 DATA AEC1EC01454869676865 73
743A1B0060A577F002 C677A579F
002C679A578 :REM*8
77 DATA F002C67860A9048503A9 00
8502A9012003C1A200 4C06C1AD0
485297FC961 :REM*116
78 DATA 9007C97BB00338E920A0 04
D94B06F0058810F830 09BE0506B
9550620D8C1 :REM*120
79 DATA 601B1E5A203005060614 14
25755A69690878A53B C900D004A
53AC90C900B :REM*139
80 DATA 38A53AE90C853AB002C6 3B

```



GeonInvaders is the first known 80-Column color program for GEOS 128, and it's fun to play, too!

```

28600878A53BC901D0 04A53AC9D
DB00B18A90C :REM*252
81 DATA 653A853A9002E63B2860 20
F919A9008503A90085 0220DAC24
C2CC22087C1 :REM*203
82 DATA A579D007205A12A90285 79
A578D00720E313A905 8578A577D
007208813A9 :REM*183
83 DATA 06857760A005A570D001 88
8C01D4A9008D00D4A9 008D05D4A
9F18D06D4A9 :REM*213
84 DATA 318D04D460A9308D04D4 60
A9058D0FD4A9DC8D0E D4A9008D1
3D4A9F18D14 :REM*64
85 DATA D4A9318D12D4A9008503 A9
0585022099C148A930 8D12D4686
020E506A901 :REM*185
86 DATA 8D08D4A9908D07D4A900 8D
0CD4A9FB8D0DD4A981 8D0BD4204
218A9808D0B :REM*8
87 DATA D460A9C18DB284A9248D B1
84208A07208E1820A3 072023192
09A19020C0C :REM*128
88 DATA 35D2209A190D0D0A33C2 20
9A19030C0A0BC2A908 8503A9D78
5022063C2A9 :REM*94
89 DATA 078DB284A9B48DB184A9 06
8503A93E85024C56C2 A9108506A
9678507A900 :REM*39
90 DATA 8509A9608508A901850B A9
AE850A60A9028506A9 0D8507A90
A8508A93585 :REM*32
91 DATA 0A6020A307203019208A 07
4C9B181A67656F496E 766164657
27320566572 :REM*254
92 DATA 73696F6E20312E311B00 18
5772697474656E2062 793A20576
96C6C69616D :REM*149
93 DATA 20436F6C656D616E204A 72
2E1B00436F70797269 676874203
13938392C20 :REM*42
94 DATA 426C6173746572536F66 74
204966B2C20435749 20496E632
E00416C6C20 :REM*177
95 DATA 52696768747320617265 20
526573657276656400 001067600
0AF010B3210 :REM*127
96 DATA C0070B3220DA070B3240 FC
070B325026080E001A 2A2A2A205
3636F72696E :REM*216
97 DATA 67202A2A2A1B00352D31 30
3020706F696E747300 202031303
020706F696E :REM*88
98 DATA 74730020203530302070 6F
696E747300184D6F76 656D656E7
4204B657973 :REM*234
99 DATA 3A1B00275A27203D204C 65
66742020435253522D 3E203D205
26967687400 :REM*165
100 DATA 20205370616365206F72 2
05A65726F203D2024649 5245000
010676000AF01 :REM*132
101 DATA 0B64105B080B32236D08 0
B32377A080B32498708 0BB92A9
4080BA537A508 :REM*76
102 DATA 0BA542C0081306090E00 A
57048A9008570A90185 7DA92B8
57C20FA0B202B :REM*152
103 DATA 0E688570A901857DA943 8
57C20FA0B2020E11A901 857DA9D
0857C20FA0B4C :REM*126
104 DATA 0F0EA9098503A9668502 2
05AC1209A190A0B404B 50209A1
90D0E404B5020 :REM*240
105 DATA 9A191011404B50209A19 1
314404B506004F80164 900A405
086107005E109 :REM*29
106 DATA 406886109F043A0A4080 8
6103C078A0940988610 900605F
F82FE8040082 :REM*96
107 DATA 03800400BE038003E006 6
0038006300000038006 366EF00
3800636666003 :REM*169
108 DATA 80063666600380063666 6
0038006366660038006 B666600
38003E3E63803 :REM*217
109 DATA 800030000000380040081 0
306FF817F05FF0C0705 FF82FE8
004000C903801F :REM*134
110 DATA 9C00000038018CC000003 8

```



## GEOWATCH

110	DATA 08CCF330038018CD9B 3003801 F8CFB30038018 :REM*145	111	DATA 0D9B300380180D9B3003 8 0180D9B300380180CF9 F003800 000003038000 :REM*35	112	DATA 00033300380000001E003 0 6FF817F05FF0C0705FF 82FE800 40082038004000 :REM*90	113	DATA B803800C00E0003800C 0 1800003800DF3C78003 800DD98 CC003800D998C :REM*197	114	DATA C003800D998CC003800D 9 98CC003800D998CC003 800DD998 7800380040082 :REM*29	115	DATA 03800400810306FF817F 0 5FF0C0705FF82FE8004 0082038 00400B803801C :REM*2	116	DATA C000000003801CC00000003 8 01ECF333003801ED9B3 3003801 BD99FE003801B :REM*179	117	DATA DF9FE00038019D80CC003 8 019D98CC0038018CF0C C003800 40082038004000 :REM*190	118	DATA 810366FF817F05FF0C07 0 000000000000001FF8003 FFC0061 8600FFFF00FFF :REM*121	119	DATA F00CFF300E7E700F00F00 0 7FE003FFC00300C30001 8180030 00C000000000000 :REM*195	120	DATA 0000000000001FF8003FFC 0 0618600FFFF00FFFF00 CFF300E 7E700F00F007F :REM*223	121	DATA FE003FFC000C30000660 0 003C0000000000003FFC0 0600600 C00300CC3300C :REM*1	122	DATA C3300C18300C3C300D00B 0 00CFF300C00300600600 03FFC00 03FFC00600600 :REM*113	123	DATA C00300CC3300CC3300C1 8 300C3C300000B00CFF3 00C0030 06006003FFC00 :REM*233	124	DATA CC17CE7600D042202505 2 0AEC19C0058181A2047 2041204 D20452020204F :REM*129	125	DATA 205620452052201B00AD 8 100CD7F00D006AD8000 007E00B 00CAD7F008D81 :REM*202	126	DATA 00AD7E008D8000202010 4 CF40B4C201020E50620 0F07EE7 40020411420A2 :REM*197	127	DATA 02020102023718201306 A 2FF9A4CC3C1AD7C0085 12AD7D0 08513A900850C :REM*157	128	DATA 850DA413D006A412C0FC 9 01438A012E9FC8512B0 02C613A 50C18690C850C :REM*210	129	DATA 90E2A412C015900BA512 3 8E9158512E60CD0EFB9 490C186 50C850CB95F0C :REM*148	130	DATA 650D850D600080008000 8 00008000800080008000 8000800 0080008000205 :REM*12	131	DATA 070A0C0F111416191B1E 2 0232528A2D2F323420 FA0B18A 980650C850CA9 :REM*186	132	DATA 02650D850D60A8B9161A 8 D7C00B9461A8D7D0060 A8AD7C0 099161AD7D00 :REM*216	133	DATA 99461A00209FC100FA000 0 00000000000000000000 0000000 0000000000000 :REM*200	134	DATA 8D7200A9068D081AA930 8 5FEA90D8D0204AC7400 88C011B 00CB9BE008D08 :REM*233	135	DATA 1AB9D00D8D0204A02F8C 7 500B95E0D8D7C00B98E 0D8D7D0 018AD081A6D7C :REM*142	136	DATA 008D7C009003EE7D008C 2 0940C20FA0B202B0ECE 7500AC7 50010D3A9008D :REM*129	137	DATA 7D00A9E28D7C0020440D A 9018D7D00A9DE8D7C00 20440DA 9028D7D00A9DA :REM*71	138	DATA 8D7C0020440DA9038D7D 0 0A9D68D7C0020FA0B20 E20D18A 93F6D7C008D7C :REM*176	139	DATA 009003EE7D0020FA0B4C E 20D93950799E7E9EBED 3B3D3F4 18F919395E3E5 :REM*205	140	DATA E7E937393B3D8B8D8F91 D FE1E3E5333537398789 8B8DDBD DDFE12F313335 :REM*100	141	DATA 0000000000000000000101 0 1010101010101010101 0202020 2020202020202 :REM*128	142	DATA 02020303030303030303 0 303030303040404040000 0000020 2020204040404 :REM*52	143	DATA 040606060606061412100E 1 412100E1412100ED14 12100E0 DA018A9FF8DFA :REM*84	144	DATA 0DD007A010A9008DF600 2 07E18A900204D18204D 18204D1 818A950650C85 :REM*142	145	DATA 0C9002E60D88D0E460A9 0 C8504A90B8503A94785 02AD710 0F034A90B8503 :REM*12	146	DATA A96B8502B85029A91085 0 4A90A8503A9E68502AD 7000F01 82C7200300BA9 :REM*196	147	DATA 0B8503A9168502B85008 A 90B8503A9178502A0FF 207E18C 8B102204D18C8 :REM*184	148	DATA B102204D18C8B102204D 1 818A950650C850C9002 E60DC60 4D0DC60AD7500 :REM*3	149	DATA 20940C20FA0B202B0E4C A 10620FA0B20EB0DA980 8D7D00A D750020940CA9 :REM*58	150	DATA 00850DA915850CA27CA0 0 C2069C1E612A5120A0A 1865122 08710C6FED003 :REM*105	151	DATA 4CDC0BA5FEC901D0058D 0 204F00C2903D00BCE02 04D003E E020420130660 :REM*112	152	DATA 20420F20C606AD700049 F F8D70002C7200302CA9 008D750 020860C3016AD :REM*168	153	DATA 7000000E18A9156D7C00 8 D7C009003EE7D00207B 0EEE750 0AD7500C93090 :REM*55	154	DATA DBB028A92F8D75002086 0 C3016AD700D00E38AD 7C00E91 58D7C00B003CE :REM*195	155	DATA 7D00207B0ECE7500AD75 0 010DD4CE506AD7000F0 4E2C720 03022A92F8D75 :REM*110	156	DATA 0020860C3000FAD7D00C9 0 00000000000000000000 0000000 0000000000000 :REM*200	157	DATA A9008D750020860C300D A D7D00D018AD7C00C915 900C60E E7500AD7500C5 :REM*90	158	DATA 30D0E46020960F686860 A 92F8D7500A8B9F00F20 860C303 220FA0B20EBD0 :REM*163	159	DATA 202B0EA50DC934D004A5 0 CC980900
-----	---	-----	--	-----	---	-----	---	-----	--	-----	--	-----	---	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	--	-----	---	-----	---	-----	--	-----	--	-----	--	-----	--	-----	---	-----	--	-----	--	-----	--	-----	--	-----	---	-----	--	-----	--	-----	---	-----	--	-----	--	-----	--	-----	---	-----	--	-----	--	-----	--	-----	---	-----	---	-----	--	-----	--	-----	---	-----	--	-----	---



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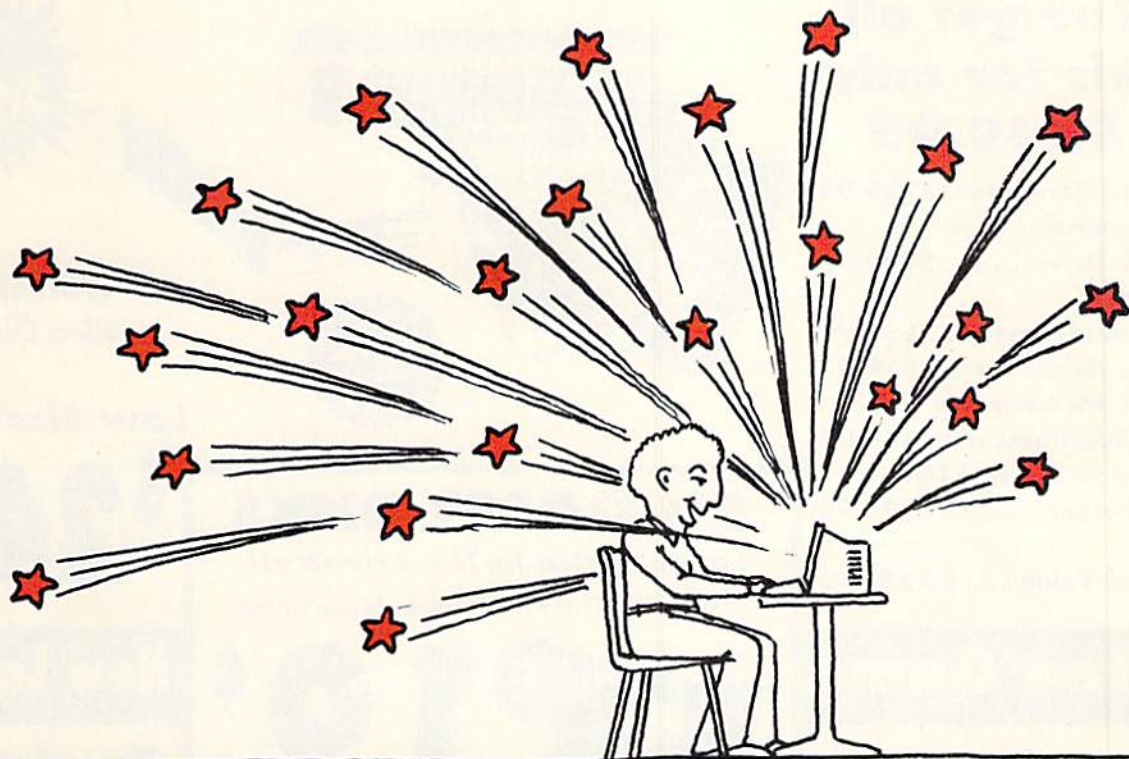


# GEOWATCH

180	D761AAD761AD003CE77 1ACE761 AA000B90E1ACD :REM*138 DATA 761AD008B90F1ACD771A F 00AC8C8984AC5FCD0E8 1860984 8B90E1A8D7C00 :REM*233	203	005A97F8D7C1A18A950 650C850 C9002E60D88D0 :REM*157 DATA DC68850C68850D601D00 A 3041000000000000000003 00000001 7E00000007D000 :REM*97	226	00204840008B71D008A 01000000 02020001000002 :REM*52 DATA 0400959000220000000000 0 100000000000200040024 02458C4 008B729008501 :REM*240
181	DATA B00F1A8D7D0020750C20 C 11068A820E411A90085 FDA9642 087103860A5FD :REM*131	204	DATA 009FF80000BFFD00005F F E000007FFD0008B71D00 A304100 0002880000321 :REM*62	227	DATA 00000002004008E220010 0 000900002681282AC58C 4408B73 4008C10000200 :REM*78
182	DATA D00160AD750048AD0B1A 8 D7D00AD0A1A8D7C0020 FA0BA5F D307120C110A5 :REM*76	205	DATA 24800495E80000C9D340 0 291FA0000B15D00005F F600001 B7C0008B71100 :REM*46	228	DATA 0832A09004245252608B7 4 000208DC1201707A90F 8D7500A C750000052037 :REM*41
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184	DATA 008D0A1A20FA0B20A214 A D7C1AF0400820EB0628 100C20C 110A905208710 :REM*193	207	DATA 534002947A0000B15D00 0 05D7600001BDC0008B7 1100AF0 2110001100000 :REM*25	230	DATA 38E9088505A9048506A9 1 085072042C1204218CE 750010C 34C8AC1CAB99E :REM*122
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188	DATA 290F8D7D00990F1A2075 0 C28305720C110A50DC9 37D004A 50CC900B027EE :REM*231	211	DATA 55000005AC0000145400 0 8B70500BB0100000008 3000044 88A0010022048 :REM*193	234	DATA 4D18207E18A50B4C4D18 A 50DA212204D18A50CE8 204D18A 21F60A9188DF6 :REM*181
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192	DATA A5FCF00320F5122087C1 A D74001869030A6D0A85 9044A5F CC904F03E2087 :REM*13	215	DATA 400048924002942A0000 A 15100004A8A00001454 0008B7C 00000004000101 :REM*249	238	DATA 1D650D850DA4048820FF F FE60CD002E60D8810F4 18A5046 50285029002E6 :REM*112
193	DATA C1AD0A854A4A0903851E C 930B0F0A51E20860C30 0DEE7C0 0D003EE7D0020 :REM*181	216	DATA 04081008200000488A10 4 00220810120080000800 A148028 4020020088824 :REM*189	239	DATA 03E605A605E40790CEF0 C C60A9188D7A19A9768D 7919B85 017A9188D7A19 :REM*6
194	DATA C3119006C61E10E83014 A 5FC0AA8AD7C00990E1A AD7D000 980990F1AE6FC :REM*187	217	DATA 08212488041408000041 0 1400284280000010500 0048800 000145400008B7 :REM*84	240	DATA A9658D7919B8500AA918 8 D7A19A96E8D7919A935 8503A9D 58502A6068604 :REM*110
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196	DATA 0D1AC904D005AD0C1AC9 A D90034C4114AD710049 FF8D710 020321420EB0D :REM*54	219	DATA 20000824002120880404 0 8000040004002042000 0000050 0004080000004 :REM*41	242	DATA 9002E60D18A980650C85 0 CA938650D850DA40588 20FFFFE 60CD002E60D88 :REM*98
197	DATA 18A9156D0C1A8D0C1A90 0 3EE0D1A2032144C0F0E AD0D1A8 D7D00AD0C1A8D :REM*192	220	DATA 040008B70500A1210080 1 00020000000002080002 0000002 00000080008100 :REM*105	243	DATA 10F418A5056502850290 0 2E603E604A604E40790 B9F0B76 068853D68853E :REM*38
198	DATA 7C004CFA0BAD091AF012 A D0D1A8D7D00AD0C1A8D 7C0020F A0B20EB0DA9FF :REM*203	221	DATA 00800000200000240001 0 4008808000040004002 0408008 6800000040400 :REM*149	244	DATA A005B13D850B88B13D85 0 A88B13D850B88B13D85 0788B13 D850620161908 :REM*74
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200	DATA 3A851E28A21EA0032062 C 2A915851CA01C2060C1 18A9286 51E851E9002E6 :REM*174	223	DATA 00002000002400010400 8 8080000400040020407 0083048 40008B7110086 :REM*62	246	DATA 2A26042A26042A26042A A 01548A21F204D18A94F CA204D1 8688810F060A9 :REM*99
201	DATA 1FA51F8D0B1AA51E8D0A 1 A60A50D48A50C48A980 8D7C1AA 008207E182059 :REM*29	224	DATA 21028010002004009708 0 00200000002000000800 8100008 0000020000024 :REM*192	247	DATA 0020F5C2209FC1B0C700 0 07F0260,-1 :REM*34
202	DATA 18C9FFF00C8D7C1AC900 F	225	DATA 000104008A0800004400 4		



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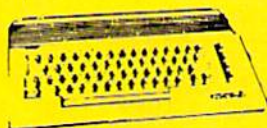
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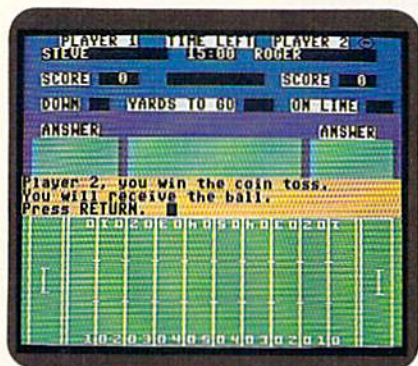
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From p. 24.

vance of either the computer or a human opponent. This is fun, although a certain anxiety arises from the time limits. You can run three kinds of play (plus punt): a run (solve an easy problem in 40 seconds); a short pass (a medium problem in 50 seconds); a long pass (a hard problem in one minute). Incorrect solutions result in lost ground when you have the ball. Right answers gain yardage for human players or stymie the computer when it has possession. You



Solving problems to win the game is the premise behind Math Football: Percent.

can view the back-and-forth progress of both elevens on a simulated field, and a scoreboard displays downs, yards to gain for a first down, the score, time remaining, and so forth.

You can also choose among four levels of difficulty: High School (changing percents to common-fraction or decimal form); College (finding a percent of a given number); Pro (finding the whole when the percentage and the part are known, or the percent when the part and the whole are known); and Superbowl (a mixture of all types).

Unlike the Fractions program, where the perception of *what* to do is often more difficult than the actual figuring involved, Math Football: Percent contains, especially beyond the High School level, many problems that can't be done mentally by ordinary mortals—and you're up against time limits that are not generous to the slow or careless. Of course, if, like most smart children today, you use a hand calculator, you don't need to know how to multiply or divide.

The game aspect of Percent is quite engaging, and the time pressures keep you on your toes as you get good practice in relatively difficult problems. One minor flaw was that a few messages would flicker on the screen for an instant and disappear before you could read them. And in one instance, the drive started and simply wouldn't stop.

Nothing happened, though I waited for minutes; so I finally had to simulate a power failure and switch off the computer. Fortunately, it didn't seem to harm the disk. Like the Fractions program, the documentation is satisfactory.

On the whole, I recommend both these packages as worthwhile practice exercises to supplement a good instructional program. Just don't try to employ them as initial teaching instruments. (Gamco Industries, Inc., PO Box 1911, Big Spring, TX 79721. C-64/\$44.95 each.)

—SWAIN PRATT  
RUN STAFF

### STORY BUILDER: PARTS OF SPEECH IN CONTEXT ..... B—

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Teaching grammar is usually a dull proposition, dreaded by teachers and resisted by students. Traditional parts-of-speech drills tend to be isolated workbook activities based on fill-in-the-blanks recognition and reinforcement. So, it was with some interest that I picked up Story Builder: Parts of Speech in Context.

Story Builder is basically a word game in which players use designated parts of speech (ranging from concrete nouns to interjections) to complete blanks in brief stories. A teacher (or student) selects a story, in which words have been removed and replaced with "word clues" that indicate the missing part of speech. Without seeing the context into which the words go, students place words in response to the clues. Story Builder inserts the words in the text and, theoretically, an amusing story results.

Story Builder's data disk contains 30 stories with word clues already inserted and ready for use. The program also lets users create, edit and print stories, and to this end, includes some easy-to-use word processing features. So, as a bonus, students become familiar with the basic concept of word processing in a relatively simple context.

The program's handbook provides clear directions for copying disks (a C-64 needs a commercial copying program), start-up instructions, a troubleshooting page and classroom use suggestions. It also comes with copy masters (including prewriting activities) designed for individual student use and intended for reproduction.

Story Builder has several obvious ed-

ucational uses. It can function as a diagnostic tool to determine how well a student understands parts of speech within the written context. It might also be an effective assessment tool, used at the end of a grammar unit. In both cases, the flexibility of the program—particularly the editing features—lets the teacher customize the stories (in particular, the parts of speech on which the stories are based) to fit the students' needs. Because these drills are within the context of student-manipulated stories, the grammar reinforcement itself is more meaningful, and, presumably, more effective.

There are, however, some obvious problems here. For example, a student can insert anything in the blanks: "boy" or "xyz" for a verb. A basic dictionary of allowable or unacceptable words for the various parts of speech might be an invaluable addition.

Further, there are no definitions of parts of speech on the disk or in the manual. Definitions with examples would be useful, both for students and, sad to say, for some teachers. If definitions were accessible on the disk, the product could become an actual teaching tool, in addition to being good for review or assessment.

Story Builder: Parts of Speech in Context is really a computerized version of the game *Mad Libs*. The flexibility of the word processor allows both individualization of the review and participation of the student, creating what could be, in the hands of a knowledgeable and innovative teacher, a useful instrument in the fight against illiteracy. (J. Weston Walch, Publisher, 321 Valley St., PO Box 658, Portland, ME 04104-0658. C-64/\$46.95.)

—SHARON G. WEINER  
CHICAGO, IL

### MAMMOTH MELTDOWN ..... C— ESSENTIAL PUNCTUATION .... B—

*Do Your Students Need To Study  
Nouns, Verbs and Adjectives, or  
Periods, Commas and Colons?*

Gamco's Mammoth Meltdown and Essential Punctuation are two separate programs that educators and parents might consider purchasing for children who are having difficulty understanding parts of speech and basic punctuation. Neither, however, takes the place of good teaching, since each focuses more on drill than on instruction and review. ▶





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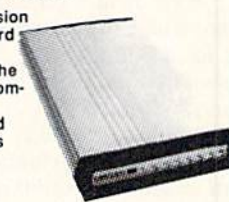
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Scrolling across the top of Mammoth Meltdown's main screen are a series of brief sentences from which the child must choose words that represent the correct part of speech. This is accomplished by pushing the space bar, which fires the laser gun held by a scientist who is standing below the sentences. If the laser hits a correct answer, a section of the mound of ice encasing the mammoth dissolves. After the learner inputs a predetermined number of correct answers, the prehistoric animal is set free.

The program would be most effective with third through fifth graders, although I doubt the game would hold their attention for very long. The only variety is in the part of speech chosen, the speed of game play and the number of words needed to complete the activity. Neither the graphics nor the sound make use of the C-64's capabilities. Loading time is lengthy, and there's no way to play another game without going through a time-consuming reloading process.

Essential Punctuation's target audience is fourth through eighth graders and those high school students needing remediation. In each of the seven lessons (end punctuation, commas, and so on), students are given a three-line sentence. They must choose the line that contains an error, or, if no mistake is found, pick the No Error option. After two incorrect answers, the program provides the appropriate rule, and the child is given another chance to supply the right answer. Before beginning an exercise or at any time during it, the student is able to view all of the relevant rules for a skill area.

Robot Rescue, a very basic Breakout/Arkanoid clone, serves as a reward for those pupils successfully completing a lesson. Essential Punctuation also allows for an exam of up to 50 questions and a detailed report of how well the student performed in some two dozen sub-skills tested.

Although a more varied and useful learning tool than Mammoth Meltdown, Essential Punctuation contains three notable flaws. To begin with, Robot Rescue does nothing to reinforce learning. Secondly, test questions are chosen randomly from all seven skills. So, unless all 50 questions are given (which is too much for young children), too many sub-skills are left untested. Finally, neither in the lessons nor in the tests is there any explanation as to why a selection is correct. This makes it possible for a student working alone to choose the right answer for the wrong reason.

Each program contains a Teacher Management option that consists of student and program management sections. The first enables the teacher to maintain 200 student files on disk and to display, print or delete all of those for an individual student. The second section controls a number of variables, such as whether or not a skills report should be printed, the number of words or sentences in a lesson, the number of questions in a test, and the percentage of correct answers needed to play the robot game.

You should preview each program before purchasing. While the price is not unreasonable, an inadequate teaching and learning tool is still inadequate at any price. (Gamco Industries, Inc., PO Box 1911, Big Spring, TX 79721 C-64/\$44.95.)

—LEN POGGIALI  
SYRACUSE, NY

#### ELECTRIC COMPANY LEARNING LIBRARY:

BAGASAURUS .....	A
PICTURE PLACE! .....	C+
ROLL-A-WORD .....	D

#### *Pick and Choose Among These Reading Activities*

Parents and teachers have long associated the Electric Company name with quality educational material. Unfortunately, Hi Tech's Electric Company Learning Library only partially succeeds in continuing this title's tradition of excellence.

The Learning Library's three educational games—Roll-A-Word, Picture Place! and Bagasaurus—are intended for home or school use. Each attempts to develop reading skills in children of ages six through nine.

Roll-A-Word uses the keyboard for input. A game starts with a child selecting one of three groups of letters and choosing a picture whose name ends with that letter group. If the youngster then correctly picks the letter or letters that begin the picture's name, the image floats down to a blank in a sentence. Then the picture transforms into the word that represents it, and it's on to the next round of play.

In Picture Place!, a child selects from six background scenes, which include a city and a farm, and picks one of 40 words that appear at the bottom of the screen. Then the youngster moves his or her choice with the keyboard or a joystick, and a press of a button or key

turns the word into its picture.

A child can also change pictures back into words, which he can then move to another location or erase. In addition, the images placed on a background scene can be saved to disk.

Though the instructions indicate otherwise, a joystick is needed for Bagasaurus, the third Learning Library program. It includes 100 questions, 70 images and 300 words.

At the game's outset, the title character appears in one of 13 exotic scenes. The youngster moves the friendly dinosaur to a word or image that answers an on-screen question. While a wrong response produces a shake of Bagasaurus's head and the chance to try again, a correct answer rewards the child with flashing colors, a little fanfare and a trip to the next scene.

After a Bagasaurus game ends, the program displays a read-aloud story. Blinking lines appear under certain of its words, and pressing return replaces them with images or words that were selected during the game. The changes to the stories that these substitutions cause can be very humorous.

The least impressive of the three programs is Roll-A-Word. One of its shortcomings is a clumsy user interface, which frequently requires both pressing a number key and then returning to select a menu option. Also, the graphics are generally poor, and a child might not be able to recognize what some pictures are supposed to represent.

In addition, older children will probably be bored with Roll-A-Word, which includes only 21 letter groups. And, since concentrating excessively on the final parts of words impairs normal reading development, it may do more harm than good for younger children if they fixate on the word-ending letter groups that appear on screen with indistinct pictures.

Like Roll-A-Word, Picture Place! has problems with its user-friendliness and its graphics. In addition, it has the blandest sound effects of the three programs. However, the program does no harm and can be a somewhat effective tool for teaching sight words to some children.

Bagasaurus, like the other two games, could use a better interface and sharper images. And adults should realize that its questions and answers will probably have to be read to six- and seven-year-olds who use the program.

But these difficulties are insignificant when compared to the benefits that Bagasaurus offers. It does a truly superb job of developing vocabulary and



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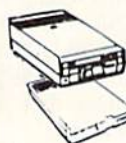
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such skills as classification and sequencing. And, best of all, it does all this while providing great entertainment.

Bagasaurus is a program that shows just how powerful a computer can be for teaching reading. This game alone makes the Electric Company Learning Library an excellent value. (*Hi Tech Expressions*, 584 Broadway, New York, NY 10012. C-64/\$29.95 for the library; \$12.95 each.)

—WALT LATOCHA  
OAK PARK, IL

### **DINOSAURS ARE FOREVER ... C+** *A Computerized Coloring Book To Entertain Your Child's Imagination*

Polarware's coloring book has some very impressive features, but it also suffers from a few aggravating problems.

Intended for ages three and up, the program contains pictures of dinosaurs in prehistoric settings. After selecting a

scene, a child uses either a joystick, the keyboard or a mouse to choose one of 16 colors. He or she then moves an electronic pointer to where the color is to be applied, and a simple press of a button or key automatically fills in the area.

Polarware has included many interesting options in the software. For instance, a child can erase the color either from the last area that was changed or from the entire screen. Also, he or she can save to disk all of the "artwork" that was produced during a session at the computer. In addition, the program prints either a color or a black-and-white version of a screen on an Okimate 20 printer, while a Commodore 1200 is able to make only black-and-white copies. A child can even produce banners and pictures that are part of a month-long calendar.

Unfortunately, the program's documentation contains some errors. For example, there are only 21 pictures on the disk, despite the package's claim that there are 26. Also, the instructions incorrectly indicate that a child can mix

colors together before applying them to the screen. And, although the manual mentions that a banner's personalized message can be changed by pressing control and certain letter keys, these editing functions just don't exist.

Adults should also realize that the program might not be suitable for every youngster. Certain children, for example, will become frustrated when they try to place the pointer's tip in the very small coloring areas that some pictures contain. In addition, some youngsters may not have the physical dexterity that's needed to operate a joystick, while others may not be sophisticated enough for the keyboard, which sometimes requires two keys to be pressed simultaneously. As always, parents should carefully evaluate their children's abilities before making a purchase.

The program can also be criticized for having few elements that are commonly considered to be educational; however, it can aid a child's development in other ways. Its successful use, for example, can instill confidence that will help when a youngster tries color-

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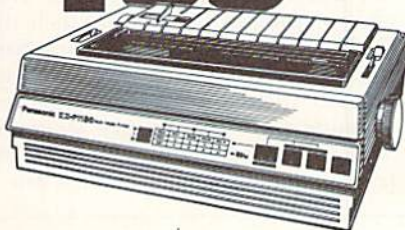
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R3J



## SOFTWARE GALLERY

ing by hand. Surprisingly enough, this common school activity can be difficult for many youngsters.

Also, by giving children so much control over how a prehistoric scene should look, Dinosaurs Are Forever can serve as a tremendous boost to their creativity and imagination. And, in the opinion of many parents and educators, this is the best type of learning experience there is. (Polarware, Inc., 1055 Paramount Parkway, Suite A, Batavia, IL 60510. C-64/\$29.95.)

—WALT LATOCHA  
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### FREDDY'S PUZZLING ADVENTURES ..... C+

*Sometimes, Slow and Steady  
Prevails in Puzzles*

Remember the puzzles you played with as a child, where you'd vertically or horizontally slide square pieces enclosed in a plastic frame and try to form some sort of a picture? Sometimes

freeing a slot to make room for one piece resulted in blocking the placement of another piece or boxing yourself into a corner. It certainly was maddening!

Freddy's Puzzling Adventures follows the same principle, except that the puzzles' pieces are manipulated on your computer screen and involve letters and numbers. Using the keyboard, you place each letter in its proper sequence or put numbers in certain boxes. Your successful efforts are rewarded with music and colorfully animated scenes. The program automatically keeps track of how many moves it took you to solve a problem.

According to DLM, the game is designed for children from age seven up. You begin as Freddy the Turtle, following paths highlighted by signs indicating particular puzzles and their difficulty levels. When you follow a path to the edge of your screen, a scene appears in which you must arrange letters or numbers in the proper sequence. When you've finished a puzzle, you travel on another path to a new one.

As Freddy, you move slowly, appropriately enough since you're a turtle. However, designed in 1984, Freddy doesn't know much about smooth scrolling—whenever you go to the edge of a screen, there's a 20-second wait while the program finds a new scenario.

With many software packages, taking a simple idea—in this case, the puzzle gadget you fiddled with as a youngster—and complicating it by adapting it to a computer enhances the excitement. But not in Freddy's Puzzling Adventures. In spite of the graphics, music and automatic scoring, I almost prefer the original toy.

A nice feature of this program is that you can create your own word and number problems and save and restore them for future use. Another plus is that it can teach youngsters computer familiarity. Some of Freddy's problems might also appeal to parents looking over their children's shoulders. (DLM, One DLM Park, Allen, TX 75002. C-64/\$32.95.)

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## RUN's CHECKSUM

**Listing 1. RUN's Checksum program. This program is available on RUN's BBS for users to download.**

```
10 REM RUN'S CHECKSUM 64/128 - BOB KODADEK
20 MO=128:SA=3328:IF PEEK(40960)THEN MO=64:SA=4
  9152
30 FOR I=0TO169:READB:CK=CK+B:POKE SA+I,B:NEXT
40 IFCK<>20651 THENPRINT"DATA ERROR!":END
50 POKESA+110,240:POKESA+111,38:POKESA+140,234
60 PRINTCHR$(147)STR$(MO)" RUN CHECKSUM":PRINT
70 PRINT"TO TOGGLE ON OR OFF, SYS"SA:IF MO=128
  THEN 100
80 POKESA+13,124:POKESA+15,165:POKESA+25,124:PO
  KESA+26,165
90 POKESA+39,20:POKESA+41,21:POKESA+123,205:POK
  ESA+124,189
100 POKESA+4,INT(SA/256):SYS SA:NEW
110 DATA 120,162,24,160,13,173,4,3,201,24,208,4
  ,162,13,160,67,142,4,3,140
120 DATA 5,3,88,96,32,13,67,152,72,169,0,141,0,
  255,133,176,133,180,166,22
130 DATA 164,23,134,167,132,168,170,189,0,2,240
  ,58,201,48,144,7,201,58,176
140 DATA 3,232,208,240,189,0,2,240,42,201,32,20
  8,4,164,180,240,31,201,34
150 DATA 208,6,165,180,73,1,133,180,230,176,164
  ,176,165,167,24,125,0,2,133
160 DATA 167,165,168,105,0,133,168,136,208,239,
  232,208,209,169,42,32,210
170 DATA 255,165,167,69,168,170,169,0,32,50,142
  ,169,32,32,210,255,32,210
180 DATA 255,169,13,32,210,255,104,168,96,104,1
  70,24,32,240,255,104,168
190 DATA 96,56,32,240,255,138,72,152,72,24,162,
  0,160,0,32,240,255,169
200 DATA 42,208,198
```

TYPE IN RUN's CHECKSUM, which serves for both the C-64 and for the C-128 in either 40- or 80-Column mode, and save it to disk before running. When typing in a program from RUN, first load and run RUN's Checksum. The screen will display a SYS number that deactivates and reactivates the Checksum. Always disable RUN's Checksum before attempting to run another program. Note: You can abbreviate Basic keywords; spaces affect the checksum only when within quotes; and the order of characters affects the checksum.

With this new version, when you press return after typing in a program line, a one-, two-, or three-digit number from 0 to 255 appears in the home position. If this number matches the checksum value in the program listing, the line is correct. If the number that appears *doesn't* match the checksum value, compare the line with the magazine listing to find your error. Then move the cursor back up to the line and make your corrections. Now, after you press return, the correct checksum value should appear. Continue entering the listing until all the lines have been correctly typed. Then deactivate RUN's Checksum, using the SYS number. Save the finished program.

All the graphics and control characters in the listings in RUN have been translated into understandable key combinations. They are the instructions you see inside the curly braces. For example, {SHIFT L} means you hold down the shift key while you press the L key. You do *not* type in the curly braces. What appears on the screen will look quite different from what is designated inside the braces. Here are some more examples:

{22 SPACES}—press the space bar 22 times  
{SHIFT CLR}—hold down the shift key and press the clr-home key  
{2 CRSR DNs}—press the cursor-down key twice  
{CTRL 1}—hold down the control key and press the 1 key  
{COMDT}—hold down the Commodore logo key and press the T key  
{FUNCT 1}—press the F1 key  
{5 LB.s}—press the British pound key (*not* #) five times ■

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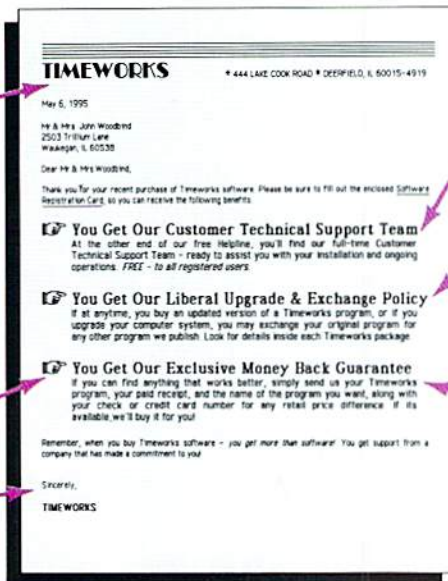
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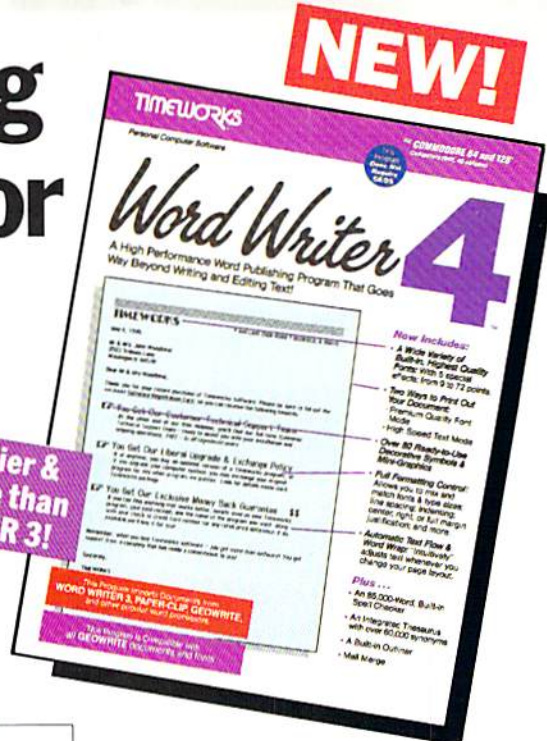
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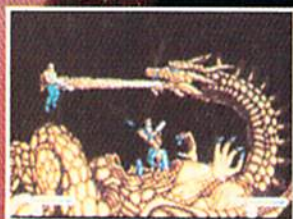
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