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Tandy Color
Computer 1, 2 and 3

September 1987

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RAINBOW[®]

THE COLOR COMPUTER MONTHLY MAGAZINE

The Information Interface

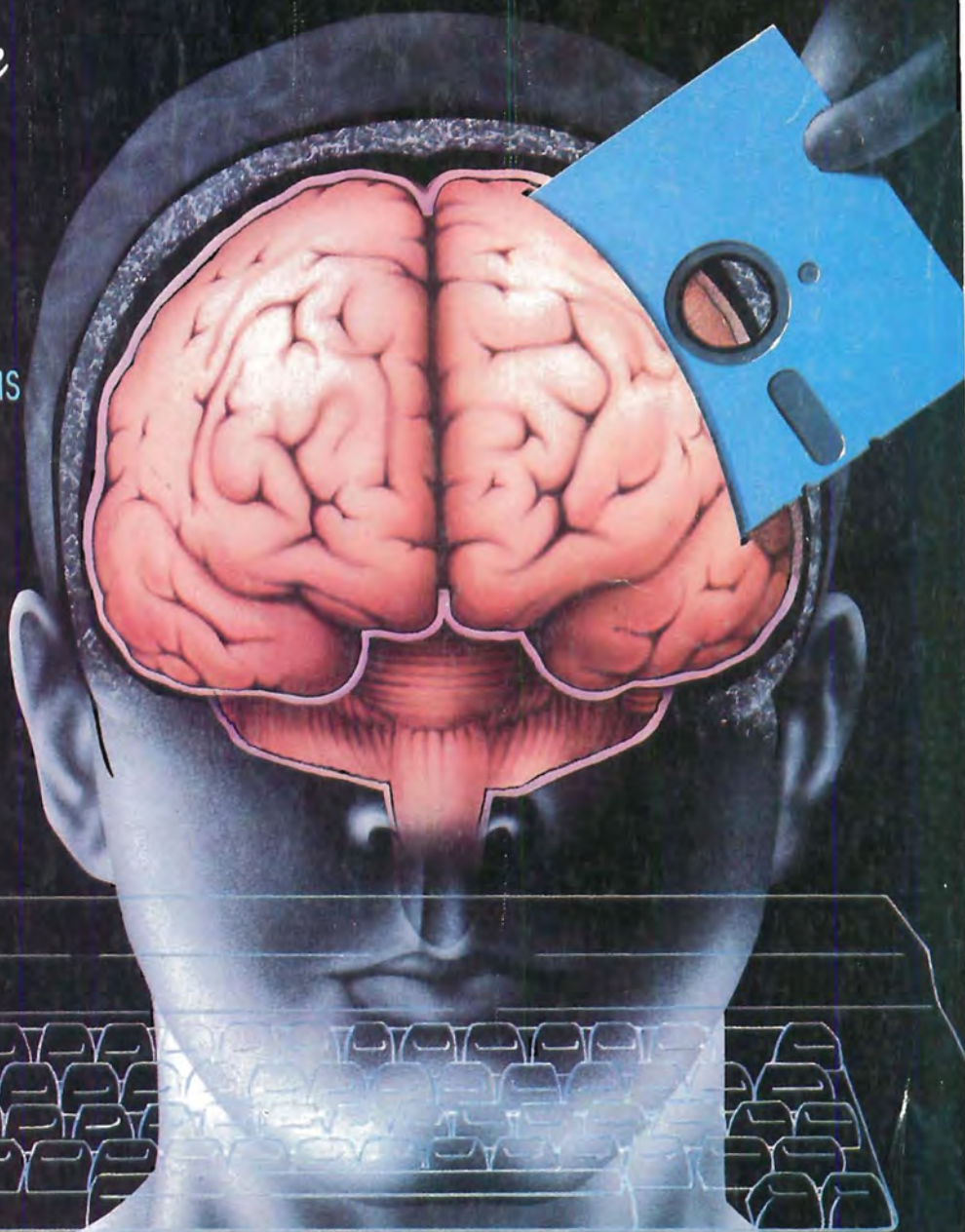
Our Education Issue

Learn!

ABCs for Preschoolers
BASIC for Beginners
Understandable Calculus
Even Drivers Ed

Develop!

Artificial Intelligence
OS-9 Programming
Family Genealogy
Student Tutorials



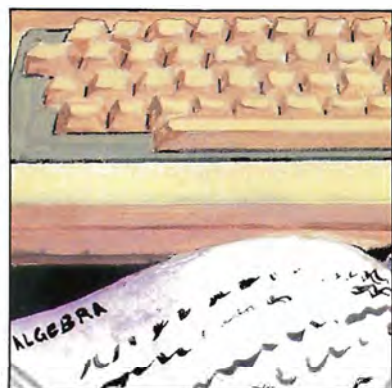
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 The cassette tape/disk symbols beside features and columns indicate that the program listings with those articles are on this month's RAINBOW ON TAPE and RAINBOW ON DISK. Those with only the disk symbol are not available on RAINBOW ON TAPE. For details, check the RAINBOW ON TAPE and RAINBOW ON DISK ad on Page 169.

NEXT MONTH: It's the RAINBOW fall festival! Ghoulish graphics and scary scenes color our pages as we present our Graphics Issue. Explore the world of color and shape as only the beloved CoCo can do it. We'll expand your drawing capabilities and teach you the ins and outs of CoCo artistry. Of course, we've included our usual round of features, utilities, games, Q & A columns, new product reviews and much more.

Come to the number one information source for the Color Computer 1, 2 or 3 — THE RAINBOW!

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*A building block for thought, creativity,
imagination and language*

The Power of the Mind

By Andy Blount

One of the fun things about using a computer is teaching it to learn. That's why I wrote *Animals*, a game that illustrates concepts used in artificial intelligence. *Animals* simulates the human mind by causing the computer to perform functions that are normally associated with human intelligence — recognizing objects, making decisions, drawing conclusions, understanding language and learning from experience.

When you start *Animals*, the computer will ask if you're thinking of an animal. When you are, press Y (Yes). The computer will ask you questions about your animal and finally guess what your animal is. If right, the game will start over; but if it's wrong, the computer will ask you what animal you were thinking of and then ask you to type a question distinguishing the animal it guessed from your animal. Here's an example: You were thinking of a dachshund and the computer guessed a dalmation. For the question, you could type, "Does it have spots all over it?"

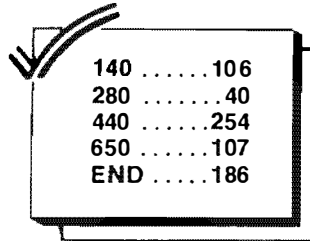
When you're playing *Animals*, it's important that you think of *specific* animals, such as a rainbow trout rather than just a fish.

When you are ready to quit the game, just press N (No) when asked if you are thinking of an animal. You'll then be able to save your collection of questions and animals on disk or cassette. The game will hold up to 300 animals and questions.

(Questions about this program may be addressed to the author at 339 32 1/2 Rd., Palisade, CO 81526. Please enclose an SASE when writing for a reply.) □

Andy Blount lives near the small towns of Palisade and Grand Junction in Colorado. He is 14 years old and enjoys programming on his Color Computer.

ARE YOU THINKING OF AN ANIMAL?
YES
DOES IT FLY? NO
DOES IT SWIM? NO
IS IT A BREED OF DOG? NO
IS IT A BREED OF CAT? NO
IS IT A ELEPHANT? NO
THE ANIMAL YOU WERE THINKING OF
WAS A ? HAMSTER



140	106
280	40
440	254
650	107
END	186

The listing: ANIMALS

```

10 'ANIMALS
20 'BY ANDY BLOUNT
30 '
40 'credits
50 PCLEAR1: CLEAR5000: DIMA$(300):
CLS: PRINT@13, "ANIMALS";: PRINT@7
4, "BY ANDY BLOUNT";: AA$=CHR$(128)
+CHR$(147): BB$=CHR$(128)+CHR$(1
57)+CHR$(157)+CHR$(152): FORX=162
TO190: PRINT@X, AA$;: PRINT@X+30, BB
$;: PLAY"L3201CD": NEXT
60 PLAY"O4CABP20CABP20CAB": FORX=
1TO1000: NEXT: X=0
70 'load file
80 CLS: PRINT"DO YOU WISH TO LOAD
AN ANIMAL FILE?"
90 A$=INKEY$: IFA$="" THEN90ELSEIF
A$="Y" THEN100ELSE180
100 CLS: PRINT"WHICH DO YOU WANT
TO LOAD ANIMALS OFF OF:", ,
"1. DISK", , "2. CASSETTE"
110 ONVAL(INKEY$) GOTO120, 130: GO
TO110
120 CLS: PRINT"INSERT DISK WITH '
ANIMAL/DAT' ONIT AND PRESS [ENTE
R]": EXEC44539: SF=1: GOTO140
130 CLS: PRINT"POSITION TAPE - PR
ESS <PLAY> THEN PRESS [ENTER]
WHEN READY": EXEC44539: SF=-1
140 OPEN"I", SF, "ANIMAL"
150 IF EOF(SF) THENCLOSE#SF: GOTO
170
160 INPUT#SF, A$(X): X=X+1: GOTO150
170 PRINT"DONE LOADING ANIMALS":
FORX=1TO1000: NEXT: GOTO200
180 FORX=0TO3: READA$(X): NEXT
190 'start game
200 CLS: PRINT@12, "LETS PLAY": PRI
NT@40, "GUESS THE ANIMAL": PRINT
210 PRINT" THINK OF AN ANIMA
L AND I WILL TRY TO GUE
SS IT.": T=1: N=VAL(A$(0))
220 IFT=0 THEN CLS
230 T=0: PRINT: PI$=" ARE YOU THIN
KING OF AN ANIMAL?": GOSUB710
240 A$=INKEY$: IFA$="" THEN240ELSE
IFA$="L" THEN250 ELSEIFA$="N" TH

```

```

EN730 ELSEIFA$="Y" THEN260 ELSE24
0
250 PRINT: PRINTTAB(13) "LIST": GOT
O650
260 PRINT: PRINTTAB(15) "YES": PRIN
T: B=1
270 GOSUB490: IFLEFT$(A$(B), 2)="/"
Q" THEN270
280 'guess animal
290 PI$="IS IT A ": GOSUB710: PI$=
RIGHT$(A$(B), LEN(A$(B))-2)+"?": G
OSUB710
300 A$=INKEY$: IFA$="" THEN300ELSE
310
310 IFA$="Y" THENPRINT" YES": PRI
NT" I GUESSED IT! WHY NOT TRY
ANOTHER ANIMAL." ELS
E330
320 FORZ=1TO1000: NEXT: GOTO220
330 PRINT" NO": INPUT"THE ANIMAL
YOU WERE THINKING OF WAS A "; V$
340 PRINT"ENTERING THE ANIMAL: "
V$: FORCC=1TO300: IFLEFT$(A$(CC), 2
)<>"/A" THENNEXTCC ELSEFORZ=3TO
LEN(A$(CC)): IFMID$(A$(CC), Z, 1)="/"
THENNEXTZ ELSE CC$=CC$+MID$(A
$(CC), Z, 1): NEXTZ: IFV$=CC$ THEN36
0 ELSECC$="" : NEXTCC
350 GOTO370
360 PI$="SORRY, I ALREADY KNOW A
": GOSUB710: PRINT: PI$=V$+", YOU M
UST HAVE": GOSUB710: PRINT: PI$="AN
SWERED A QUESTION WRONG. WHY NO
T TRY AGAIN.": GOSUB710: FORX=1TO3
000: NEXT: GOTO220
370 PRINT"PLEASE TYPE A QUESTION
THAT WOULD DISTINGUISH A "V
$: PRINT"FROM A "; RIGHT$(A$(B), LE
N(A$(B))-2);": ": LINEINPUT""; X$
380 PRINT"FOR A "V$",": LINEINPUT
"THE ANSWER WOULD BE: "; A$
390 A$=LEFT$(A$, 1): IFA$<>"Y" AND
A$<>"N" THEN380
400 IFA$="Y" THENB$="N"
410 IFA$="N" THENB$="Y"
420 D=VAL(A$(0))
430 A$(0)=STR$(D+2)
440 A$(D)=A$(B)
450 A$(D+1)="/"A"+V$
460 A$(B)="/"Q"+X$+" "+A$+STR$(D+
1)+" "+B$+STR$(D)+" "/"
470 GOTO220
480 'ask questions
490 Q$=A$(B)
500 FORZ=3TO LEN(Q$)
510 IFMID$(Q$, Z, 1)<>"/" THENPRIN

```

```

TMID$(Q$,Z,1);:NEXTZ
520 PRINT"?";
530 C$=INKEY$:IFC$=""THEN530ELSE
IFC$="Y" THENPRINT" YES" ELSEIFC
$="N" THENPRINT" NO" ELSE530
540 T$="/"+C$
550 FORX=3 TO LEN(Q$)-1
560 IFMID$(Q$,X,2)=T$ THEN580
570 NEXTX
580 FORY=X+1 TO LEN(Q$)
590 IFMID$(Q$,Y,1)="/"THEN610
600 NEXTY
610 B=VAL(MID$(Q$,X+2,Y-X-2))
620 RETURN
630 DATA"4","/QDOES IT FLY/Y2/N3
/","/ACROW","/AGOLD FISH"
640 'list animals
650 PRINT:PRINT"ANIMALS I ALREAD
Y KNOW ARE:"
660 FORI=1TO299:IFLEFT$(A$(I),2)
<>"/A" THENNEXTI:GOTO690
670 FORZ=3TO LEN(A$(I)):IFMID$(A
$(I),Z,1)<>"/" THENPRINTMID$(A$(
I),Z,1);:NEXTZ
680 PRINT,:NEXTI
690 FORX=1TO1000:NEXT:GOTO220
700 'slow printing
710 FORYP=1TOLEN(PI$):PRINTMID$(
PI$,YP,1);:FORGH=1TO4:NEXTGH,YP:
RETURN
720 'saving animals & quitting
730 CLS:PRINT,,:PI$=" ARE YOU SU
RE YOU WANT TO QUIT?":GOSUB710
740 A$=INKEY$:IFA$=""THEN740 ELS
EIFA$="Y" THEN750 ELSEIFA$="N" T
HEN220 ELSE740
750 CLS:PI$="DO YOU WISH TO SAVE
THE ANIMALS AND QUESTIONS IN ME
MORY TO DISK OR CASSETTE?":GOSUB
710
760 A$=INKEY$:IFA$=""THEN760ELSE
IFA$="N" THENCLS:END ELSEIFA$="Y
" THEN770 ELSE760
770 CLS:PRINT"WHICH DO YOU WANT
TO SAVE THEM TO?","1. DISK",,"
2. CASSETTE"
780 ONVAL(INKEY$)GOTO 790,800:GO
TO780
790 CLS:PRINT"INSERT DISK TO SAV
E ANIMALS ON THEN PRESS [ENTER]
":SF=1:EXEC44539:GOTO810
800 CLS:PRINT"POSITION TAPE - PR
ESS PLAY AND RECORD THEN PRESS
[ENTER]":SF=-1:EXEC44539
810 OPEN"O",#SF,"ANIMAL":FORX=0T
O300:PRINT#SF,A$(X):NEXT:CLOSE#S
F:PRINT"FINISHED":FORX=1TO1000:N
EXT:CLS:END

```

Submitting Material To Rainbow

Contributions to THE RAINBOW are welcome from everyone. We like to run a variety of programs that are useful/helpful/fun for other CoCo owners.

Program submissions must be on tape or disk and it is best to make several saves, at least one of them in ASCII format. We're sorry, but we do not have time to key in programs. All programs should be supported by some editorial commentary explaining how the program works. Generally, we're much more interested in how your submission works and runs than how you developed it. Programs should be learning experiences.

We do pay for submissions, based on a number of criteria. Those wishing remuneration should so state when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send a self-addressed, stamped envelope (SASE) to: Submissions Editor, THE RAINBOW, The Falsoft Building, P.O. Box 385, Prospect, KY 40059. We will send you some more comprehensive guidelines.

Please do not submit programs or articles currently submitted to another publication.

"I cannot imagine the CoCo 3 without ADOS-3; it would not be a complete machine."

The RAINBOW, July 1987

You've moved up to a CoCo 3. A powerful new machine. Now, it's time to give BASIC a shot in the arm, with ADOS-3. Wouldn't it be nice to turn on your machine and be greeted by an 80-column display, in the colors of your choice, with your own custom startup message? To run routinely at 2 MHz (double speed) without having to slow down for disk and printer operations? This and much, much more is possible with ADOS-3, our CoCo 3 adaptation of the acclaimed original ADOS, which shares the original's virtual 100% compatibility with commercial software. After customizing ADOS-3 using the provided configuring utility, you can have it burned into an EPROM that plugs into the Disk BASIC ROM socket, or just use it in RAM as a disk utility. (EPROM + burning will cost \$15-20; we provide information concerning how you can have this done.) Supports double-sided drives (35, 40, or 80 tracks), FAST and SLOW commands, auto line number prompts, RUNM command, keystroke macros, arrow-key scroll through BASIC programs, auto-edit of error line, and many more valuable features.

"ON A SCALE OF 1 TO 10, I RATE ADOS-3 A SOLID 15." RAINBOW, 7/87

Disk \$34.95 Original ADOS for CoCo 1 or 2 \$27.95 (See 6/87 RAINBOW review)

THE PEEPER

ML program tracer that multitasks with the target program. An excellent learning tool for the ML novice; an invaluable debugging aid for the expert. CoCo 1, 2, or 3 compatible.

Disk \$23.95 Assembler source listing Add \$3.00

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Magnavox 8CM515/8CM505/8CM643 \$19.95 SonyKV1311CR \$29.95

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