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CONTENTS

SEPTEMBER

EMERGENCY CARE MONTH	6
BETTER BREAKFAST MONTH	12
NATIONAL NEIGHBORHOOD DAY	16
LABOR DAY	18
FALL BEGINS	21
JOHNNY APPLESEED'S BIRTHDAY	22

OCTOBER

 COMPUTER LEARNING MONTH
 24, 27, 55

 NATIONAL NEWSPAPER WEEK
 28

 FIRE PREVENTION WEEK
 32, 35

 COLUMBUS DAY
 36

 HALLOWEEN
 38, 40, 42, 45, 46, 49, 50, 52, 54, 55

NOVEMBER

ELECTION DAY	58
NATIONAL LETTER WRITIN	G
WEEK	62, 64
NATIONAL CHILDREN'S BOO	ЭK
WEEK	65, 67
THANKSGIVING 68, 7	71, 73, 74

DECEMBER

HANUKKAH	8			76,	87
CHRISTMAS	76,	81,	84,	86,	87
FIRST DAY OF WIN	ITEF	2		89,	90

JANUARY

NEW YEAR	92
NATIONAL BLOOD DONOR	
MONTH	93
MARTIN LUTHER KING, JR. 'S	
BIRTHDAY	95

CONTENTS

FEBRUARY

BLACK HISTORY MONTH	98
DENTAL HEALTH MONTH	101
GROUNDHOG DAY	104, 114
LINCOLN'S BIRTHDAY	104, 114
VALENTINE'S	
DAY 104, 110,	112, 114
WASHINGTON'S BIRTHDAY	104, 114

MARCH

YOUTH ART MONTH	118
MUSIC IN OUR SCHOOLS	
MONTH	126
ST. PATRICK'S DAY	129
END OF MARCH	130

APRIL

NATIONAL HUMOR MONTH	132
PASSOVER	133
EASTER	134
NATIONAL BICYCLE SAFETY	
WEEK	136



MAY

NATIONAL FITNESS AND	
SPORTS MONTH	140
MOTHER'S DAY	147, 148
MEMORIAL DAY	149
END OF SCHOOL	150

PROGRAM CONVERSIONS 151

WORKSHEET ANSWERS 156

INDEX

158



Better Breakfast Month 12

National Neighborhood Day 16

18

Fall Begins 21

Johnny Appleseed's Birthday $\mathbf{22}$

EMERGENCY CARE MONTH MONTH OF SEPTEMBER MONTH OF SEPTEMBER

mergency! is a BASIC program that helps students decide what to do in eight situations. Several of these situations are emergency situations; others could become emergencies if not handled properly.

September is a good time to introduce this program to children, because it has been designated Emergency Care Month.

HOW THE PROGRAM WORKS

In the *Emergency!* program, Elmer "Bad Luck" Briggs, an imaginary friend, runs into the following problems.

- He misses the school bus.
- He loses his house key.
- He gets stung by a bee.
- He witnesses a bicycle theft.

• He falls off a swing set and nearly breaks his arm.

• He sets the stove on fire.

• He blows a fuse in his house.

• A stranger knocks on the door while he is home and his parents are not.

For each problem situation, students must choose between three courses of action for Elmer. Correct choices solve Elmer's problems and give students points. Incorrect choices cause further problems.

For some problems, students can gain extra points by correctly entering the appropriate emergency phone number for their area. The largest number of points children can score is 140.

INTRODUCING THE PROGRAM

Ask students what an emergency is. (Any dangerous situation, serious accident, or serious illness.) Ask them to give examples of emergency situations. (A fire, a gas leak, a broken arm, an allergic reaction, and so on.) Write down their reponses on the board.

Ask students if the following situations are emergencies:

• Forgetting to do your homework. (No.)

• Burning a pan of cookies. (No, unless it catches fire.)

• Getting lost in a strange city. (Yes.)

Children should be prepared to handle common emergencies.

• Smashing your bicycle in an accident. (Yes, if you are hurt.)

Explain to students that many emergency situations are avoidable. For example, many fires are caused by carelessness. Review the list of emergencies on the board and decide which ones could probably be avoided and how.

One of the best ways to avoid an emergency or to handle one that is unavoidable is to be prepared. Posting a list of emergency phone numbers is one good means of preparation. Make copies of the Emergency Phone List worksheet on page 11 and pass out one copy to each student. The worksheet asks students to fill in emergency phone numbers, including the police, fire department, family doctor, ambulance, parents, and a neighbor. Students must also fill in the locations of the fire extinguishers in their homes and at school.

Children will need to refer to this sheet as they operate the program, but afterward encourge them to take the sheet home and post it in a prominent place.

USING THE PROGRAM

Type in and save the *Emergency!* program on page 7. Have students run through the program individually. At the beginning of the program, students will be asked to enter the information on their Emergency Phone List, so remind kids to have the worksheets handy.

Encourage the programmers in your class to add more situations to the program. For example, while Elmer is home alone, the gas stove could leak, the telephone could ring, a robber could enter the house, Elmer could break a lamp, he could choke on some food, he could get something in his eye, or he could have an asthma attack.

An excellent resource for information on handling emergencies is *The Official Kids' Survival Kit*, by Elaine Chaback and Pat Fortunato. (\$8.95; Little, Brown, and Co., 34 Beacon St., Boston, MA 02106)

Lorraine Hopping

This program listing is for Apple computers. To con- Radio Shack computers, see Program Conversions, page vert the program for use on Atari, Commodore, and 151.

10 REM EMERGENCY! @1985 SCHOLASTIC INC. 20 HOME : CLEAR 30 PRINT " ELMER 'BAD LUCK' BRIGGS CAN'T GET" 40 PRINT "THROUGH A SINGLE DAY WITHOUT AN" 50 PRINT "EMERGENCY. (THAT'S WHY WE CALL HIM" PRINT "'BAD LUCK.') 60 70 PRINT : PRINT " WHEN ELMER RUNS INTO A PROBLEM, HE" 80 PRINT "TURNS TO YOU FOR HELP." 90 PRINT : PRINT " HE KNOWS THAT YOU KEEP A LIST OF" 100 PRINT "EMERGENCY PHONE NUMBERS HANDY." 110 PRINT : PRINT " IN CASE SOMETHING HAPPENS TO ELMER." 120 PRINT "LET'S REVIEW THE LIST OF PHONE NUMBERS" 130 PRINT "ON YOUR EMERGENCY CHECKLIST WORKSHEET." 140 PRINT : PRINT " ENTER THE PHONE NUMBER OF THE FIRE" PRINT "DEPARTMENT AND PRESS <RETURN>:": INPUT FDs 150 160 PRINT : PRINT " ENTER THE PHONE NUMBER OF THE POLICE" 170 PRINT "DEPARTMENT AND PRESS (RETURN):": INPUT PDS 180 PRINT : PRINT " ENTER THE PHONE NUMBER FOR AN" 190 PRINT "AMBULANCE AND PRESS (RETURN>:": INPUT AMS PRINT : PRINT " ENTER THE PHONE NUMBER OF YOUR" 200 PRINT "DOCTOR AND PRESS <RETURN>:": INPUT DOS 210 220 PRINT : PRINT " ENTER YOUR MOTHER'S OR FATHER'S DAY" 230 PRINT "PHONE NUMBER AND PRESS <RETURN>:": INPUT MDs 240 PRINT : PRINT " ENTER YOUR NEIGHBOR'S PHONE NUMBER" 250 PRINT "AND PRESS (RETURN).": INPUT NES PRINT : PRINT " WHERE IS THE FIRE EXTINGUISHER IN" 260 270 PRINT "YOUR HOME? (IF YOU DON'T HAVE ONE, TYPE" 280 PRINT "'NONE' AND PRESS (RETURN).": INPUT FIS 290 PRINT : PRINT " PRESS (RETURN) TO BEGIN.": INPUT ZS 300 HOME : PRINT " ELMER'S ALARM CLOCK DOESN'T GO OFF." 310 PRINT "HE WAKES UP LATE AND MISSES THE BUS." 320 PRINT "HIS PARENTS HAVE ALREADY LEFT FOR WORK." 330 PRINT : PRINT " HE CALLS YOU FOR ADVICE. YOU SAY:" 340 PRINT : PRINT " 1. HITCHHIKE TO SCHOOL." 350 PRINT " 2. TAKE THE DAY OFF." 360 PRINT " 3. GET A RIDE FROM A NEIGHBOR." 370 **GOSUB 2000** 380 IF AS = "1" THEN GOSUB 3000 390 IF AS = "2" THEN GOSUB 3100 400 IF AS = "3" THEN SC = SC + 10: GOSUB 3200 PRINT : PRINT " PRESS (RETURN).": INPUT 25 410 420 HOME : PRINT " ELMER IS IN SUCH A HURRY TO GET TO" 430 PRINT "CLASS THAT HE LOSES HIS HOUSE KEY." 440 PRINT : PRINT " YOU TELL HIM:" 450 PRINT : PRINT " 1. DON'T WORRY. IT WILL TURN UP SOME-" PRINT "WHERE." 460 PRINT " 2. CALL MON OR DAD RIGHT AWAY." 470 480 PRINT " 3. LOOK FOR IT AFTER SCHOOL." 490 GOSUB 2000 500 IF AS = "1" OR AS = "3" THEN GOSUB 3300 510 IF A# = "2" THEN SC = SC + 10: GOSUB 3400 PRINT : PRINT " PRESS <RETURN>.": INPUT Zs 520 530 HOME : PRINT " AT RECESS, YOU AND ELNER HEAD OUT TO" 540 PRINT "THE PLAYGROUND." 550 PRINT " 'OUCH!' SHOUTS ELMER. 'A BEE STUNG" 560 PRINT "ME! I FEEL WEAK." PRINT : PRINT " WHAT DO YOU DO TO HELP ELMER?" 570 580 PRINT : PRINT " 1. CALL A DOCTOR RIGHT AWAY." 590 PRINT " 2. NOTHING. IT'S JUST A BEE STING." 600 PRINT " 3. KILL THE BEE." 610 GOSUB 2000 IF AS = "1" THEN SC = SC + 10: GOSUB 3500 620 630 IF AS = "2" OR AS = "3" THEN GOSUB 3600 640 PRINT : PRINT " PRESS (RETURN).": INPUT ZS 650 HOME : PRINT " YOU AND ELMER ARE EATING LUNCH." 660 PRINT " ELMER POINTS OUTSIDE. 'LOOK!' HE" 670 PRINT "SAYS. 'SOMEONE IS TAKING BILLY'S BIKE.'"

(continued)

680 PRINT : PRINT " YOU REPLY:" 690 PRINT : PRINT " 1. LET'S TELL THE MAN TO STOP." 700 PRINT " 2. FORGET IT. IT'S NOT OUR BIKE." PRINT " 3. LET'S CALL THE POLICE." 710 720 GOSUB 2000 730 IF AS = "1" THEN GOSUB 3700 740 IF AS = "2" THEN GOSUB 3800 750 IF AS = "3" THEN SC = SC + 10: GOSUB 3900 760 PRINT : PRINT " PRESS <RETURN>.": INPUT 25 HOME : PRINT " LATER THAT DAY, ELMER FALLS OFF THE" 770 PRINT "SWING SET. HE IS NOT MOVING. HIS ARM" 780 790 PRINT "LOOKS TWISTED." 800 PRINT : PRINT " WHAT CAN YOU DO TO HELP ELMER?" 810 PRINT : PRINT " 1. HELP HIM STAND ON HIS FEET." 820 PRINT " 2. CALL AN ANBULANCE." 830 PRINT " 3. TELL HIM HE LOOKS LIKE HE IS GOING" 840 PRINT "TO DIE." 850 GOSUB 2000 860 IF AS = "1" THEN GOSUB 4000 IF AS = "2" THEN SC = SC + 10: GOSUB 4100 870 880 IF AS = "3" THEN GOSUB 4200 890 PRINT : PRINT " PRESS (RETURN).": INPUT 25 900 HOME : PRINT " ELMER INVITES YOU TO HIS HOUSE FOR" PRINT "AN AFTER-SCHOOL SNACK. HE PUTS A PAN OF" 910 PRINT "SOUP ON THE STOVE. IT CATCHES FIRE." 920 930 PRINT : PRINT " YOU KNOW JUST WHAT TO DO:" 940 PRINT : PRINT " 1. TURN OFF THE HEAT AND COVER THE" 950 PRINT "PAN WITH A LID." 960 PRINT " 2. POUR WATER ON THE FIRE." PRINT " 3. PANIC AND RUN OUT OF THE HOUSE." 970 980 GOSUB 2000 990 IF AS = "1" THEN SC = SC + 10: GOSUB 4300 1000 IF AS = "2" OR AS = "3" THEN GOSUB 4400 1010 PRINT : PRINT " PRESS (RETURN).": INPUT 25 1020 HOME : PRINT " ELMER PUTS THE SOUP IN THE TOASTER" 1030 PRINT "OVEN AND TURNS ON THE STEREO, THE TV," 1040 PRINT "AND TWO LAMPS." 1050 PRINT " SUDDENLY, EVERYTHING GOES OFF." 1060 PRINT : PRINT " IT'S A GOOD THING YOU ARE THERE TO:" 1070 PRINT : PRINT " 1. FIND A FLASHLIGHT AND GO DOWN-" 1080 PRINT "STAIRS TO THE FUSE BOX." 1090 PRINT " 2. TURN OFF ALL THE APPLIANCES." 1100 PRINT " 3. DO BOTH 1 AND 2." 1110 GOSUB 2000 1120 IF AS = "3" THEN SC = SC + 10 1130 GOSUB 4500 1140 PRINT : PRINT " PRESS <RETURN>.": INPUT ZS 1150 HOME : PRINT " SOMEONE KNOCKS ON THE FRONT DOOR." 1160 PRINT : PRINT " YOU TELL ELMER TO:" 1170 PRINT : PRINT " 1. OPEN THE DOOR TO SEE WHO IT IS." 1180 PRINT " 2. ASK WHO IT IS." 1190 PRINT " 3. IGNORE IT." 1200 GOSUB 2000 IF AS = "1" THEN GOSUB 4600 1210 1220 IF AS = "2" THEN SC = SC + 10: GOSUB 4700 1230 IF AS = "3" THEN GOSUB 4800 1240 PRINT : PRINT " PRESS (RETURN).": INPUT 25 1250 HOME : PRINT " ELMER'S PARENTS RETURN HOME. YOU SAY" 1260 PRINT "GOODBYE TO ELNER AND LEAVE." 1270 PRINT " YOU REMEMBER, THOUGH, THAT TOMORROW" 1280 PRINT "WILL BE ANOTHER DAY IN THE LIFE OF" 1290 PRINT "ELMER 'BAD LUCK' BRIGGS." 1300 PRINT : PRINT " BY THE WAY, YOUR SCORE WAS ";SC 1310 PRINT "OUT OF 140." 1320 END 2000 REM ENTER AND CHECK ANSWER 2010 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE AND" 2020 PRINT "PRESS (RETURN)." 2030 INPUT AS: IF AS < > "1" AND AS < > "2" AND AS < > "3" THEN 2030 2040 RETURN 3000 REM DON'T HITCHHIKE 3010 PRINT " ELMER SAYS, 'THAT SOUNDS DANGEROUS." 3020 PRINT "MOM SAYS NEVER TO RIDE WITH STRANGERS." 3030 PRINT " YOU TELL ELMER TO CALL A NEIGHBOR." 3040 GOSUB 3200: RETURN 3100 REN DON'T SKIP SCHOOL 3110 PRINT " ELMER GETS INTO BIG TROUBLE FOR NOT"" 3120 PRINT "GOING TO SCHOOL. HE MISSES A MATH TEST." 3130 PRINT "THE TEACHER GIVES HIN AN F. ELMER'S" 3140 PRINT "PARENTS GROUND HIM FOR THREE WEEKS. 3150 PRINT " THE NEXT DAY, ELMER GOES TO SCHOOL." 3160 RETURN 3200 REM RIDE FROM NEIGHBOR 3210 PRINT " ENTER THE NEIGHBOR'S PHONE NUMBER:": INPUT PS 3220 IF P\$ = NE\$ THEN PRINT " ELMER ARRIVES AT SCHOOL JUST IN TIME.":SC = SC + 10 3230 IF P\$ < > NE\$ THEN PRINT " SORRY, WRONG NUMBER.": GOSUB 3100 3240 RETURN 3300 REM LOST KEY 3310 PRINT " ELMER ASKS, 'HOW WILL I GET IN THE" 3320 PRINT "HOUSE WITHOUT A KEY?" 3330 PRINT " YOU SAY, 'I GUESS YOU BETTER CALL MOM" 3340 PRINT "OR DAD RIGHT AWAY." 3350 GOSUB 3400 3360 RETURN 3400 REM CALL MOM OR DAD 3410 PRINT " ENTER MOM'S OR DAD'S PHONE NUMBER:": INPUT PS 3420 IF P\$ < > MD\$ THEN PRINT " SORRY, WRONG NUMBER. ELMER MAKES THE CALL." 3430 IF PS = MDS THEN SC = SC + 10 3440 PRINT " ELMER'S PARENTS TELL HIM WHERE THE" 3450 PRINT "SPARE KEY IS. FROM NOW ON, ELMER KEEPS" 3460 PRINT "THE KEY ON A CHAIN AROUND HIS NECK." 3470 RETURN 3500 REN CALL DOCTOR 3510 PRINT " ENTER THE DOCTOR'S PHONE NUMBER:": INPUT PS 3520 IF P\$ < > DOS THEN PRINT " SORRY, WRONG NUMBER. ELMER MAKES THE CALL." 3530 IF P\$ = DO\$ THEN 5C = 5C + 10 3540 PRINT " THE DOCTOR ARRIVES AND GIVES ELMER A" 3550 PRINT "SHOT. ELMER RECOVERS FROM THE ATTACK." 3560 RETURN 3600 REM DO NOTHING FOR BEE STING 3610 IF AS = "3" THEN PRINT " THE BEE IS ALREADY DEAD." 3620 PRINT " ELMER GETS WORSE. HE SAYS, 'I THINK" 3630 PRINT "YOU BETTER CALL THE DOCTOR RIGHT AWAY." 3640 GOSUB 3500: RETURN 3700 REM TELL THIEF TO STOP 3710 PRINT " ELMER SAYS, 'HE LOOKS KIND OF SCARY." 3720 PRINT "YOU TELL HIM TO STOP. I'LL WATCH." 3730 PRINT " YOU WALK TOWARD THE THIEF. HE IS VERY" 3740 PRINT "BIG. YOU DECIDE TO CALL THE POLICE." 3750 GOSUB 3900 3760 RETURN 3800 REM IGNORE THIEF 3810 PRINT " THE THIEF RIDES AWAY ON BILLY'S BIKE." 3820 PRINT " BILLY IS MAD AT YOU FOR NOT CALLING" 3830 PRINT "THE POLICE." 3840 RETURN 3900 REM CALL POLICE 3910 PRINT " ENTER THE PHONE NUMBER OF THE POLICE:" 3920 INPUT P\$ 3930 IF Ps < > PDs THEN PRINT " SORRY, WRONG NUMBER.": GOSUB 3800: GOTO 3980 3940 SC = SC + 10 3950 PRINT " WHEN THE POLICE ARRIVE, YOU GIVE THEM" 3960 PRINT "A GOOD DESCRIPTION OF THE THIEF." PRINT " THEY CATCH THE THIEF TEN BLOCKS AWAY." 3970 3980 RETURN

9

PROGRAM LISTING FOR EMERGENCY!

```
4000 REM DON'T MOVE INJURED PERSON
4010 PRINT " ELMER SCREAMS IN PAIN. YOU REMEMBER"
4020 PRINT "THAT YOU'RE NOT SUPPOSED TO MOVE AN"
4030 PRINT "INJURED PERSON UNLESS HE OR SHE IS IN"
4040 PRINT "INMEDIATE DANGER."
4050 PRINT " ELMER GASPS, 'A-A-AMBULANCE!'"
4060 GOSUB 4100: RETURN
4100 REN CALL AMBULANCE
4110 PRINT " ENTER THE PHONE NUMBER FOR AN"
4120 PRINT "AMBULANCE:"
4130 INPUT PS
     IF PS < > ANS THEN PRINT " SORRY, WRONG NUMBER. A TEACHER MAKES
4140
    THE CALL."
4150 IF PS = AMS THEN SC = SC + 10
4160 PRINT " THE AMBULANCE TAKES ELMER TO THE"
4170 PRINT "HOSPITAL. HIS ARM IS SPRAINED, BUT NOT"
4180 PRINT "BROKEN. HE GOES HOME."
4190 RETURN
          SCARE ELMER
4200 REM
4210 PRINT " ELMER'S EYES GROW BIG. HE GOES INTO"
4220 PRINT "DEEP SHOCK."
4230 PRINT " YOU REALIZE YOU SAID THE WRONG THING."
4240 PRINT "YOU DECIDE TO CALL FOR AN AMBULANCE."
4250 GOSUB 4100: RETURN
4300 REN PUT OUT FIRE
4310 PRINT " YOU SMOTHER THE FIRE. TO MAKE SURE IT"
4320 PRINT "IS OUT, YOU DECIDE TO USE THE FIRE"
4330 PRINT "EXTINGUISHER. WHERE IS IT?"
4340 INPUT PS
4350 IF PS < > FIS OR PS = "NONE" THEN PRINT " YOU CAN'T FIND IT.": GOSUB
    4400
4360 IF PS = FIS THEN SC = SC + 10: PRINT " THE FIRE DIES OUT."
4370 RETURN
4400 REM POUR WATER/ RUN AWAY
4410 PRINT " THE FIRE GETS WORSE. YOU DECIDE TO"
4420 PRINT "CALL THE FIRE DEPARTMENT."
4430 PRINT " ENTER THE PHONE NUMBER:"
4440 INPUT PS
4450 IF PS < > FDS THEN PRINT " SORRY, WRONG NUMBER. ELMER MAKES THE
    CALL."
4460 IF PS = FDS THEN SC = SC + 10
4470 PRINT " THE FIRE FIGHTERS PUT OUT THE BLAZE."
4480 RETURN
4500 REM FUSE BLOWN OUT
4510 PRINT " YOU CHECK WHAT TO DO IN A BOOK. IT"
4520 PRINT "SAYS: (1) TURN OFF ALL APPLIANCES;"
4530 PRINT "(2) FIND A FLASHLIGHT; (3) GO DOWN-"
4540 PRINT "STAIRS AND FLIP THE SWITCH IN THE FUSE"
4550 PRINT "BOX. YOU FOLLOW THESE STEPS. THE"
4560 PRINT "ELECTRICITY IS WORKING NOW."
4570 RETURN
4600 REM ANSWER DOOR
4610 PRINT " ELMER SAYS, 'IT COULD BE A ROBBER. I"
4620 PRINT "BETTER ASK WHO IT IS."
4630 GOSUB 4700
4640 RETURN
4700 REM ASK WHO
4710 PRINT " 'WHO IS IT?' ELMER ASKS."
4720 PRINT " 'IS YOUR NOW HOME?' THE VISITOR ASKS."
4730 PRINT " ELMER SAYS, 'MY PARENTS ARE ... '"
4740 PRINT " 'BUSY!' YOU INTERRUPT. YOU REMIND"
4750 PRINT "ELMER THAT YOU SHOULD NEVER TELL A"
4760 PRINT "STRANGER THAT YOU ARE HOME ALONE."
4770 PRINT " THE VISITOR LEAVES."
4780 RETURN
4800 REM IGNORE KNOCK ON DOOR
4810 PRINT " THE VISITOR KEEPS KNOCKING. HE SAYS,"
4820 PRINT "'HELLO IN THERE! ANSWER THE DOOR!'"
4830 PRINT " ELMER SAYS, 'I BETTER ASK WHO IT IS."
4840 GOSUB 4700: RETURN
```

EMERGENCY CARE WORKSHEET

EMERGENCY CARE MONTH

MONTH OF SEPTEMBER

COPY

NAME: ______ **DIRECTIONS:** Fill in the phone numbers and other information in the blanks below. Use this list with the *Emergency!* program.

EMERGENCY PHONE LIST

Fire Department:	
Police Department:	
Ambulance:	
Doctor:	
Home phone:	
Mother (day):	
Father (day):	
Neighbor or Friend:	
Others:	

Other Emergency Information:

Location(s) of home fire extinguisher(s):

Location(s) of school fire extinguisher(s): _____

BETTER BREAKFAST MONTH

MONTH OF SEPTEMBER



BREAKFAST?

hat's for Breakfast? is a BASIC program that teaches students how to select nutritious foods for breakfast. A printer is optional.

September is the perfect month to introduce this program to your students, because September has been designated Better Breakfast Month.

HOW THE PROGRAM WORKS

The program presents students with a list of 12 foods, including eggs, hash browns, pancakes, puffed cereal, bran cereal, bacon, toast, soda pop, orange drink, tomato juice, jello, and pastry. Students must select three foods from the list to make a balanced and nutritious breakfast.

After students have made their selections, the program prints out or displays a nutrition report that in-

cludes the following information:The student's score out of 500

possible points. Students receive points for choosing foods that are balanced among the four basic food groups and that are nutritious.

• The food groups, if any, that are not represented by the student's food selections.

• The calorie count for each food selected and the total number of calories for the meal.

• Additional facts about the foods selected.

INTRODUCING THE PROGRAM

Take a quick class survey of what students ate for breakfast this morning. List the different foods on the board. Explain that *nutritious* foods, or foods that are good for you, have *nutrients*, which include vitamins, minerals, proteins, carbohydrates, and fats. For example, eggs are nutritious because they have protein, iron, and vitamins A, B_{12} , and D.

One way to tell if some foods are nutritious is to read the lists of ingredients on their packaging. Pass around food labels from cereal, bacon, jello, juice, bread, pastry, and other packages.

Ask students to give examples of nutritious foods, either from the list on the board or from the food labels. (Bran cereal, bread, and bacon are a few examples.) What makes these foods nutritious? (Encourage students to name specific vitamins and other nutrients in the foods.)

Are any foods not nutritious? (Pastries, some instant drinks, soda pop, jello, some cereals.)

Point out that some nutritious foods also contain ingredients that are not very good for you. These ingredients include too much sugar, salt, fat, caffeine (found in colas, coffee, tea, and some chocolate drinks), artificial preservatives, colorings, and flavorings.

Ask students to look for such ingredients listed on the food labels. Which foods contain them? (Bacon contains sodium nitrate, a preservative; many cereals contain extra sugar and artificial additives; fried foods contain extra fat.) Remind students that foods containing harmful ingredients should be avoided or eaten only in moderation.

USING THE PROGRAM

Type in and save the What's for Breakfast? program on page 13. Have students run the program individually. Post the nutrition reports generated by the computer on a bulletin board.

Ask students which combinations of foods listed in the program are the most nutritious. (The highest possible score is 500, which is achieved by selecting the eggs, bran cereal, and tomato juice. Other good foods include pancakes, potatoes, and toast.)

Which foods are the least nutritious? (Soda pop and jello.)

Have students read food labels and books on nutrition to find out what nutrients, if any, the What's for

10

20

30

40

50

60

70

80

90

Breakfast? foods contain. (See the nutrition resources listed below.)

Encourage the programmers in your class to add the information to the program under "Additional Food Facts" (lines 2000 to 13040).

Ask students what nutritious foods they could substitute for the non-nutritious foods on the menu. (Bran muffins could be substituted for pastry, orange juice for orange drink, water for soda bob, fresh fruit for jello, and so on.)

NUTRITION RESOURCES

The U.S. Department of Agriculture publishes several nutrition pamphlets, books, and educational aids. For a free catalog, write to Consumer Information Catalog, attn: S. James, PO Box 100, Pueblo, CO 81002. To order material, write to The Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

A few titles include:

 Some Facts and Myths About Vitamins, a free pamphlet that lists foods that are good sources of vitamins.

 Consumer's Guide to Food Labels. a free pamphlet on how to interpret

food labels. • "Fred the Horse Who Likes

Bread," "Meet Molly Moo," "Mary Mutton and the Meat Group," and

"Gussie Goose Introduces the Fruit and Vegetable Group," free primarygrade worksheets that teach students about the four food groups.

• "Snack Facts," a free poster about how snacking can cause tooth decay.

Following is a list of free or lowcost nutrition materials published by other agencies.

• "Nutrition Scoreboard." a poster that rates foods according to their nutritional value. Price is \$3.50 for nonlaminated or \$7 for laminated. Volume discounts available. Center for Science in the Public Interest, 1501 16th St. NW. Washington, DC 20036.

 Public Affairs Pamphlets, a series of pamphlets on nutrition and health, \$1 each. Volume discounts available. Write for a free catalog. Public Affairs Committee, 381 Park Ave. South, New York, NY 10016.

 A free catalog of pamphlets, kits, films, and other nutrition materials is available from the National Dairy Council, 6300 N. River Rd., Rosemont, IL 60018.

• Why Do You Need Vitamin C?, a free booklet for primary and middle grades. The Department of Citrus, Florida Citrus Commission, Lakeland, FL 33802.

Lorraine Hopping

PROGRAM LISTING FOR WHAT'S FOR BREAKFAST?

This program listing is for Apple computers. To con- | TRS-80 Model III computers, see the Program Conververt the program for use on Commodore 64, VIC-20, and sions on page 151.

REM WHAT'S FOR BREAKFAST? @1985 SCHOLASTIC INC. PRINT " HELLO! PLEASE ENTER YOUR NAME AND" 210 HOME : CLEAR :F = 12: REM NUMBER OF FOODS PRINT "PRESS (RETURN).": INPUT NS 220 DIM FIS(F),C(F),MT(F),DP(F),BR(F),FV(F),SC(F) 230 PRINT : PRINT " THANK YOU, ";NS;"." PRINT : PRINT " IN A MOMENT, I WILL SHOW YOU A LIST" 240 FOR I = 1 TO F READ FIS(I),C(I),MT(I),DP(I),BR(I),FV(I),SC(I) PRINT "OF BREAKFAST FOODS. CHOOSE THREE FOODS" 250 PRINT "FROM THE LIST." 260 NEXT I YOU WILL RECEIVE POINTS FOR CHOOSING" REM FOOD, CALORIES, MEAT, DAIRY, BREAD, FR/VEG, SCORE PRINT : PRINT " 270 PRINT "FOODS THAT ARE BALANCED IN THE FOUR" DATA SCRAMBLED EGGS (3),330,1,0,0,0,100 280 DATA HASHED BROWN POTATOES, 350, 0, 0, 0, 1, 100 PRINT "FOOD GROUPS AND THAT ARE NUTRITIOUS." 290 PRESS (RETURN) TO START.": INPUT ZS 300 PRINT : PRINT " DATA PLAIN PANCAKES (3),120,0.0.1.0.50 100 DATA PUFFED RICE CEREAL, 280, 0, 1, 1, 0, 25 310 GOSUB 1500 110 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE" DATA BRAN/FRUIT CEREAL, 245, 0, 1, 1, 1, 200 320 120 PRINT "(1-";F;") FOR FOOD #1. PRESS (RETURN)." DATA BACON (3 BIG STRIPS),135,1,0,0,0,25 DATA WHITE TOAST (2 SLICES),140,0,0,1,0,50 330 130 INPUT X: IF X < 1 OR X > F THEN 340 340 140 DATA SODA POP (12 02.),150,0,0,0,0,0 350 GOSUB 1500 150 DATA ORANGE DRINK (8 02.),140,0,0,0,1,25 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE" 160 360 TOMATO JUICE (8 02.),50,0,0,0,1,100 PRINT "(1-";F;") FOR FOOD #2. PRESS (RETURN)." 170 370 DATA DATA RASPBERRY JELLO (1 CUP),140,0,0,0,0,0 INPUT Y: IF Y < 1 OR Y > F THEN 380 180 380 GOSUB 1500 190 DATA JELLY-FILLED PASTRY, 275, 0, 0, 1, 0, 25 390 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE" 200 REM ENTER THREE FOOD CHOICES 400

(continued)

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410 PRINT "(1-":F:") FOR FOOD #3. PRESS (RETURN)."
420 INPUT 2: IF Z < 1 OR Z > F THEN 420
    REM CALCULATE CALORIES. FOOD GROUPS. SCORE
430
440 TC = C(X) + C(Y) + C(Z): REN TOTAL CALORIES
450 TH = HT(X) + HT(Y) + HT(Z); REN MEAT GROUP
460 TD = DP(X) + DP(Y) + DP(Z): REM DAIRY GROUP
470 TB = BR(X) + BR(Y) + BR(Z); REM BREAD GROUP
480 TF = FV(X) + FV(Y) + FV(Z): REM FRUIT/VEGETABLE GROUP
490 TS = SC(X) + SC(Y) + SC(Z): REM TOTAL SCORE
    IF TM > O THEN FG = FG + 1: REM FG=FOOD GROUPS
500
    IF TD > O THEN FG = FG + 1
510
520
    TE TE > O THEN EG = EG + 1
    TF TF > O THEN FG = FG + 1
530
    IF FG = 4 THEN TS = TS + 100: REN FOOD IN FOUR GROUPS
540
    IF FG = 3 THEN TS = TS + 50: REM FOOD IN THREE GROUPS
550
     IF FG = 2 THEN TS = TS + 10: REM FOOD IN TWO GROUPS
560
     REM PRINT OR DISPLAY NUTRITION REPORT?
570
     HOME : PRINT " NOW, I WILL GIVE YOU A NUTRITION"
580
     PRINT "REPORT BASED ON YOUR FOOD CHOICES."
590
     PRINT "WHICH WOULD YOU PREFER, ";NS;"?"
600
    PRINT : PRINT " 1 READ THE REPORT ON THE SCREEN."
PRINT : PRINT " 2 PRINT OUT THE REPORT ON PAPER."
610
620
     PRINT "(YOU NEED & PRINTER ATTACHED TO YOUR"
630
640
     PRINT "COMPUTER TO DO THIS.)"
     INPUT QS: IF QS < > "1" AND QS < > "2" THEN 660
650
660
     IF QS = "2" THEN GOSUB 20000
670
680
     REM NUTRITION REPORT
     HOME : PRINT "
690
                       ***** NUTRITION REPORT ******
     PRINT : PRINT "PREPARED FOR: ":N#
700
    PRINT : PRINT "FOODS SELECTED:"
PRINT " ":FIS(X)
710
720
     PRINT "
                ":FI$(Y)
730
     PRINT "
                ";F1$(2)
740
     PRINT : PRINT "TOTAL SCORE (500 POSSIBLE): ";TS
PRINT : PRINT " ":NS:", YOU HAVE CHOSEN FOODS IN
PRINT FG;" OUT OF THE 4 BASIC FOOD GROUPS."
750
760
770
     IF FG < > 4 THEN PRINT : PRINT " NEXT TIME, CHOOSE
780
     SOMETHING IN THE:"
     IF TH = O THEN PRINT "
                                  NEAT GROUP"
790
     IF TD . O THEN PRINT "
                                  DAIRY GROUP"
800
     IF TB = O THEN PRINT "
                                  BREAD AND CEREAL GROUP"
810
     IF TF = O THEN PRINT "
                                  FRUIT AND VEGETABLE GROUP"
820
     IF OS = "1" THEN PRINT : PRINT " PRESS «RETURN».":
830
     INPUT Ze: HONE
PRINT : PRINT " ";NS;", IF YOU ARE 7 TO 9 YEARS"
840
     PRINT "OLD, YOU NEED 2100 CALORIES PER DAY."
PRINT " IF YOU ARE 10 TO 12, YOU NEED 2500"
850
860
870
     PRINT "CALORIES PER DAY."
     PRINT : PRINT " HERE IS A CALORIE BREAKDOWN FOR THE"
880
890
     PRINT "FOODS YOU SELECTED:"
900
     PRINT : PRINT "NAME OF FOOD ITER", "CALORIES"
910
     PRINT "------"
920
     PRINT FIS(X).C(X)
930
     PRINT FIS(Y),C(Y)
     PRINT FIS(2),C(2)
940
950
     PRINT "------"
     PRINT "TOTAL # OF CALORIES", TC
960
     IF QS = "1" THEN PRINT : PRINT " PRESS <RETURN>.":
970
     INPUT ZS: HOME
     PRINT "ADDITIONAL FOOD FACTS:"
980
     ON X GOSUB 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000,
990
      11000,12000,13000
1000
     ON Y GOSUB 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000,
      11000.12000 .13000
1010 ON Z GOSUB 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000,
      11000,12000 ,13000
1020 PR# 0: PRINT : PRINT " BON APPETIT, ";N$;"....": END
     REM LIST OF FOOD
HOME : PRINT " HERE IS THE LIST OF FOOD ITEMS."
PRINT "WHAT'S FOR BREAKFAST, ":N*:"?"
1500
1510
1520
1530
      PRINT
      FOR I = 1 TO F
PRINT " ";I;
1540
                ";1;" ";FI$(1);"."
1550
      NEXT I
1560
1570
      RETURN
2000
      REM EGGS
      PRINT : PRINT " EGGS HAVE A LOT OF PROTEIN. BUT THEY"
2010
      PRINT "ALSO HAVE CHOLESTEROL, WHICH MIGHT LEAD"
2020
     PRINT "TO HEART PROBLEMS."
2030
      PRINT " POACHED OR BOILED EGGS ARE BETTER FOR"
2040
     PRINT "YOU THAN SCRAMBLED OR FRIED EGGS."
2050
```

2060 RETURN 3000 REN HASH BROWNS PRINT : PRINT " HASH BROWNS ARE A GOOD CHOICE, BUT" 3010 3020 PRINT "THEY HAVE A LOT OF FAT FROM FRYING." PRINT " STEAMED, BOILED, OR BAKED POTATOES" 3030 PRINT "(WITHOUT BUTTER) ARE BETTER FOR YOU." 3040 3050 RETURN REM PANCAKES 4000 PRINT " PANCAKES ARE A PRETTY GOOD CHOICE," PRINT "BUT GO EASY ON THE SYRUP AND BUTTER. 4010 4020 4030 RETURN 5000 REM PUFFED RICE CEREAL PRINT " PRINT " MOST PUFFED CEREALS ARE HIGH IN VITA-" PRINT "NINS, BUT THEY ALSO CONTAIN UP TO 40" 5010 5020 PRINT "PERCENT SUGAR." 5030 PRINT " READ THE INGREDIENTS ON THE BOX." 5040 PRINT "AVOID SUGAR, PRESERVATIVES, AND ARTIFI-" 5050 5060 PRINT "CIAL COLORINGS AND FLAVORINGS." 5070 RETURN REN BRAN/FRUIT CEREAL PRINT : PRINT " BRAN CEREAL WITH FRUIT IS A GREAT" 6000 REN 6010 6020 PRINT "CHOICE. IT HAS VITAMINS AND FIBER," PRINT "WHICH IS GOOD FOR DIGESTION." 6030 PRINT " SOME BRAN CEREALS ARE BETTER THAN" 6040 PRINT "OTHERS. READ THE INGREDIENTS ON THE" 6050 PRINT "BOX. AVOID SUGAR AND ARTIFICIAL COLOR-" 6060 PRINT "INGS AND FLAVORINGS." 6070 6080 RETURN REN BACON 7000 PRINT : PRINT " BACON HAS PROTEIN. BUT, LIKE HOT DOGS" 7010 PRINT "AND SAUSAGES, IT HAS A LOT OF FAT AND" 7020 PRINT "A CHEMICAL CALLED SODIUM NITRATE." 7030 7040 RETURN REN TOAST 8000 PRINT : PRINT'" TOAST HAS MANY NEEDED VITANINS." PRINT "IN GENERAL, RYE TOAST AND WHEAT TOAST" PRINT "ARE BETTER FOR YOU THAN WHITE TOAST." PRINT " GO EASY ON THE BUTTER AND JAM." 8010 8020 8030 8040 8050 RETURN REM SODA POP 9000 PRINT : PRINT " SODA POP HAS A LOT OF SUGAR AND NO" 9010 PRINT "NUTRIIONAL VALUE." PRINT " READ THE INGREDIENTS ON THE BOTTLE." 9020 9030 PRINT "AVOID CAFFEINE, SUGAR, AND ARTIFICIAL" 9040 PRINT "COLORINGS AND SWEETENERS." 9050 RETURN 9060 10000 REM ORANGE DRINK PRINT : PRINT " ORANGE 'DRINK' IS DIFFERENT FROM" PRINT "ORANGE 'JUICE'. IT HAS LITTLE OR NO" 10010 10020 10030 PRINT "REAL JUICE. MANY FRUIT DRINKS ALSO HAVE" PRINT "A LOT OF SUGAR." 10040 PRINT " READ THE INGREDIENTS ON THE PACKAGE. 10050 PRINT "REAL ORANGE JUICE SAYS '100% ORANGE" 10060 PRINT "JUICE' AND NOTHING ELSE." 10070 10080 RETURN 11000 REN TOMATO JUICE PRINT : PRINT " TOMATO JUICE IS AN EXCELLENT CHOICE" PRINT "BECAUSE IT IS HIGH IN VITANINS AND LOW" 11010 11020 PRINT "IN CALORIES AND SUGAR." 11030 11040 RETURN REM JELLO PRINT : PRINT " JELLO HAS A LOT OF SUGAR AND LITTLE" 12000 12010 PRINT "OR NO NUTRITIONAL VALUE. READ THE IN-12020 PRINT "GREDIENTS ON THE PACKAGE. AVOID ARTIFI-" 12030 PRINT "CIAL COLORINGS AND FLAVORINGS." 12040 12050 RETURN REM PASTRY PRINT : PRINT " PASTRIES, INCLUDING DOUGHNUTS, ARE" 13000 13010 PRINT "HIGH IN SUGAR AND HAVE FEW VITAMINS OR" 13020 PRINT "OTHER NUTRIENTS." 13030 13040 RETURN REM PRINT OUT NUTRITION REPORT 20000 PRINT : PRINT " MAKE SURE YOUR PRINTER IS TURNED ON" 20010 PRINT "AND THE PAPER IS IN PLACE." 20020 PRINT " IF YOU DON'T WANT TO PRINT OUT THE" 20030 PRINT "REPORT AFTER ALL, TYPE 'Q' AND PRESS." 20040 PRINT "<RETURN>." PRINT " IF EVERYTHING IS READY, PRESS" 20050 20060 PRINT "<RETURN> TO BEGIN PRINTING." 20070 20080 INPUT 2s: IF 2s < > "Q" THEN PR# 1 20090 IF ZS = "Q" THEN QS = "1" 20100 RETURN

NUTRITION REPORT

Sample of a nutrition report provided by the What's for Breakfast program.





eptember 7 is National Neighborhood Day. This holiday was instituted to recognize the neighborhood as a vital national asset, to encourage people to get to know their neighborhood, and to celebrate the accomplishments of neighborhood organizations.

If your students know how to use four basic Logo commands, FOR-WARD, BACK, LEFT, and RIGHT, they will be able to complete the two neighborhood activities that follow.

The first activity has kids draw their own neighborhood on a sheet of transparent acetate. They then attach this sheet to the computer screen. By moving the Logo turtle from place to place along the acetate map, kids will become more familiar with important sites in their neighborhood.

The second activity provides a program listing that will allow your computer to display a town map in turtle graphics. Once again, kids are to travel from place to place on the map.

In both activities children practice using basic Logo commands. The acdirectional movement and to estimate distances. (Students must determine what direction and how far to move the turtle to reach a specific destination.)

MAP TRANSPARENCY ACTIVITY

Objective: Students move the screen turtle to different destinations on a map.

Activity: On a transparent piece of acetate, draw a simple map of your neighborhood or town. Label important sites such as the police station, city hall, bank, grocery store, and so on. Tape the map over a computer screen. Be sure to match the center of the screen with the center of the diagram.

Instruct children to use Logo commands to move the turtle from place to place on the map. For example, what commands would they use to travel from say, city hall to police headquarters, or from the grocery store to the bank?

Extension: (1) Construct more complex maps that have diagonal streets and traffic circles. (2) As children master these maps, draw in tivities also allow students to explore roadblocks, detours, and one-way streets. (3) An enlarged map of downtown Washington, DC, with its many circular streets, is a real challenge to turtle travelers!

LOGO MAP PROGRAM

Objective: Students manipulate the screen turtle on a turtle graphics map.

Activity: You can use turtle graphics to make a town map, too. Just type in the program listing on the next page. Be sure to type procedures exactly as they appear and to follow the correct version for your machine.

To call up the town map, have students type MAP and then press RE-TURN or ENTER. Now kids are ready to travel from place to place on a turtle graphics map!

Extension: (1) Have kids record the sequence of commands they use to go from one place to another. Ask them to study these sequences to determine if they always choose the fastest possible routes. (2) If you have some fairly advanced Logo students, challenge them to program roadblocks and dead ends into the map.

Tom Lough and Steve Tipps

PROGRAM LISTING FOR FOLLOW A NEIGHBORHOOD MAP

Use the Logo program below with the second neigh- | be used with MIT, TI, and Apple Logo. borhhood activity on the previous page. The program can

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LABOR DAY



abor Day, the first Monday in September, is set aside each year as the U.S. laborers' holiday. The word *labor* comes from the Latin word *laborare*, which means "to be tired." On Labor Day, American laborers are given a day off from work and are honored through parades and other special festivities.

In the past few years a new kind of laborer has entered the work force. Chances are you and your students depend on this laborer for some kind of work each day. The laborer we are talking about is the *robot*.

A robot is a computer-controlled device that can be programmed to perform different manipulative tasks without direct human interaction. For example, police robots, like the RMT Mark-3, can help bomb squads dispose of bombs or drag an injured bomb victim to safety; the Hospital Helper robot can feed disabled patients; special robotic arms can assemble automobiles or lift satellites from the bay of the space shuttle.

Some robots have sensor devices that enable them to detect and measure sound, light, motion, heat, and/ or touch. These sensors can be used in programs written for the robot. For example, a robot can be programmed to turn up the thermostat in your classroom whenever the robot's heat sensor detects a temperature drop below 65 degrees Fahrenheit.

The following classroom activities will teach your students more about robots and how they work.

QUICK QUIZ

Test students' knowledge of robotics by giving them the following truefalse quiz.



1. Most robots can talk and can understand human language.

2. Some robots play chess.

3. All robots are controlled by computers.

4. It is possible to build a robot mousetrap.

5. Robots can explore the ocean.

6. Robots can guess your age, weight, and birthdate just by looking at you.

Go over the answers to the quiz together. They are as follows.

1. *False*. Few robots can talk or understand speech. Those that can, can understand only the simplest of voice commands.

2. *True*. Some robots can even move chess pieces on a board.

3. True.

4. *True*. One robot mousetrap on the market contains a dish and a scale. The robot weighs any creature that steps on the scale. A lightweight object, such as a mouse, causes the robot to spring a trap. Something heavier, such as a cat, makes the robot deposit food (more bait) in the dish.

5. *True*. Some robots perform tasks that are dangerous or impossible for humans to do, such as detonating a bomb or diving deep into the sea.

6. *False*. Robots have very poor vision. Many cannot tell the difference between a human and a lamppost.

FACT SHEET ON ROBOTS

Use articles and books to make a robot fact sheet. Include facts on which countries have the most robots, how robots are used, what they look like, and their cost.

Start with these fascinating facts.

1. The word *robot* comes from the Czech word *robata*, which means dull work. (That's what most robots do!)

2. Robots have three parts: a computer, sensors, and mechanical parts.

3. Most robots are just mechanical arms. That's because robots have only enough parts to do their jobs, and most of their jobs are fairly simple.

4. Robotic arms manipulate (move or operate) objects ranging from machines as a large as a room to tiny chess pieces.

RULES FOR ROBOTS

Some people fear that robots will take over and even harm the world. Ask kids how they think robots could do this. As a class, make a "Robot Rule Book" listing laws that would prevent robots from taking over.

Science fiction writer Isaac Asimov can help you with this project. He addresses the issue of robot behavior in many of his stories. In fact, he wrote three laws for robots to follow. Paraphrased, these laws state that: 1) Robots cannot injure a human being and must protect humans from injury; 2) Robots must obey human orders, except in violation of the first law; and 3) Robots must protect their own existence, except in violation of the first two laws.

ROBOT JOKES

Have students write their own robot jokes. Use the following jokes for inspiration. Question: What do British robots eat for dinner?

Answer: Efficient chips. (Fish 'n chips, get it?)

Question: What did the factory worker say to the half-built robot? *Answer*: Hold your circuits. ROM wasn't built in a day!

Question: What do you get when you cross a robot with a snowman? *Answer*: Frostbyte.

Question: Why did the robot become a clown?

Answer: So it could join the circuit.

PLAY ROBOT

Write these commands on the board: WALK, RIGHT, LEFT, BACK, FOR-WARD, PICK UP, PUT DOWN, and CALCU-LATE.

Now divide students into pairs and tell them they are going to play a robot game. In this game, one student in each pair is the programmer and the other is the robot. Programmers use the commands on the board to program their robots to do simple tasks. For example, to program a robot to do a math problem on the board, the programmer might tell the robot, who is facing the board, to WALK (to the board), PICK UP (a piece of chalk), and CALCULATE (a problem written on the board).

DESIGN A ROBOT

Post the illustration (*next page*) of Gardner T. Robot, a robot who can tend to most all your gardening needs. Discuss Gardner's parts and how they work. How does Gardner tell weeds and flowers apart? (It has a smelling sensor and a video camera.) How does Gardner keep from trampling flowers? (It has touch-sensitive mesh around the bottom to detect obstacles.)

Conduct a contest in which students create their own robots. Tell them to draw a design of a robot and label all the parts. They should include a short description of what their robot does and how it works.

Judge entries on overall design, understanding of how robots work and what they can do, and creativity.

ROBOTS AT WORK

Have kids collect newspaper and magazine clippings about robots at work, such as space shuttle arms, hospital aides, police and fire fighter robots, and robots designed especially for use in schools. Post these clippings on a bulletin board.

ROBOTS IN THE CLASSROOM

Educational robots, those designed especially for use with students, are excellent teaching tools.

Seeing a robot respond to commands helps kids understand abstract principles of programming, such as the fact that robots can only do what someone programs them to do.

Besides their programming possi-



bilities, robots inspire discussions about the similarities and differences between human beings and robots.

Another advantage of using robots in class is to introduce children to an increasingly important field in the business world—robots.

There are several educational robots to choose from. Let's start with Turtle Tot, a robot that plugs into a computer and performs commands addressed to it in BASIC or Logo. Tot "feels" with touch sensors, draws with a 10-color pen set, has "eyes" that blink, and, with a speech option, can talk. Turtle Tot comes with software for Apple, Atari, Commodore 64, TRS-80 Models III and 4, and IBM PC and PCjr computers. Tot sells for \$299. The talking model of Tot costs \$399.

Another robot manufactured by Harvard Associates, the makers of Tot, is the Tasman Turtle. This robot is larger and has more robotics capabilities but sells for more than twice Tot's price.

Recently, Harvard Associates adopted the Valiant Turtle into its

family of turtle robots. Like the other two, the Valiant Turtle can be programmed in either BASIC or Logo. Special features include a rechargeable battery power adapter and an infrared transmitter. The transmitter sends signals from the computer to the robot and allows it to move freely without being attached to any cords. Valiant Turtle is available for use with the Apple II, IBM PC, PCjr, and Commodore 64. The price is \$500.

Another more sophisticated robot is Topo II, a three-foot walking, talking robot. It can be operated by a joystick or by pressing certain keys on the computer keyboard. Students program Topo in Logo or FORTH.

Topo's younger relative, F.R.E.D. (Friendly Robotic Educational Device), is a 12-inch tabletop model with a 45-word voacbulary that kids program in Logo.

Both Topo II and F.R.E.D. work with Commodore 64 and Apple computers. Topo II is \$1595; F.R.E.D. costs under \$500.

A less expensive option is a battery-operated toy tank called Big Trak. Kids can program Big Trak to move in any direction, from one foot to several hundred feet in distance. Although Milton Bradley stopped manufacturing it recently, Big Trak is still available in some major department stores for about \$50.

ROBOT MANUFACTURERS

Big Trak, Milton Bradley, 443 Shaker Rd., Longmeadow, MA 01028; 800/628-8608.

F.R.E.D., Androbot, 101 E. Daggett Dr., San Jose, CA 95134; 408/262-8676.

Tasman Turtle, Harvard Associates, 260 Beacon St., Somerville, MA 02143; 800/622-4070. In Illinois, 800/942-7317.

Topo II, Androbot, 101 E. Daggett Dr., San Jose, CA 95134; 408/262-8676.

Turtle Tot, Harvard Associates, 260 Beacon St., Somerville, MA 02143; 800/622-4070. In Illinois, 800/942-7317.

Valiant Turtle, Harvard Associates, 260 Beacon St., Somerville, MA 02143; 800/622-4070. In Illinois, 800/942-7317.



1. Video camera looks for small objects that look like plants. Can see the ground from any angle and has a zoom lens to look at things close up. 2. Interface port hooks Gardner to an outside computer. Gardner can be reprogrammed to mow lawns, trim bushes, and chase dogs.

3. On-board computer uses information it gets from soil samples, the video camera, and the smell sensor to do Gardner's job better. Stops Gardner when the wire mesh runs into an object.

4. Waterproof sunshield protects Gardner from hot sun, rain, and other bad weather.

5. Optional **battery pack** lets Gardner work for three extra hours before recharging.

6. Smell-sensitive vent keeps Gardner from overheating. Smell sensors can also tell flowers from weeds.

7. All-purpose **mechanical arm** can use the watering can, garden hose, and other objects.

8. Soil scoop collects soil and sends

it to on-board computer to check for dryness and nutrients. Can spread fertilizer if needed. Also works as a **weed puller**. Drops weeds through door at left for storage inside Gardner's pouch.

9. Storage pouch has space for pulled weeds and separate place for up to two pounds of fertilizer.

10. Fine, touch-sensitive wire mesh detects things that will get in Gardener's way, like rocks and hoses. 11. Spiked wheels let Gardner move in dirt.

CORNY CORNSTALK WORKSHEET

LABOR DAY

FIRST MONDAY IN SEPTEMBER

NAME:

armers plant corn seeds in early spring. The seeds grow into cornstalks that are knee-high by the Fourth of July. By the first day of fall in September, the stalks are as high as an elephant's eye!

You can make cornstalks grow on the computer screen.

WHAT TO DO

1. Load any Logo program into your computer.

2. Type in the following RLEAF procedure.

TO RLEAF :S

REPEAT 2 [RT 30 FD :S] RT 60 FD :S BK :S LT 60 REPEAT 2 [BK :S LT 30]

END

3. Type RLEAF 15 and press RETURN or ENTER. The Logo turtle will draw a cornstalk leaf that looks like this:



Clear the screen.

4. Take a close look at the RLEAF procedure. Use the commands to make a procedure called LLEAF that draws a similar leaf to the left. (Hint: Change left to right and right to left in the RLEAF procedure.) The Logo turtle should draw a cornstalk leaf that looks like this:

Clear the screen.

5. Type RLEAF 15 and press RETURN or ENTER. Then type LLEAF 15 and press RE-TURN or ENTER. Your screen will look like this:



6. Here comes the fun part! You can make a cornstalk that has leaves growing one on top of the other. Start with this procedure.

TO CORNSTALK

RLEAF 15 LLEAF 15 FD 15 RLEAF 13 LLEAF 13 FD 15 RLEAF 11 LLEAF 11 FD 15 RLEAF 9 LLEAF 9 FD 15 RLEAF 7 LLEAF 7 FD 15 RLEAF 5 LLEAF 5 FD 15 END

CORNSTALK CHALLENGES

How many of these Logo programming challenges can you do?

• Make the cornstalk grow higher.

• Add a TASSEL to the top of your stalk. (*See illustration.*) A tassel is the flower part of the cornstalk.

• A cornstalk has one to eight *ears* (spikes) of corn growing on it. The corn grows where the leaf meets the stalk. Add EARS of corn to your cornstalk.

• Grow a whole field of corny corn on your computer screen! (Remember that corn is planted in rows.)



A cornstalk has leaves, a stalk, ears of corn, and a tassel on top.

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JOHNNY'S APPLE TREE WORKSHEET

JOHNNY APPLESEED'S BIRTHDAY

NAME:

COPY

n September 26, 1774, a boy named John Chapman was born. John loved animals and plants. When he grew up, he planted seeds for apple trees all across the country. That's how he earned the name Johnny Appleseed.

You can use Logo to make an apple tree in honor of Johnny's birthday.

WHAT TO DO

1. Boot any Logo program into your computer.

2. Type in each of the following procedures exactly as they appear.

TO GROUND

HT RT 90 FD 278 LT 90 END

TO TRUNK FD 60 END

TO APPLE REPEAT 10 [FD 2 RT 36] END

TO TWIG RT 45 FD 10 APPLE BK 10 LT 90 FD 10 APPLE BK 10 RT 45 END

TO BRANCH REPEAT 3 [FD 15 TWIG] BK 45 END

TO BRANCHES

LT 90 REPEAT 5 [BRANCH RT 45] END

3. To see what any of the procedures look like on the screen, type the name of the procedure and press RETURN or ENTER.

4. To make a whole tree, you need to put these procedures together into a new procedure called TREE. The TREE procedure is started for you above. All you need to do is write the correct procedure names in the blanks. (Hint: You only need to write in three procedures, because some of the procedures include other procedures.)

TO TREE

END

5. Type your TREE procedure into the computer.

SEPTEMBER 26

6. Type TREE and press RETURN or ENTER.

APPLE CHALLENGES

How many of these challenges can you do?

• Add color to your picture.

• Make the apples bigger.

• Use the BRANCH procedure to make roots under the ground.

• Make a new procedure called ORCHARD that draws an apple orchard.





COMPUTER LEARNING MONTH

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MONTH OF OCTOBER

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OMPUTE



ctober is the perfect month to test your students' knowledge of computer literacy; it's Computer Learning Month.

O

Before you can test kids' knowledge of computer literacy, you need to answer a fundamental question: What is computer literacy? It's more than knowing an Apple from an Atari, but it doesn't have to mean knowing how to program a rocket to land on the moon, either. Most computer literates fall somewhere in between.

In general, a person who is computer literate has an understanding in five major areas: computer parts, computer software and hardware, computer vocabulary, computers in society (past, present, and future), and computer programming.

This fun and instructive quiz on computers will help you find out how your students rate in these five areas. The quiz is not a definitive checklist, just a helpful gauge.

Make copies of the quiz and give one to each student. Have your students take the test cold, without studying or preparing for it. After they have completed the quiz, grade the tests and rate students according to the chart in the Answer, Key. You'll discover whose circuits are hot, whose circuits are warm, whose circuits are cool, and whose circuits have not been plugged in yet!

Lorraine Hopping

ANSWER KEY

Part 1: Computer Parts 1.B, 2.C, 3.D, 4.A, 5.E Bonus: Computer graphics.

Part 2: Software and Hardware 1.c, 2.a, 3.b, 4.b, 5.c Bonus: A modem.

Part 3: Vocabulary 1.a, 2.b, 3.c, 4.a, 5.b Bonus: The term "64K" means a computer can store 64,000 bytes in its memory. Part 4: Computers in Society 1.F (Charles Babbage), 2.T, 3.F (data processing), 4.T, Bonus: Sand.

Part 5: Programming

- 1. BASIC.
- 2. Turtle.

3. The computer prints HELP! I'M STUCK INSIDE A COMPUTER! on the monitor until the user presses the BREAK or SYSTEM RESET key.

4. The computer counts from one to 10 and displays the numbers on the screen.

5. The computer prints 35 on the screen.

Bonus: A byte is larger; it is made up of eight bits.

SCORING

Give your students five points for each regular question and 15 points for each bonus question they answer correctly. Grand total: 200 points. 160–200: Your circuits are hot! 120–159: Your circuits are warm! 80–119: Your circuits are cool! Less than 80: Your circuits have not been plugged in yet!



Bonus Question: What do you call pictures, designs, or diagrams that are on a computer's screen?

Part 2 COMPUTER SOFTWARE AND HARDWARE

Directions: Circle the correct		3.	How big were the first com-	b) A word processor.
answer.			puters?	c) A graphics tablet.
			a) The size of a typewriter.	
1.	Inside a robot you will find:a) A small person who makes it move.b) Metal organs, such as a heart, a brain, and a pair		b) Longer than a tyranno- saurus rex.c) About the size of Rhode Island.	Bonus Question: What do you call a machine that changes computer code into signals that can travel over telephone lines?
	of lungs.	4.	Which one of the following	
	c) A computer or micro- processor.		items does <i>not</i> contain a computer? a) A digital watch.	
2.	What is <i>not</i> another name		b) A nonelectric typewrit-	
	for a monitor?		er.	
	a) ESD (Electronic Screen Device).		c) A touch-tone telephone.	
	b) VDT (Video Display	5.	Which of the following is <i>not</i>	
	Terminal).		a software program?	
	c) CRT (Cathode-Ray Tube).		a) An electronic spread- sheet.	

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COMPUTER I.Q. WORKSHEET 2

COMPUTER LEARNING MONTH

NAME:

Part 3 COMPUTER VOCABULARY

Directions: Circle the correct answer.

- 1. A data base is:
 - a) A software program that lets you store and get information.
 - b) The "base" inside a computer that stores all information.
 - c) A star base for computer repairs.

2. A programming error is called:

- a) A chip.
- b) A bug. c) A crash.

- 3. CPU stands for:
 - a) Calculating Principle Usage.
 - b) Computer Programmers' Union.
 - c) Central Processing Unit.
- 4. A cursor is:
 - a) A blinking light that tells where the next character will appear on the computer screen.
 - b) A light on the keyboard Bonus Qu that tells you if the pow- 64K mean?

er is on or off.

- c) A person who keeps forgetting to press RE-TURN or ENTER after each program line.
- 5. Information printed out on paper is called:
 - a) Soft copy.
 - b) Hard copy.
 - c) A paper product.

Bonus Question: What does 64K mean?

Part 4 COMPUTER PROGRAMMING

gers and toes were the omputing devices used e people.	4. In the next 10 years incro- computers will be so common that nearly everyone will use them to shop, bank, and vote. Bonus Question: What grainy material does the silicon in a
or word processing.	silicon chip come from?
TY: PAST, PRESENT	C, AND FUTURE
ions: For each program describe what will hap-	4. 10 FOR P=1 TO 10 20 PRINT P
, type in the program, N it.	5. 10 PRINT 15 + 20
RINT "HELP! I'M STUCK NSIDE A COMPUTER!" OTO 10 ID	20 END Bonus Question: What is larger, a bit or a byte?
	e. gers and toes were the omputing devices used e people. biggest use of comput- for word processing. CTY: PAST, PRESENT ions: For each program describe what will hap- rou put your computer in , type in the program, N it. PRINT "HELP! I'M STUCK NSIDE A COMPUTER!" OTO 10 ND

MONTH OF OCTOBER

COMPUTER OPER WORK	ATOR'S LICENSE SHEET			
COMPUTER LEARNING MONTH	MONTH OF OCTOBER			
NAME:	knows how to:			
\Box Turn on the monitor.	\Box Save a program.			
\Box Turn on the computer.	□ Restart a program.			
□ Get the computer into BASIC	\Box Exit from a program.			
mode. \Box Insert a disk in the disk drive.	Remove a disk from the disk drive.			
□ Load a program.	\Box Turn off the computer system.			
Cut along dotted lines. C O M P U T E R O P E R A T O R'S LICENSE This is to certify that				
This license expires June, 19 License must be pu	resented upon request.			
Directions: Give each student a copy of this sheet. Each time a student or her sheet. After a student has performed every task listed, fill out the C permitted to operate a computer independently.	performs one of the tasks listed on the Operator's Test, check it off on his Operator's License at the bottom of his or her sheet. This student is now			

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COPY

INTERNATIONAL NEWSPAPER WEEK

SECOND WEEK IN OCTOBER



EXTRY! EXTRY! READ ALL ABOUT IT!

Fighting Rages in Lebanon!

Shoppers Bombard Cabbage Patch Dolls!

Gerbils Scarce in Bangor!

Where do I turn for the latest news? Not to the New York Times, but to Pickering's Daily Express, a four- to eight-page newspaper published by students in my sixth grade English class. Besides the latest in local, national, and international news, the Express contains editorials, interviews, reviews, cartoons, poetry, and recipes.

How do these young reporters and editors do it? With a little help from their computer, of course! Using a word processing program, students find the ability (and motivation) to write and revise their articles with ease. A printer provides them with clean, neat copy. The finished product is a professional looking newspaper that students, teachers, and parents can enjoy.

An appropriate time to begin publishing a school newspaper is during International Newspaper Week, usually the second week in October. (You can get the exact dates of International Newspaper Week for a specific year by contacting the International Circulation Mangers Association at 202/620-9555.)

Here's how to "get the printer rolling" (so to speak) in your classroom. First teach students how to use a word processing program. Then follow this teaching unit. It introduces



students to the basic elements of good newspaper writing and tells you how to organize a newspaper staff in your room. The four task cards provided at the end of the article let students practice newswriting and editing on a word processor.

TEACH THE ELEMENTS OF A NEWSPAPER ARTICLE

Bring in issues of local and national newspapers. Point out the basic elements of typical stories: the *headline* (article title), *deck* (short subhead, sentence, or phrase that draws the reader in), *lead* (introductory paragraph), *byline* (writer's name), and *dateline* (origin and date of story). Also point out the news section of the paper as well as the features, entertainment, and editorial sections.

Have students take a closer look at the elements that follow:

Headline: Write these sample headlines on the board:

- 1. Shuttle Schedule Up in Air
- 2. Crime: Slap the Cuffs on It!
- 3. Pick a Peck of...Peanuts?

Tell students that headlines are like telegrams; every word in them counts. Are headlines always complete sentences? (No. Due to limited space, they often lack articles and sometimes do not contain verbs, as in the first example.) Ask students what make the headlines on the board good ones. (The first one contains a play on words. The second example begins with a word that encapsulates the subject of the article. It also contains a strong, active verb to create a vivid image. The third headline draws on a familiar saying and captures the reader's interest by not revealing everything.)

Cut out articles from several news-



papers and remove the headlines. Mount the untitled articles on stiff paper and laminate them. Have students write headlines for each of the articles.

Lead: A story's lead, or introduction, has to grab the reader's attention. In general, good leads start with the most important word or words in the story. For example, "Peace and prosperity were the subjects of President Reagan's State of the Union address," is better than

> Headlines are like telegrams. Every word counts.

"President Reagan talked about peace and prosperity in his State of the Union address."

Tell students that there are two basic kinds of newspaper stories: *news stories* and *feature stories*. Each has slightly different standards for effective leads.

News story: A news story contains timely information about an event. All facts and information are directly related to these questions: Who? What? Where? When? Why? and How? In news articles, these questions are answered in the lead, which is usually no longer than a paragraph. The remaining paragraphs elaborate on the details of the story (the five Ws and the H), in order of importance. This process is called inverted pyramid writing. In an inverted pyramid, the most important details of a story are written first, and the least important, last. So if an article has to be cut to fit a space in the newspaper, editors can chop off the bottom paragraphs with-

out losing essential information. Or if a reader decides not to read the entire article, he or she will still gain the most important facts.

Have students identify news stories in newspapers and find the five Ws and the H for each.

As students read the news stories, point out that good articles use precise words with punch—lively adjectives, concrete nouns, and active verbs. For example, "Wild flames consumed the attic and top floors, despite fire fighters' efforts to save the doomed building," is better than, "The fire got out of control."

Feature Story: Feature stories are, in general, human interest stories. They are often about animals, unique hobbies, babies, or an interesting (but not particularly newsworthy) experience. Unlike straight news stories, features don't have to appear in tomorrow's paper. They can appear next week and still be interesting.

Feature leads can be longer than news leads. Often they contain a bit of intrigue that makes the reader want to read on. Here are a few kinds of feature leads:

1. Summary: A summary lead gives overall details of an event. Here's an example:

Each day, students at Central Elementary School in Columbia, Louisiana, broadcast a radio news show! They report on current events, weather, science, and sports.

2. *Novelty:* A novelty lead arouses interest without disclosing everything. Here's an example:

Citizens in the Northeast fear it. Canandians insist that the U.S. get rid of it. And President Reagan proposes that we study it. "It" is acid rain.

3. *Question:* A question lead starts with a probing or interesting question. Here's an example:

What do clam chowder, onions, chocolate, and peanut butter have in common? Believe it or not, they're all popcorn flavorings!

4. *Quotation:* A quotation lead starts with an interesting or provoca-

tive quote. Here's an example:

"If the U.S. ever got bombed, it would sure be a lot worse than what we saw on TV." That was one viewer's response to The Day After, a televised movie about a nuclear holocaust.

Mount sample headlines from feature articles on stiff paper. Laminate the headlines and distribute them to the class. Have students write summary, novelty, quotation, and question leads to match the headlines.

As another activity, have students write an entire feature story on one of these topics: an unusal pet, a funny thing that happened, or a friend's hobby.

Then cut out the four task cards at the end of this article and laminate them. Place them in your computer center for children to work on. Students will need a computer, a word processing program, and blank disks or cassettes to complete the cards. The task cards provide exercises on writing headlines, leads, and newspaper stories.

A news story should answer: Who? What? When? Why? Where? and How?

ORGANIZE A STAFF

Once students are familiar with the main elements of a newspaper article, you are ready to set up your own class newspaper. First you need a staff. Choose an editor-in-chief and two section editors, one to supervise news-story writing and one to head feature writing. (More advanced classes may wish to have editorial and entertainment section editors, too.) These editors should have good leadership qualities. Their jobs are primarily ones of organizing, paying attention to detail, and working with other students.

Another important staff member is the copy editor. He or she is in charge of proofreading all the articles for spelling and grammar. A good spelling and English student is needed here.

Depending on the size of your class, other jobs can include beat reporters, reviewers, interviewers, artists or cartoonists, keyliners in charge of pasting up the newspaper, a production manager in charge of printing and running off copies, and a circulation manager in charge of distributing the paper.

One way to assign positions is to have students "apply" for them. Their applications should contain a letter explaining why they would be good at a particular position and what kinds of innovations they would bring to the paper. Tell students that you will assign positions based on the qualifications and ideas stated in their applications.

When the positions are filled, conduct an editorial staff meeting. Decide on the name of the paper, the number of pages, deadlines, who will receive the newspaper, and other important details.

ASSIGN ARTICLES

Put the editor-in-chief in charge of a class brainstorming session to determine story ideas for the first issue.

• List national and international news of interest to your paper's readers.

• List school news: an accident on the playground, an upcoming open house, building improvements, and so on.

• Discuss feature story ideas, such as interviews with teachers or parents, articles on community groups, short stories or poetry, an advice column, recipes, and cartoons.

• Discuss entertainment possibilities, such as publishing book and movie reviews, a calendar of school

activities, and the cafeteria menu.

• Perhaps students would like to include a few editorials as well.

Have the copy editor write all brainstorming ideas on the board.

You will probably end up with an abundance of feature article proposals. It's up to the editor-in-chief and section editors to decide what's important, to assign a good balance of articles, and to impress upon workers the importance of meeting deadlines.



Feature stories, in general, are human interest stories.

WRITE AND EDIT THE NEWSPAPER

Before writing anything, have students outline their ideas. Have them jot down topic sentences, possible leads, phrases, and so on, to help them formulate their ideas. Then have them organize their notes into outlines. Review students' outlines and make suggestions for using livelier words, specific details, and examples to back up opinions.

Students are now ready to type first drafts of their articles into the computer. After students have typed their stories into the computer, encourage them to use the word processor to fine-tune them.

Writers should save their stories on a disk or cassette under a *slug*, a short, one-word description of the story. Near the computer keep an editorial schedule that lists each article's name, the author, the section editor in charge, and the slug. As writers finish their articles, their section editors should edit the stories, checking for clarity, accuracy, organization, and appropriate word length. The editor-in-chief then reviews all stories, looking for stray errors and overlap between articles.

The copy editor then proofreads the final drafts to correct spelling and grammar and signals the production manager (or teacher) that the stories are ready for printing.

LAY OUT AND PRINT THE NEWSPAPER

The way you design the columns of your newspaper depends on artistic taste and the computer equipment available to you.

For our newspaper, we use lettersize paper and fit three columns of copy on each page. The columns are 20 characters wide (including spaces between words and punctuation). This allows you to leave a five-space gutter between each column and a five-space margin on each side. For some features, book reviews, or personal columns, we use a two-column, 33-character format. This leaves four spaces of gutter between the two columns and five for the margins.

Some computer equipment allows you to position articles the way you want them on a page before you run the printer. Ours does not.

Our production manager prints out stories separately (usually at 20 characters wide) and turns them over to the keyliners, or pasteup artists. The keyliners use rubber cement to paste all copy, artwork, and page numbers onto our newspaper pages.

When the *mechanicals* (pasteups of the pages) are complete, the production manager makes enough copies for all our readers.

Once the circulation manager or a select group of students has seen that your papers have been distributed, conduct a *postmortem* session. Gather the entire staff and flip through the newspaper together. What articles and layouts were most successful this issue? Could anything be improved upon for the next issue?

Beth Deardorff

NEWSPAPER TASK CARD # THE FIVE W'S

Feline Rescued from Burning Building

home, had escaped unharmed, but the family's pet cat remained inside. Fire fighters found Misty crouching by the kitchen door Misty, a black cat, was rescued from a burning building by fire fighters reached 114 Hancock Street, the building was already engulfed in flames. Mr. and Mrs. Tom Jakes, residents of the fighters in Angora, Maine, late Monday night. When the fire and removed her safely from the building

Directions:

1. Read the news story carefully.

2. Use a word processor to list the five W's of a news story:

who, what, when, where, and why.

Read the article again. After each W, fill in an answer.
 SAVE your work and PRINT a copy for yourself.

NEWSPAPER TASK CARD #3 LEADS AWAY!

Woman Saves Drowning Victim Farmer Sees Spaceship **Circus Lion Escapes**

Directions:

1. Choose one of the headlines and use your word processing

program to write a good lead.

3. Edit the article by ADDING exciting words or REPLACING 2. Add your byline and a dateline to the story.

dull words. Have you included the five W's?

4. SAVE the text and PRINT a copy for yourself.

NEWSPAPER TASK CARD #2 LEAD ON THE LOOSE

A horse was found loose. It was in the way of traffic and was also eating people's gardens.

Directions:

1. Use the word processor to type the lead onto the computer screen.

2. You're the editor in charge of this story. Pretend that you know all the details of the runaway horse and REPLACE or ADD words to make this lead more colorful. Remember to include the five W's.

3. SAVE the lead and PRINT a copy for yourself.

NEWSPAPER TASK CARD #4 EDIT, EDIT, EDIT

entered the store while he was busy with a customer. The man Mr. John Walker, the store's owner, said the man must have held up the Walker Grocery Store and escaped with over \$900. appeared behind him with a gun and asked for the contents of Thursday morning, shortly before noon, a masked gunman There are no clues or suspects at this time. the cash register.

Directions:

1. Using your word processing software, type this scrambled article onto the screen.

2. Put the paragraphs in the correct order.

- 3. Add a headline, a deck, a byline, and a dateline to the story. Edit the article to make it better. 4.
 - SAVE the article and PRINT a copy for yourself.







omputer Fire Drill is a tutorial program that simulates a fire emergency at the Collins home. Students learn basic fire safety rules as they help the Collins family safely escape from the fire.

HOW THE PROGRAM WORKS

The program presents six emergency situations that could happen during a fire. For each situation, students decide what action the family members should take.

For example, 10-year-old Billy Collins smells smoke. Should he: (1) Find his prized baseball glove and leave the house? or (2) Get out of the house immediately? If players choose number one, Billy loses time getting out of the house and the smoke grows worse. If players choose number two, Billy gets out safely and auickly.

Although the Collins family always escapes safely in the end, making wrong decisions creates problems.

At the end of the program, the computer lists fire safety rules.

USING THE PROGRAM

Each year nearly one million fires break out across the country. Tens of thousands of people die or are injured in these fires. Many lives can be saved and injuries prevented if victims know more about fire prevention and safety.

To help my students become aware of fire prevention tips and safety procedures, I plan a special

During Fire Prevention Week, the second week in October. I post fire safety rules in my classroom (see box) and go over them with the class. After students have passed a short quiz on fire safety, they run the Computer Fire Drill program. For extra credit, some students write their own fire drill programs.

As a class, we discuss how the fire in the Collins home might have started. Did someone leave too many appliances plugged into a socket? Was somebody playing with matches?

We then go over the procedures for a school and home fire-safety inspection. At school and at home, we look for faulty or overloaded wires, chemicals that are not stored in tightly sealed containers or placed away from heat, out-of-order fire extinguishers, candles placed near flammable materials, and matches within reach of small children. We then make sure these hazards are corrected.

I also set aside one afternoon during Fire Prevention Week for a class visit to the local fire department. Kids ask fire fighters about their job and for advice on fire safety.

As a final project for the week, students write their own puppet show, starring Freddie the Fire Fighter. They then perform the show for younger students.

For more information on fires and a free catalog of fire safety materials, you can write to the National Fire Protection Association, BetteryNFPA, sponsor of Fire Prevention Week, also publishes a fire safety curriculum for grades K-2, 3-5, and 6-8. Details are included in the catalog.

FIRE SAFETY RULES

1. As soon as you detect a fire, get out of the area immediately. Do not look for valuables.

2. Call the fire department from a safe place and wait for the fire fighters to arrive. Do not try to put out the fire yourself.

3. When escaping from a fire, always touch a door before opening it. If it is hot, keep it closed.

4. If you can't escape immediately from another exit, use wet towels to seal the crack under the hot door.

5. If there is a window nearby, open the top part slightly to let hot air and smoke out. Open the bottom part slightly to let fresh air in. Do not open windows widely.

6. If you get trapped inside a burning building, signal fire fighters of your whereabouts by placing a bright object in a window or other opening.

7. Stay low to the ground, where you will find oxygen and cooler air.

8. Never enter a burning building. 9. Have your family choose a safe place on your block to meet should they have to escape a fire in your house. This way you can tell who may still need help escaping.

Richard Bollinger

PROGRAM LISTING FOR COMPUTER FIRE DRILL

This program will run on Apple computers. See Program Conversions, page 152, to modify the program for use on other machines.

10 REM COMPUTER FIRE DRILL @1984 SCHOLASTIC INC. 20 HOME : CLEAR 30 PRINT " IT IS 11:43 P.N. THE COLLINS FAMILY" 40 PRINT "IS FAST ASLEEP. SUDDENLY, 10-YEAR-OLD" 50 PRINT "BILLY WAKES UP. HE SMELLS SMOKE!" 60 PRINT " WHAT SHOULD HE DO?" PRINT : PRINT " 1. GET HIS BASEBALL GLOVE FROM THE" 70 80 PRINT " CLOSET AND LEAVE." 90 PRINT " 2. GET OUT OF THE HOUSE IMMEDIATELY." 100 GOSUB 2000 110 IF AS = "2" THEN 140 120 PRINT " BILLY LOSES TIME FINDING HIS GLOVE." 130 PRINT "THE FIRE IS GETTING WORSE." 140 PRINT " AS BILLY FLEES, HE YELLS, 'FIRE!' TO". 150 PRINT "WAKE THE FAMILY." 160 PRINT : PRINT " MRS. COLLINS RUNS TO THE BEDROOM" 170 PRINT "DOOR. OUCH! IT IS VERY HOT." 180 PRINT " SHE SHOULD:" 190 PRINT : PRINT " 1. OPEN THE DOOR GUICKLY AND RUN OUT." 200 PRINT " 2. KEEP THE DOOR CLOSED AND LOOK FOR" 210 PRINT " ANOTHER WAY OUT." 220 GOSUB 2000 230 IF AS = "2" THEN 280 240 PRINT " WHEN MRS. COLLINS OPENS THE DOOR." 250 PRINT "FLAMES SHOOT UP IN THE HALL. SHE" 260 PRINT "QUICKLY CLOSES THE DOOR TO STOP THE" 270 PRINT "FIRE FROM SPREADING." 280 PRINT " MR. COLLINS OPENS THE BEDROOM WINDOW." 290 PRINT "HE AND MRS. COLLINS USE A SHEET TO" 300 PRINT "CLIMB TO SAFETY." 310 PRINT " MRS. COLLINS CALLS THE FIRE DEPART-" 320 PRINT "MENT. BUT WHERE IS JULIE?" 330 PRINT " MR. COLLINS SHOULD:" 340 PRINT : PRINT " 1. WAIT FOR THE FIRE FIGHTERS TO" 350 PRINT " ARRIVE." 360 PRINT " 2. GO BACK INTO THE HOUSE AND LOOK" 370 PRINT " FOR JULIE." 380 GOSUB 2000 390 IF AS = "1" THEN 430 400 PRINT " MR. COLLINS OPENS THE FRONT DOOR. HE" 410 PRINT "IS OVERCOME BY SMOKE. HE CLOSES THE" 420 PRINT "DOOR AND STUMBLES BACK TO THE SIDEWALK." 430 PRINT : PRINT " EIGHT-YEAR-OLD JULIE IS TRAPPED IN" 440 PRINT "HER ROOM. THE FLAMES ARE OUTSIDE HER" 450 PRINT "DOOR, AND THE SMOKE IS CHOKING HER." PRINT " JULIE SHOULD:" 460 470 PRINT : PRINT " 1. OPEN THE WINDOW AS FAR AS POSSIBLE" 480 PRINT " TO LET IN FRESH AIR." 490 PRINT " 2. OPEN THE WINDOW JUST A LITTLE." 500 GOSUB 2000 510 IF AS = "2" THEN 550 520 PRINT " AIR FROM THE WINDOW IS FANNING THE" 530 PRINT "FLAMES. THE FIRE AND SMOKE ARE SPREAD-" 540 PRINT "ING. REALIZING HER DANGEROUS MISTAKE," 550 PRINT "JULIE KEEPS THE BOTTOM HALF OF THE WIN-" 560 PRINT "DOW OPEN A CRACK TO ALLOW AIR IN. SHE" PRINT "OPENS THE TOP HALF AN INCH TO LET HEAT" 570 580 PRINT "AND SMOKE OUT."

PROGRAM LISTING FOR COMPUTER FIRE DRILL

590 PRINT " JULIE PUTS A BRIGHT PILLOWCASE IN THE"

(continued from page 33)

600 PRINT "WINDOW. WHAT SHOULD SHE DO NOW?" 610 PRINT : PRINT " 1. LIE ON THE FLOGR." 620 PRINT " 2. BEAT THE FIRE WITH A TOWEL." 630 GOSUB 2000 640 IF AS = "1" THEN 670 650 PRINT " THE FLAMES ARE TOO HIGH. BEATING A" 660 PRINT "TOWEL DOES NO GOOD." 670 PRINT " JULIE LIES ON THE FLOOR. A FIRE" 680 PRINT "FIGHTER SEES THE PILLOWCASE IN THE" 690 PRINT "WINDOW AND RESCUES HER." 700 PRINT : PRINT " MRS. COLLINS LOOKS AROUND. 'WHERE'S" 710 PRINT "BILLY?' SHE ASKS. 'I SAW HIM LEAVE" 720 PRINT "WITH US." THE FAMILY SEARCHES THE" 730 PRINT "NEIGHBORHOOD." 740 PRINT : PRINT " BILLY IS BEHIND THE HOUSE WATCHING" 750 PRINT "THE FIRE. HE REMEMBERS THAT HE LEFT HIS" 750 PRINT "PACHAN GAME IN THE LIVING ROOM." 770 PRINT " BILLY SHOULD:" 780 PRINT : PRINT " 1. GO INTO THE HOUSE AND FIND IT." 790 PRINT " 2. TELL THE FIRE FIGHTERS ABOUT IT." 800 PRINT " 3. NOTHING." 810 INPUT AS: HOME 820 IF AS = "3" THEN 890 830 IF AS = "2" THEN PRINT " THE FIRE FIGHTERS ARE WAY TOO BUSY TO": PRINT "LOOK FOR A TOY.": GOTO 890 840 IF AS < > "1" THEN 770 850 PRINT " BILLY ENTERS THE LIVING ROOM. THE" 860 PRINT "SMOKE IS VERY THICK. FORTUNATELY, A" 870 PRINT "FIRE FIGHTER SEES BILLY AND TAKES HIM" 880 PRINT "BACK OUTSIDE." 890 PRINT : PRINT " MR. AND MRS. COLLINS FINALLY FIND" 900 PRINT "BILLY. THE WHOLE FAMILY WAITS ON THE" 910 PRINT "SIDEWALK WHILE THE FIRE FIGHTERS PUT" 920 PRINT "OUT THE FIRE." 930 PRINT " PRESS (RETURN> TO CONTINUE.": INPUT ZS 940 HOME : PRINT " DID YOU FOLLOW THESE SAFETY RULES?" 950 PRINT : PRINT " 1. AS SOON AS YOU DETECT A FIRE, GET" 960 PRINT " OUT IMMEDIATELY." 970 PRINT " 2. CALL THE FIRE DEPARTMENT FROM A" 980 PRINT " NEIGHBOR'S PHONE." 990 PRINT " 3. WAIT FOR FIRE FIGHTERS TO ARRIVE." 1000 PRINT " 4. TOUCH A DOOR BEFORE OPENING IT. IF" 1010 PRINT " IT'S HOT, KEEP IT CLOSED." 1020 PRINT " 5. DO NOT OPEN WINDOWS ALL THE WAY." 1030 PRINT " 6. STAY LOW TO AVOID BREATHING SMOKE." 1040 PRINT " 7. IF TRAPPED, SIGNAL FIRE FIGHTERS" 1050 PRINT " WITH A BRIGHT OBJECT." 1060 PRINT " 8. NEVER GO BACK INSIDE A HOUSE TO" 1070 PRINT " GET SOMETHING." 1080 END 2000 REM ENTER ANSWER 2010 PRINT : PRINT " TYPE 1 OR 2 AND PRESS (RETURN)." 2020 INPUT AS 2030 IF AS < > "1" AND AS < > "2" THEN 2020 2040 HOME : RETURN

FIRE PREVENTION WEEK

SECOND WEEK IN OCTOBER

ho can rescue Muffin, Mrs. Poppenstoppernobbin's snooty kitten, from a blazing fire? Type the *Rescue Muffin* program listing into your computer and see.

This program, written in honor of Fire Prevention Week (the second week in October), challenges students to see if they've got what it takes to be a good fire fighter. When students run the program, the computer describes a scene in which the user is involved. Here's the scenario: The user is at the fire station playing cards with other fire fighters when the alarm goes off. There is a fire in Mrs. Poppenstoppernobbin's home! The student is then presented with a series of options on how to fight the fire and save Muffin, Mrs. P's kitten. If the student makes all the right choices, he or she becomes the town hero. But if the user makes a wrong decision, another fire fighter becomes the town hero.

This program can be used during Fire Prevention Week to introduce kids to fire safety tips, fire prevention rules, and fire escape procedures. After students have run through the program, ask them how the fire started. (*The fire started from an overload of wires in an electrical socket.*) Then have students list the safety tips a good fire fighter must observe while in a burning building. (*Feel a closed door to see if it is hot before opening it. If the smoke is overpowering, breathe through a handkerchief or a piece of cloth.*)

Lorraine Hopping

PROGRAM LISTING FOR RESCUE MUFFIN

This program runs on Apple computers. See Program Conversions, page 152, to modify the program for use on other machines.

```
REN RESCUE MUFFIN 01983 SCHOLASTIC INC.
10
                                                                                 PRINT "LIMP UP THE STAIRS. MUFFIN IS LOOKING"
                                                                             470
    HOME : CLEAR
PRINT " YOU ARE PLAYING CARDS AS USUAL WITH"
                                                                                  PRINT "OVER THE EDGE OF THE ROOF."
20
                                                                             480
30
                                                                                  PRINT "
                                                                                            YOU CALL HER: 'HERE, KITTY, KITTY!'"
                                                                             490
    PRINT "FELLOW FIRE FIGHTERS AT THE FLAME-A-"
                                                                                  PRINT "DOES SHE FEEL LIKE COMING TO YOU (Y/N)?"
40
                                                                             500
    PRINT "WEEK FIRE STATION IN BLAZINGTOWN, USA."
                                                                                  INPUT AS: IF AS < > "Y" AND AS < > "N" THEN 510
50
                                                                             510
    PRINT " BOB SAYS, 'GO FISH.' BUT BEFORE YOU"
60
                                                                                  HONE
                                                                             520
70
    PRINT "PICK A CARD, THE ALARM GOES OFF."
                                                                                  IF AS = "Y" THEN 760
                                                                             530
80
    PRINT " WHAT DO YOU WANT TO DO?"
                                                                                  PRINT " MUFFIN SMIRKS AND JUMPS TO A NEARBY"
                                                                             540
90
    PRINT : PRINT "
                       1. PICK A CARD."
                                                                                  PRINT "TREE. SHE CLIMBS DOWN SAFELY INTO HER"
                                                                             550
100
     PRINT "
               2. GET IN THE FIRE TRUCK."
                                                                                  PRINT "MASTER'S ARMS."
                                                                             560
     GOSUB 1000
                                                                                  PRINT "
                                                                                            YOU ARE THE TOWN HERO!"
110
                                                                             570
     IF AS = "1" THEN 830
                                                                             580
                                                                                  END
120
    PRINT "MAIN STREET. YOU DECIDE TO:"
PRINT "MAIN STREET. YOU DECIDE TO:"
PRINT : PRINT " 1. TAKE A SHORT CUT."
PRINT " 2. STAY ON MAIN STREET"
     PRINT " YOU SEE THE FLAMES AS YOU DRIVE DOWN"
                                                                                  PRINT " YOU SEE A BIG SIGN THAT SAYS:"
130
                                                                             590
                                                                                  PRINT : PRINT "
                                                                                                         ***********************
140
                                                                             600
                                                                                                . SHORT CUT TO FIRE ."
                                                                                  PRINT "
150
                                                                             610
                                                                                  PRINT "
                                                                                                 **********************
160
                                                                             620
                                                                                  PRINT : PRINT " YOU FOLLOW THE SIGN DOWN INFINITY"
     GOSUB 1000
                                                                             630
170
                                                                                  PRINT "ROAD. THE ROAD SEENS TO GO ON FOREVER"
     IF AS = "1" THEN GOSUB 590
180
                                                                             640
     PRINT "YOU REACH THE FIRE. IT LOOKS REAL BAD."
190
                                                                                  PRINT "AND EVER."
                                                                             650
                                                                                  PRINT " PRESS (RETURN) TO GO ON."
     PRINT " FORTUNATELY, NO ONE IS INSIDE THE"
200
                                                                             660
     PRINT "HOUSE. BUT MRS. POPPENSTOPPERNOBBIN"
210
                                                                             670
                                                                                  INPUT ZS: HOME
     PRINT "TELLS YOU AND BOB THAT HER KITTEN IS"
                                                                                  PRINT " YOU DON'T KNOW WHICH WAY TO GO. YOU"
220
                                                                             680
     PRINT "STUCK ON THE ROOF."
230
                                                                             690
                                                                                  PRINT "SPOT ANOTHER BIG SIGN THAT SAYS:"
     PRINT " YOU DECIDE TO:"
240
                                                                             700
                                                                                  PRINT : PRINT "
                                                                                                         *********************
                       1. ENTER THE BLAZING HOUSE."
     PRINT : PRINT "
250
                                                                                  PRINT "
                                                                                                . THIS WAY TO FIRE! ."
                                                                             710
     PRINT "
               2. LET BOB GET THE KITTEN."
                                                                                  PRINT "
                                                                                                 ************************
260
                                                                             720
                                                                                  PRINT : PRINT " YOU REMEMBER THE FIRST SIGN AND GO"
     GOSUB 1000
270
                                                                             730
     IF AS = "2" THEN GOTO 800
PRINT " WAIT! BEFORE GOING IN, FEEL THE DOOR."
280
                                                                             740
                                                                                  PRINT "IN THE OPPOSITE DIRECTION. SOON,"
290
                                                                             750
                                                                                  RETURN
     PRINT "IS IT HOT ('Y' OR 'N')?"
                                                                                  PRINT "
                                                                                            MUFFIN JUMPS INTO YOUR ARMS AND RIPS"
300
                                                                             760
    INPUT AS: IF AG < > "N" AND AS < > "Y" THEN 310
IF AS = "Y" THEN PRINT " YOU ENTER THROUGH THE WINDOW."
IF AS = "N" THEN PRINT " YOU KICK DOWN THE DOOR AND ACT TOUGH."
                                                                                  PRINT "YOUR SHIRT TO SHREDS. YOU RUN FOR THE"
310
                                                                             770
                                                                                  PRINT "LAWN. THE HOUSE COLLAPSES."
320
                                                                             780
                                                                                  PRINT " BOB TAKES MUFFIN FROM YOUR ARMS."
330
                                                                             790
     PRINT " YOU TRIP OVER A MASS OF WIRES OVER-"
                                                                                   PRINT " MRS. POPPENSTOPPERNOBBIN SEES THAT"
340
                                                                             800
     PRINT "LOADED INTO A SOCKET."
                                                                                  PRINT "NUFFIN IS SAFE IN BOB'S ARMS. SHE GIVES"
350
                                                                             810
     PRINT " YOU HEAR A FAINT MEOW OVER THE ROAR"
                                                                                  PRINT "BOB $1,000,000,000,000 AS A REWARD."
360
                                                                             820
     PRINT "OF THE FLAMES. COULD IT BE MUFFIN?"
                                                                                  PRINT " YOU LOSE. DO YOU STILL WANT TO PLAY
                                                                             830
370
                                                                                  PRINT "CARDS WITH BOB (Y/N)?"
     PRINT " YOUR FOOT REALLY HURTS AND THE SMOKE"
                                                                             840
380
     PRINT "IS STIFLING."
                                                                                  INPUT AS: IF AS < > "Y" AND AS < > "N" THEN 850
                                                                             850
390
     PRINT " WHAT SOUNDS GOOD?"
                                                                             860
                                                                                  IF AS = "Y" THEN 20
400
                                                                                 END
     PRINT : PRINT " 1. CONTINUING UP THE STAIRS."
                                                                             870
410
                                                                                   REN ENTER CHOICE
     PRINT "
             2. GOING BACK TO THE STATION TO"
                                                                             1000
420
     PRINT "
                                                                                   PRINT : PRINT " TYPE 1 OR 2 AND PRESS (RETURN)."
430
                 FINISH THE GAME OF 'FISH'."
                                                                             1010
440
     GOSUB 1000
                                                                             1020
                                                                                   INPUT AS
                                                                             1030
                                                                                   IF AS < > "1" AND AS < > "2" THEN 1020
450
     IF AS = "2" THEN 20
460
     PRINT " YOU PUT A HANKY OVER YOUR MOUTH AND"
                                                                             1040
                                                                                   HOME : RETURN
```








Three Word Processing Activities

oil and trouble, boil and bubble...Beulah the witch has cooked up a great recipe for young word processors! Using any word processing software and the activity cards on the next page, students can practice deleting, inserting, and replacing words in Beulah's recipe, and even create their own recipes modeled after Beulah's Brew!

Depending on the kind of data storage device you use, you will need to create a data disk or cassette for students to use with the activity cards. Information on how to create a data disk or cassette is supplied under the "Teacher Preparation" heading.

WORD PROCESSING PREREQUISITES

Students must be able to access, save, delete, insert, and replace text in a data disk or cassette. They must also be able to type information into the computer and save it on a blank disk or cassette.

TEACHING OBJECTIVES

Word Processing Card 1 asks students to use the dictionary to look up certain words that appear in a recipe called Beulah's Brew. Students type the words and definitions into the computer and save them on a blank disk or cassette. Word Processing Card 2 tells students to use the definitions to replace words in the recipe. Finally, Word Processing Card 3 asks students to write their own recipe modeled after Beulah's Brew.



MATERIALS

Any word processing program, a data disk or cassette, a dictionary, the word processing cards, and blank disks or cassettes.

TEACHER PREPARATION

1. Copy and laminate the word processing cards on page 39.

2. To create a data disk or cassette containing the recipe for Beulah's Brew, boot up your word processing program and type in the recipe exactly as it appears on this page (same capital letters, line spacing, and indentations). Save the text on a blank disk or cassette under the file name RECIPE.

3. Place the cards and the data disk or cassette in a learning center so that students can work on them individually. Tell students to complete the cards in numerical order.

RECIPE FOR BEULAH'S BREW

Ingredients

- 2 cups beetle BOUILLON
- 1/2 cup bat CONSOMMÉ
- 2 whole fresh FLOUNDER
- 1 tablespoon chilled CHUTNEY
- 1 quart swamp SYRUP
- 2 pints toad TRIPE

Directions

Combine liquids in a large CAUL-DRON. Heat and stir. When the liquid turns a dark MOLASSES color, remove from heat. Add remaining ingredients. GARNISH with pumpkin seeds. Serve hot. (Serves six.) Thomas E. Boudrot Beulah's Brew: Word Processing Card 1

WRITE A BEWITCHING WORD LIST



eulah isn't your typical cook! She uses odd tools and ingredients to make her recipes. Find out what those are in this recipe for Beulah's Brew. Here's what you do.

1. Find all the capitalized words in her brew recipe and write them on a sheet of paper. Look up each word in the dictionary to find a brief definition.

2. Using a word processing program, type the list of words and their definitions into the computer. 3. Print out a copy for yourself.





Beulah's Brew: Word Processing Card 2

FIND SUBSTITUTES FOR SOME INGREDIENTS

ow that you know the meanings of the special cooking words in Beulah's Brew, translate the recipe so others can understand it, too. Just follow these steps.

1. Load the data disk or cassette and call up the **RECIPE** file again.

2. Remove the data disk or cassette and load a blank disk.

3. Replace each capitalized word in Beulah's recipe with a simple word or phrase that means the same thing. Use the printout you made with Card 1 to help vou think of substitute words.

4. Print out a copy of the recipe for yourself and save it on the blank disk or cassette.



Beulah's Brew: Word Processing Card 3





ooking isn't just for kooks like Beulah! You can be a kook-we mean cook-too.

Boot up your word processing program and create a recipe for Fang-tastic Frog Legs, Spine-Tingling Soup, or another creepy concoction. Use Beulah's recipe as a model for setting up your own. Be sure to include a list of ingredients and the cooking directions.

Save your recipe on a blank disk or cassette. Bon appetit!



HALLOWEEN

OCTOBER 31

T H E C G O HOUSE GANE

r. Bones is a scary skeleton whose favorite holiday is Halloween. He likes to hide in closets, under rugs, behind pictures—anywhere that's dark and creepy!

In this activity, students use the Logo turtle to help them find Mr. Bones, who is hiding somewhere in a haunted house. To find the skeleton, students must direct the Logo turtle through a transparency of the haunted house, uncovering all of Mr. Bones' usual hiding places as they go. The students who are able to track down Mr. Bones and uncover the fewest number of hiding places are the winners.

RECOMMENDED FOR: Grades 2–4.

OBJECTIVES

Students practice using the Logo commands FORWARD, BACK, RIGHT, LEFT, PENUP, PENDOWN, and CLEAR-SCREEN. Students also practice estimating distance on the Logo screen. **PREREQUISITES**

Students must be familiar with the Logo commands listed above. They must also be able to estimate distances.

MATERIALS

A computer system with Logo software, a thermofax transparency of the haunted house master (*page 41*), cutouts of Mr. Bones (skull and crossbones) and the six game flaps below, tape or rubber cement, scissors.

PREPARATIONS

1. Make a thermofax transparency of the haunted house master on page 41.

2. Cut out Mr. Bones (the skull and crossbones) and the six game flaps on this page. Secretly tape or glue Mr. Bones on the back of one of the flaps.

3. Tape the haunted house transparency to the computer screen. Trim edges.

4. Tape the top of each game flap to its corresponding spot on the transparency.

5. Boot Logo into the computer and clear the screen. The turtle should appear in the center of the screen with the pen down.

6. Pick up the pen (PENUP) and move the turtle to the doorway at the lower left corner of the thermofax. Put the pen back down (PENDOWN).

HOW TO PLAY

1. Divide students into small groups. Give each group a turn at the computer.

2. To start, one group picks a flap behind which they think Mr. Bones might be. One student in that group then types in commands to move the turtle to the selected flap.

3. The turtle can move only on the floor and stairs. To move the turtle to a window or a picture, students must pick up the pen (PENUP) before giving a forward command so that the turtle "jumps" from the floor to the window.

4. Students can lift a flap only when the turtle is totally hidden behind it.

5. When students discover Mr. Bones, they record the number of open flaps.

6. At the end of a turn, the group hides Mr. Bones again under a different flap. The group then clears the screen and returns the turtle to the lower-left corner of the screen for the next group of players.

7. Winners are the groups who opened the least number of flaps to find Mr. Bones.

Thomas E. Boudrot



MASTER FOR THE HAUNTED HOUSE TRANSPARENCY

Directions: Make a transparency of this gameboard. Tape it to the Logo screen.



41

n this Halloween activity, players use Logo commands to move the Logo turtle through a maze filled with Lo-Ghosts (Logo Ghosts), skeletons, and secret passages. Players try to pass the turtle through the Lo-Ghosts and the secret passages to earn points. They also try to avoid contact with skeletons and walls because that will cause them to lose points. These movement objectives give students practice at estimating distances on the Logo screen.

Here are directions for setting up and playing the game.

PLAYERS

Two to four. **RECOMMENDED FOR:** Grades 3–6.

OBJECTIVES

Students practice using FORWARD, BACK, LEFT, RIGHT, HOME, CLEAR-SCREEN or CLEAN, PENUP, and PEN-DOWN commands and estimating distances.

PREREQUISITES

Students must be able to use the Logo commands listed above, estimate distances on the Logo screen, and read simple directions.

MATERIALS

Computer system with Logo software, a thermofax transparency of the Lo-Ghost master (*page 43*), Lo-Ghost Game Cards (*page 44*), scissors.

GAME

PREPARATION

PLAY

HE

1. Make a thermofax transparency of the Lo-Ghost master (*page 43*).

2. Copy the Lo-Ghost Game Card page (*page 44*) and back the copy with sturdy white paper. Cut out each card along the dotted lines, write "Lo-Ghost" on the back of each, and laminate them. Shuffle the cards and stack them facedown near the computer.

3. Tape the Lo-Ghost transparency to the computer screen. Trim edges.

4. Boot Logo into the computer and clear the screen. The turtle should be at START with the pen down.

HOW TO PLAY

1. Players roll a die to determine the order of play. The highest number goes first, and so on.

2. Each player may use up to and including five commands to reach any one of the ghosts or secret passages on the screen. A typical turn might be:

FORWARD 50 RIGHT 90 FORWARD 10 LEFT 20 BACK 25 3. Each player tries to make the turtle draw its line inside a ghost's numbered circle. (The turtle does not have to land inside it.) If a player is successful, he or she takes a Lo-Ghost Game Card and follows its directions. On a piece of paper, a scorer tallies any points the card may award the player. The player then returns the card to the bottom of the pile.

If a player does not successfully draw through a ghost's circle in five moves, the scorer subtracts 20 points from that player's score. If the player does not have any points to subtract, he or she simply remains at 0 points.

Players also lose 10 points for bumping into a wall or a skeleton. They can add extra points by drawing through a secret passage. (Points for doing this are written on the transparency.)

4. At the end of a turn, the player clears the screen *without* returning the turtle to START. Use the CLEAR-SCREEN (CS) command for Commodore, Krell, and Terrapin Logo, and the CLEAN command for Apple Logo.

5. The next player begins play at the point where the turtle left off. Points cannot be earned by drawing through the same ghost's circle twice in a row.

6. The game ends after four rounds. The player with the most points wins.

MASTER FOR THE LO-GHOST TRANSPARENCY





HALLOWEEN



ith the help of a word processing program, you can create an electronic worksheet that helps your students distinguish between homophone pairs. This exercise also helps students develop word processing skills.

The activity requires a data disk or cassette that contains the data file listed below, blank disks or cassettes, a dictionary, and any word processing program.

To create the data disk or cassette, boot your word processing program into the computer and type in the data file exactly as it appears on this page. Remove your word processing program and load a blank disk or cassette. Save the information on this disk or cassette under the file name WITCH. Students must know how to use the DELETE command on their word processor and know what homophones are (words that are pronounced alike but that have different meanings).

The exercise presents students with a story that contains 17 pairs of homophones. Students must decide which word in each pair is not suitable for use in the story and then delete that word.

Boot up WITCH and have students work individually on the activity. Tell them to save their work on a blank disk or cassette.

After students have completed the exercise, provide them with a list of other homophones. Have them use the word processor to create their own homphone stories for friends to "fix" on the word processor.

DATA FILE: WHICH WITCH IS WHICH?

Directions: Move the cursor to the homophone pairs in this story. Delete the incorrect word in each pair. Save your work on a blank disk or cassette.

Belinda is a WHICH/WITCH. She's not YOUR/YOU'RE ordinary WITCH/WHICH, however. FOUR/FOR example, Belinda eats only PEARS/PAIRS and READ/RED MEAT/MEET. Her HAIR/HARE is DIED/ DYED purple and her skin is very PALE/PAIL.

When Belinda comes to visit, her pet BEAR/BARE, Jonathon, always tags along. THERE/THEY'RE quite a couple! My neighbors do NOT/KNOT believe the SIGHT/SITE—a BARE/BEAR and a WITCH/WHICH walking up to my door?! The SUN/SON must be too strong! *Thomas E. Boudrot* HALLOWEEN



Characters:

Jessy Lillie Bill Pauline Extra Kids Ms. Rabble Mr. Yunger Mrs. Yunger Sam

Assign each student a part and perform the play for another class. You can adjust the size of the cast by increasing or decreasing the number of extra kids. (See character list.)

Props:

Table with papers on it, desk, chairs, notebook, notepad, teacup, teapot, crystal ball, a file box, a handkerchief, a list of disk care rules, a cardboard sign that says "Blanchard's Computer Store," two cardboard computers, and a cardboard heater.

To make each cardboard computer, use a shallow, rectangular box for the keyboard and a square box for the screen. Paint both boxes brown or white. Then paint keys on the keyboard and a black screen on the monitor. Stand the monitor behind the keyboard. Make slots on one side of the monitor where disks can be inserted. Make cardboard disks and disk jackets to store in the file box.

To make the heater, paint a small cardboard box brown and write the word "HEATER" on it.

Position the table with one paper computer and papers scattered on it at center stage. Hang the sign from the table. Place the other paper computer, the file box, the teacup, the teapot, the crystal ball, and the heater on the desk. Position the desk at stage left.

Costumes:

Dress Ms. Rabble in a long, illfitting black dress and a pair of boots. Have her wear a wristwatch. Other characters should wear contemporary clothes.

Time: October 30.

SCENE 1 Inside Mr. Blanchard's Computer Store

Jessy is examining a computer on the table. He looks up at the door (offstage right) as all the other kids enter.



Lillie: Who ever heard of doing research for a Halloween party? What a strange assignment our teacher, Ms. Wilson, has given us!

Sam: You've got to admit, it's a different kind of assignment... collecting information on witches, spells, and spooky stuff.

Bill: I can't wait to learn a real spell ...(*Turns to Pauline and raises his hands as if to cast a spell*)...to try it!

Pauline: (Annoyed) Give me a break, Bill! You're so corny.

Lillie: Stop it, you two! We've got a lot of work to do. Ms. Wilson said we have to finish the assignment by tomorrow. Let's see if we can find Mr. Blanchard to help us select the right disk to save our Halloween research on. (Looks around the store and sees Jessy) There's Jessy!

Jessy: (Motions for them to come over) Mr. Blanchard isn't here today. Wait until you see the salesperson he left in charge. You won't believe what she is doing to the computer equipment!

(Kids turn to see Ms. Rabble at desk. Her back is to audience. She turns around and pours tea from a teapot into a cup, using a disk as a saucer. Tea spills over the disk. She walks to heater and puts the disk on top to dry. She then takes other disks out of their jackets and treats them roughly.)

Extra Kids: (One at a time, starting to notice what's going on) She's no computer expert. She's breaking all the rules for taking care of computers and disks. How does she ever expect to sell any computer equipment after she's ruined it all?

Bill: She's doing everything Mr. Blanchard told us not to do.

Lillie: What a mess!

Pauline: This is awful. Mr. Blanchard would have a fit if he knew what was happening in his store.

Jessy: (*Excited*) I could hardly wait for you to get here to see what's going on. She's been breaking all the rules that we've been taught.

Bill: Oh, no. If she destroys all the disks, we won't be able to save any of our work, and we'll have to do the Halloween assignment without the computer.

Lillie: I can't stand it. Let's go pick them up. (*Runs to pick up disks, with* others right behind)

Ms. Rabble: (*Nastily*) What do you think you're doing?

Lillie: Um...Mr. Blanchard said ...

Ms. Rabble: (Annoyed) Mr. Blanchard, Mr. Blanchard, Mr. Blanchard, Mr. Blanchard! (*Pointing to herself*) Ms. Rabble is in charge of this store now. (*Sweetly*) What can I do for you, children?

Lillie: Well...um...we're working on a Halloween assignment. We'd like to buy a disk to save our Halloween research on. Do you have any blank disks for sale?

Ms. Rabble: (Looks through file box, tossing the disks, one by one, on the floor behind her) Don't move! There may be some blank disks in the stockroom. (She exits stage left to go to the stockroom. Other kids gather around the display table.)

Sam: It's hard to believe she's a computer expert. She looks more like a Halloween expert. She looks like a witch.

Bill: A witch? Don't be silly!

Lillie: I can't believe Mr. Blanchard would put someone like Ms. Rabble in charge of his store.

Bill: She probably didn't act that way when Mr. Blanchard hired her.

Pauline: It's getting late and it looks like Ms. Rabble has forgotten about us.

Sam: We'd better leave and come back tomorrow.

Lillie: Let's go plan our costumes for the Halloween party.

Bill: Good idea. Why don't we meet at my house?

Pauline: Okay. Great.

Extra Kids: See you later. So long. Bye. (All the kids exit stage right except Jessy and Bill.)

Bill: Coming, Jessy?

Jessy: Go ahead. I'll stay and wait for Ms. Rabble to come back. I wanted to ask her some questions about this computer. If she finds any disks, I'll bring them to your house. (Pretends to be interested in the computer on the table.)

Bill: Okay, Jessy. See you later. (Bill exits.)

Jessy: (To himself) I wonder what that Ms. Rabble is up to. I think I'll find out. (Hides behind the display table. Ms. Rabble enters stage left with some paper disks and sits at the computer on the desk.)

Ms. Rabble: Good; those kids left. Now I can complete my mission.

Jessy: (Jessy is watching as she destroys disks, bangs the computer keys, and makes a huge mess. He says to himself) Boy, she's really wrecking the computer. She's going to be in big trouble when Mr. Blanchard comes back.

(Curtain)

SCENE 2 At Bill's house

Bill's living room is in front of the closed curtain. Bill, Pauline, Sam, Lillie, and the extra kids are sitting in a circle on the floor. **Lillie:** (*Reading from a notepad*) Okay, Bill is going to be a skeleton. Sam is going as a pumpkin, and Pauline, as a robot. Everyone set?

Bill, Sam, Pauline, and Extra Kids: Yeah. Okay. Sure.

Sam: Gee, I wonder where Jessy could be.

Bill: It shouldn't take Ms. Rabble an hour to find a couple of blank disks.

Pauline: Maybe he stopped off at his house to get something.

Sam: I think Ms. Rabble, the witch, put a spell on him!

(The others chuckle.)

Bill: Don't be so silly, Sam. I keep telling you, there's no such thing as a witch. (*Turns to Pauline and raises his arms*) Boo!

Pauline: (Mad) Cut that out!

(The other kids laugh. Mr. and Mrs. Yunger enter stage left.)

Mrs. Yunger: We just got a call from Jessy's parents. They say he hasn't come home yet.

Mr. Yunger: Do you kids know where he might be?

Bill: Well, he was supposed to come over here with us. He might still be at the computer store.

Mrs. Yunger: But the store closed half an hour ago.

Lillie: Maybe we should go over to the store and check it out.

Mr. Yunger: Okay. You kids run over there. Let us know if you find Jessy.

(Kids stand up.)

Sam: We will. See you later. Mr. and Mrs. Yunger: Goodbye! So long! (Kids exit stage right. Blackout.)

HALLOWEEN

SCENE 3 Outside Mr. Blanchard's Computer Store

Kids enter stage left. They remain outside the curtain, which is partly open. They look inside.



Sam: Look! There's a light in the store. (Curtain opens more. Ms. Rabble sits at desk looking into a crystal ball.)

Lillie: There's Ms. Rabble!

Pauline: Sam's right. Ms. Rabble is a witch!

Bill: But there's no such thing as a witch.

Pauline: (Points to Ms. Rabble) Then what's that?

Sam: A witch! (Starts to run away, but Bill pulls him back)

Bill: C'mon, let's see if we can get into the store. We've got to find out what's going on.

(Kids exit stage left. Curtain opens full. Jessy, who is still hiding, accidently makes some papers fall from the display table.)

Ms. Rabble: (Startled) What's that? (Turns and sees Jessy) What are you doing here, you little brat?

Jessy: I...

Ms. Rabble: Never mind! (Laughs wildly) We'll see just how smart you Jessy: (Thinks a second) Wait a min-

are when I destroy these precious | computers and blame you.

Jessy: Why do you want to destroy them?

Ms. Rabble: Those horrible computers are ruining my life. Because of them, no one is interested in my powers anymore. Destroying all computer equipment will put an end to that. (Laughs wildly and picks up the crystal ball from desk) No computer can ever replace my beautiful crystal ball. (Takes out a large handkerchief and polishes it)

Jessy: Even if you destroy these computers, there are lots of others in the world.

Ms. Rabble: I'll get them all, and all the disks, too! If I don't, witchcraft will be a thing of the past.

Jessy: But I'll warn everybody. I'll tell them what you're up to.

Ms. Rabble: No you won't! I'll show you how powerful my magic is. I'm going to erase your memory with a spell. You won't be able to tell anyone anything. (Laughs wildly. Kids enter stage right.)

Ms. Rabble: It's those kids again!

Lillie: We heard everything you said, you witch!

Ms. Rabble: Well, I'll fix that! I'm going to erase everyone's memory and then destroy all the computer equipment. No computer is going to interfere with my magic. (Recites)

This magic spell I cast on you will make you forget what I say and do! Dabra-ca-abra...no, that's not right-... cabra-ah-dabra... that's not it either...calabra-ba-rava...I can't remember it! (Gets angrier and angrier and jumps up and down) Rabra-da-cabra...no, no, no! (Stamps her feet and throws a disk on the floor) I can't remember the spell! It's all your fault!

ute! The computer can help you.

Ms. Rabble: (Suspiciously) What do you mean by "help me"? Do you think you can trick me?!

Jessy: No. I'm telling you the truth. If you save your spells on disks, they would always be there whenever you needed them.

Lillie: You could print out the spells or call them up on the monitor whenever you needed them.

Ms. Rabble: Hmmm. How long would these disks keep my spells, anyway?

Jessy: As long as you take care of them properly.

Pauline: Here's a list of rules our teacher, Ms. Wilson, gave us. (Hands her a piece of paper)

Ms. Rabble: (Reads) "Keep the disks dry. Keep them in their jackets. Don't write on disks. Never put disks where they can get hot or cold. Keep them away from magnets. Handle disks carefully." Seems easy. But what about my crystal ball?

Jessy: You can use it as a fishbowl.

Ms. Rabble: That's an idea. You've convinced me. I'll buy one. I know a good thing when I see it. (Looks at watch) I can't stand here wasting time talking. Tomorrow's Halloween-... (Waves her arms and disappears stage left)

Jessy: Funny how she couldn't remember a simple word like Abracadabra! (Everyone freezes for five seconds. Then the kids begin talking as if nothing unusual has happened.)

Pauline: It's so late! We better lock up Mr. Blanchard's store. We've got a Halloween party to prepare for.

Sam: You're right. Let's get going. (Kids exit. Curtain.)

Ilene and Leah Roth

CARVE A PUMPKIN WORKSHEET

HALLOWEEN

NAME:

he Celts were people who lived more than 2,000 years ago in what is now Great Britain, Ireland, and northern France. The Celts believed that each year on the evening of October 31 souls of the dead could return to the homes where they had once lived.

To scare away these souls, or ghosts, the Celts carved faces in turnips, potatoes, and beets. They put candles inside these vegetables and lit them. They called them jack-o'-lanterns. This name comes from a story, or *legend*, about a ghost named Jack who carried a glowing lantern.

When descendants of the Celts, like the Irish, Scottish, and British, moved to America, they brought their jack-o'-lantern custom with them. But instead of carving potatoes or turnips, they decided to carve pumpkins. Ever since then, Americans have been carving pumpkins into jack-o'-lanterns on October 31.

This year carve a pumpkin on a computer! The *Pumpkin Carve* program listed on this page will get you started.

USING THE PUMPKIN CARVE PROGRAM

First, put your computer in BASIC and type NEW. Then enter the *Pumpkin Carve* program. Be careful to count all the spaces between the quotation marks. If you have an Atari, Commodore, Radio Shack, or TI computer, remember to make the changes listed for your machine.

RUN the program. A pumpkin will appear on the screen. In a few seconds, the computer will carve the top of the pumpkin.

PUMPKIN CARVE CHALLENGES

How many of these challenges can you do? If you do them all, take the *Pumpkin Carve* Superchallenge!

• LIST the second pumpkin on your screen. Change the program lines to give the pumpkin a face. Program two eyes, a nose, and a mouth. You now have a jack-o'-lantern!

• Can you make the jack-o'lantern smile and then frown? (Hint: You will have to add a third pumpkin to the program listing.)

• Program the computer to print a greeting below the pumpkin.

• On Halloween, display your computer jack-o'-lantern in the window. Turn out the lights to make it look really scary!

PUMPKIN CARVE SUPERCHALLENGE

Another Halloween custom is bobbing for apples. Write a program that fills a tub with apples. Can you make the apples disappear, one by one?

PUMPKIN CARVE PROGRAM LISTING

OCTOBER 31

10	HOME				
20	PRINT "		##**		
30	PRINT "		***		
40	PRINT "	000	00 ## 00	0"	
50	PRINT "	000	0##0	000"	
60	PRINT "	00		00"	
70	PRINT "	0		0	•
80	PRINT " O	R		1	0"
90	PRINT "O				0"
100	PRINT "O				0"
110	PRINT "O				0"
120	PRINT "O				0"
130	PRINT "O				0"
140	PRINT "O				0"
150	PRINT " C	00		0	0"
160	PRINT "	000		000"	
170	PRINT "	0000	0000000	000"	
180	FOR D = 1	TO 3000			
190	NEXT D				
200	HOME				
210	PRINT "		##"		
220	PRINT "		##**		
230	PRINT "	00	0 ## 00	0"	
240	PRINT "	000	0##0	000"	
250	PRINT "		* * *	* * *"	
260	PRINT "	0		٥	
270	PRINT " ()			0"
280	PRINT "O				0"
290	PRINT "O				0"
300	PRINT "O				0"
310	PRINT "O				0"
320	PRINT "O				0"
330	PRINT "O			155	0"
340	PRINT " C	00		c	·••
350	PRINT "	000		000"	<i>6</i>
360	PRINT "	0000	0000000	0000"	
370	END				

Apple: No changes needed. Atari: Change HOME in lines 10 and 200 to PRINT CHR\$(125).

Commodore VIC-20, Pet, 64: Change HOME in lines 10 and 200 to PRINT CHR\$(147). VIC-20 users must make the pumpkin smaller to fit on the screen.

TI: Change HOME in lines 10 and 200 to CALL CLEAR.

TRS-80 Model III and Color Computer: Change HOME in lines 10 and 200 to CLS.

COPY

PARTS OF A COMPUTER WORKSHEET 1

HALLOWEEN

OCTOBER 31

NAME:

DIRECTIONS: Label the main parts of a computer system. Use these names: monitor, printer, disk drive, cassette recorder, keyboard.



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PARTS OF A COMPUTER WORKSHEET 2

HALLOWEEN

OCTOBER 31

NAME:

DIRECTIONS: There are five computer parts hidden in this picture. Put an X on each. Color the picture.



PLOTTING SQUARES WORKSHEET 1

HALLOWEEN

OCTOBER 31

NAME:

DIRECTIONS: Some of the squares on this graph have been filled in. Look at how the very top square is filled in. The plot statement for this square is PLOT 2.7. Fill in the squares for the rest of the plot statements listed below like the one for PLOT 2,7. You will get a Halloween picture.



PLOTTING SQUARES WORKSHEET 2

HALLOWEEN

OCTOBER 31

NAME:

DIRECTIONS: Look at the colored square on the graph. This square is called PLOT 1,8. Can you tell why? Now find the squares listed below. Color each one on the graph.



DIRECTIONS: Look at the six lettered squares on the graph. Write a plot statement that tells where each one is.



Inc.

1,1

HALLOWEEN GRID WORKSHEET

HALLOWEEN

NAME:

ach square in the grid blank.

below contains a word. If you put the words in the correct order, they will make up a Halloween joke.

Here is how to get the words in the correct order:

1. Look at the blanks below the grid. Under each blank, find a pair of numbers. The numbers tell you which square contains the word for that

2. Under the first blank is 2, 1. To get to square 2, 1, go to the upper left-hand corner of the grid. Move two squares *across*; then move one square *down*.

3. This square says "WHAT." "WHAT" is the first word of the joke.

4. Use the numbers under the next blank to find the next word of the joke. Once again, start in the upper left-hand corner of the grid. Use the first number in the pair to count across and the second number to count down. The word that appears in the square you reach is the next word in the joke. Write it in its blank.

OCTOBER 31

5. Keep going until you have written down the whole joke.

2,2

TT			
Happy	how	ing!	

	0	1	2	3
0	THE	ROBOT	AS	DRESS
1	UP	HALLOWEEN?	WHAT	ON
2	воо	DID	BEEP!	LITTLE
Wr	rite the words to the jol	ke in these blanks:		
	2,1	1,2	0,0	1,0
3	3,0	0,1	2,0	3,1

0,2

3,0 0,1

3,2

OCTOBER HOLIDAYS

MONTH OF OCTOBER



CELEBRATE COMPUTER LEARNING MONTH WITH A WEEKLY COMPUTER CONTEST

October is Computer Learning Month. Celebrate by conducting a weekly computer contest.

Select a corner in a well-traveled hallway and make it the Computer Contest Corner. On the top of a 2by-3-foot piece of cardboard, write "Name the Computer." Leave enough room on the cardboard to place an 8-by-10-inch photograph.

Next to the poster, hang a box with a slot in the top. Label the box "Top Secret Computers." Each Monday in October, tack a picture of a robot or a special computer on the poster. Encourage children to research the name of the robot or computer and to place their answers in the slot of the Top Secret Computer Box. Each entry should also include the student's name and grade. The contest lasts a week, so students have five days to research the question before they submit their entries.

The following Monday, make a list of the winners' names and grades, and hang it up in the corner. At the bottom of the winners' list, place the correct answer to the contest question. Then place a new picture under "What Is This?" to challenge your students again.

Suzanne Prebish

PLAY THE LOGO WORLD SERIES

The World Series is conducted in October. Baseball fans in your class will enjoy playing the Logo World Series game.

To play the Logo World Series,



boot Logo into your computer system and type the program listed below into your computer. The program creates a baseball diamond on the screen.

TO BASEBALL FULLSCREEN PU BK 80 PD BASES FOUL.LINES BATTER.BOX END TO BASES RT 45 REPEAT 4[FD 80 LT 90 REPEAT 4[FD 10 LT 9011 END TO FOUL LINES FD 155 LT 60 REPEAT 75[FD 4 LT 2] LT 60 FD 155 LT 90 END TO BATTER.BOX LT 45 PU BK 15 PD END

This program can be used with Apple Logo and MIT Logo. For TI Logo, omit the FULLSCREEN command.

When the program has been typed into the computer, divide the class into two teams. Each team member gets a turn at bat. While at bat, the player must get the turtle out of the batter's box behind home plate and, using as few commands as possible, make the turtle round all the bases. The teams alternate sending a player to bat, making sure each member gets a turn. The teams tally the number of commands used by each batter. After everyone has had a turn at bat, the team adds all the players' tallies together to get a team total. The team with the least number of commands wins.

Gina Shimabukuro

OCTOBER HOLIDAYS

CREATE TYPEWRITER ART

Students can create attractive Halloween art as they practice keyboarding skills. Here's how.

First, on a piece of typing paper have kids draw or trace a simple picture or pattern of the character they plan to dress up as on Halloween. Instruct students to place the paper in the typewriter and type a set of words or letters to fill the design. Tell them to try to stay within the outline of the drawing as best they can. The words or letters they choose to type should relate to the design in some way. For instance, last Halloween one of my students planned to dress up as butterfly. She drew a butterfly on her paper and filled in each section of the butterfly with the word for the color of that particular section of her costume. Another student planned to be a ghost and drew a picture of ghost. This student typed in the words "Casper the Friendly Ghost" throughout his design. After the drawings are filled with typed words, have students color them in.

Now display the typewriter art on a bulletin board and label it "The Typewriter Halloween Parade."

COMPUTER BINGO

One of our favorite classroom games is Computer Bingo. We often play it during our class Halloween party. It's played very much like regular Bingo, except the squares on the Bingo cards contain computer words, statements, or commands. Instead of calling letters and numbers. I ask a computer question and have the students see if the answer is on their card. A sample question might be, "What's the name of the flashing square that appears on the monitor and marks the next spot where a symbol will appear if a key is pressed on the keyboard? If students have the word "cursor" on their card, they cover that square with a chip. Play continues until someone's chips cover an entire card. It's a great way to reinforce computer vocabulary!

Veronica Ferrel

CREATE A DISK GRAVEYARD

This Halloween bulletin board provides an amusing lesson on disk care.

At the top of your board tack up paper letters that say: "DISK GRAVEYARD." From white construction paper, cut out two headstone shapes and tack them on the board. Also cut out two five-inch squures from black paper to represent disks.

On one black disk write: "HERE LIES DELILA DISK, WHO CRUM-BLED FROM AN OVERDOSE OF COOKIE CRUMBS." On the other put: "HERE LIES FLOPPY FRED, WHO SUCCUMBED TO OVEREX-POSURE FROM THE SUN." Tape one of the disks to each headstone on the display.

Have students think of other ways disks might be destroyed if improperly handled and make up their own epitaphs reflecting these ways. Put the epitaphs on "disk" headstones and tack them on the bulletin board, too.

Craig Dickinson

HALLOWEEN HOWLERS

Q: What do you get when you cross a computer with a ghost?

A: The start of a boot-iful friendchip.

Q: Why did the robot dress as a clown on Halloween?

A: It wanted to join the *circuit*.

TRICKY SPEED DRILL

This activity helps students in-

crease their typing speed. To begin, write the phrase "Trick or Treat" on the chalkboard. Tell students to type the phrase (without looking at the keyboard) as many times as they can in three minutes. Now have them count the number of times they typed the phrase correctly. Run through the drill again and encourage students to try to increase their speed.

Mary Ellen Switzer

GREAT PUMPKIN SAYS

In this Halloween version of Simon Savs, kids work on keyboard accuracy, listening skills, and proper spelling. Call out spelling words from the class's weekly list, preceding some of the words with phrase "The Great Pumpkin says." Tell students to type only those words that follow the saying. A child is out of the game and must stop typing if he or she types a spelling word that the Great Pumpkin did not say to type. After you have called out the entire list, give students one point for each "Great Pumpkin word" they typed correctly. The highest score wins.

DISPLAY HALLOWEEN WORD PROCESSING

My students wrote Halloween stories with the help of our word processing software. I displayed the printouts on the bulletin board above.

To make this display, cut out a Dracula figure from black and white onstruction paper and tack him to the center of the bulletin board. At the top, left corner of the board, tack paper letters that say "Halloween Stories." Tack paper letters for "To Sink Your Teeth Into!" at the bottom of the board. Fill in the remaining space with sheets of black and orange paper. Tape students' Halloween stories on the top of these sheets.

Christine Hines





Very four years, millions of Americans vote for a president and a vice-president of the United States. The election takes place on the first Tuesday following the first Monday in November. Many state elections are also held on this day. Students in your school can share the excitement of Election Day and come to appreciate the true meaning of democracy through the following unit on elections.

The unit provides background information on presidential elections and tells how you can organize a mock election in your school. Included in the election material is a computer program listing that counts students' votes and organizes data so that kids can graph their returns.

If this isn't the year of a presidential election, don't let that stop you from holding a mock election. The program allows you to enter the names of up to four candidates, including candidates for local office or even students running for a student government position.

The unit is designed as an all-

school event, but you can modify it to become a class event only.

PROVIDE BACKGROUND ON THE PRESIDENTIAL ELECTION

A few weeks before Election Day, you and other teachers may wish to provide students with a little background on the presidential election.

Start by telling kids that the Constitution of the United States requires that an election be conducted every four years to decide who the country's president and vice-president should be. Federal law states that the election should take place on the first Tuesday following the first Monday in November. In a recent presidential election, Americans had a choice between two political tickets: Ronald Reagan for president and George Bush for vice-president, or Walter Mondale for president and Geraldine Ferraro for vice-president.

Students may ask you how these persons became presidential and vice-presidential candidates. Explain to them that in this country there are two major groups, or *parties*, the Democrats and the Republicans. Both parties conduct conventions in which they select one of their members to run for president and another member to run for vice-president. Voters can choose the Republican candidates for president and vicepresident or the Democratic candidates for these offices.

Older students may wish to report on this process in greater detail by doing research on primary elections and caucuses.

Explain to students also that the Republican and Democratic parties dominate presidential elections, but other parties nominate, or propose, candidates for executive office, too. Voters may also write in the name of a candidate not nominated by a party. In the all-school election, students can enter up to four candidates for president.

Tell older students that although the media announce the winners of the election on Election Day, a president and vice-president aren't officially elected until January, when the electoral votes of all the states are counted. Explain that it is not the popular vote, but the vote by an electoral college, that actually elects a president and vice-president. (Usually the results are the same.)

Here's how the electoral college works. Each state gets one elector for each member it has in Congress. The District of Columbia gets three electors. In total, there are 538 electors in the electoral college.

The candidate who wins the most popular votes in a state wins all of that state's electoral votes. At a joint session of Congress in January, the electoral votes are counted. The candidate who wins a majority of the electoral votes is officially elected.

Activities

Following are a few activities that will introduce students to the election process.

Prepare a Bulletin Board. Set up a bulletin board titled "Meet the Candidates," where students can tack up newspaper and magazine clippings on presidential candidates or on candidates for other offices in a local election (whichever candidates you decide to insert into the election program listing).

Research the Issues. On a large piece of butcher paper, list major election topics. For example, topics for a national election might include economy, environment, education, foreign policy, and nuclear weapons. Topics for a state or city election might include other issues particular to your area. Next to the list of election topics, draw two vertical columns. Label one with the Republican candidate's name. Label the other with the Democratic candidate's name. Have children research the candidates' stands on the issues, and write them down in their respective columns.

Make Campaign Buttons. A few days before Election Day, encourage students who have decided who they will vote for to make and wear paper buttons promoting their candidates.

Stage a Debate. Older students

may wish to stage a debate before the election. Have these students form Democratic and Republican teams. Decide upon the issues to discuss. Then assign each issue to one or two students from each team. Each student is to discuss his or her party's view of a particular issue for about five minutes (using prepared notes). Have one student act as mediator and timekeeper.

ORGANIZE ELECTION COMMITTEES

At least two weeks before Election Day, call a meeting of all teachers interested in working on the school election. Appoint at least one teacher to chair each of the following committees. Make it the responsibility of each chairperson to recruit student committee members (probably his or her own students) to carry out the duties outlined below.

1. Publicity Committee

These committee members will serve as public relations directors for the election. During the two weeks before Election Day, they will be responsible for posting signs in the halls to build election excitement. Posters should not promote specific candidates. Instead, they should notify students that like the adults they know they will be voting for a president, vice-president, or other political officer on Election Day. Encourage kids to think up voting slogans for their posters, such as "Every Vote Counts," "Poll Power," and "Vote, America."

Committee members should also let community newspapers and radio and television stations know about the election. They may wish to report on the candidate young people support.

2. Scheduling Committee

The first job of this group should be to choose an area in your school to be the polling place. Members should select a location where there is room to direct the flow of traffic to and from a private voting area.

Once the site is chosen, the chairperson should obtain official permission to reserve the location for the election.

Students should also work with the chairperson to schedule a voting time for each class in school. You may wish to make these times coincide with recreation periods or social studies classes. (Note: The computer will have to remain on during the entire voting period. Once the computer is turned off, all previously recorded votes will be erased from memory.)

Members should type the assigned times and the location of the polling place on a sheet of paper and give each teacher a copy.

3. Computer Committee

This group should supervise all computer operations. A week before Election Day, have members type in the voting program, page 61, and save it on a disk or cassette. (They may need to make copies of this disk or cassette, depending on how many students are voting. For example, the Apple program listing holds a maximum of 650 votes. If more students are voting, you will need to use additional computers.)

On Election Day, these kids should set up the computer(s) that will be used for voting. They should boot up the voting program in each computer and make sure everything works.

One committee member should be responsible for entering the amount (up to four) and names (up to eight characters each) of the candidates that are running for office in the computer(s).

Have committee members take turns being on call throughout the day, in case there is any computer trouble.

4. Registration Committee

These students should check off voters' names from a registration list as they enter the polls on Election Day. (Have students sign up to work on shifts for this.) Use class attendance records (you can get them from office personnel) as registration lists. Checking off names insures that students don't vote more than once.

Members of the registration com-



Here are the instructions that appear on the computer screen when students vote in the election.

mittee should also remind voters that once they have made their selections, they cannot be changed.

5. Traffic Committee

Members of this committee will be responsible for directing traffic to and from the voting booth(s).

About a week before the elections, students, with the help of the chairperson, should design a map that shows where the voting area will be, where students waiting to vote should stand (at least 25 feet from the voting machine), as well as where students should enter and leave the area. On Election Day, committee members should be stationed at key spots to keep the traffic flowing. Students should sign up to work on shifts for this.

6. Accounting Committee

Assign one person on this committee to be the last student to vote.

After that person selects a presidential ticket, he or she types "STOP" instead of "C." That signals the computer to count the votes. The computer takes several minutes to tally the votes (the amount of time depends on the number of voters). Instruct the students not to touch the keyboard while the computer is counting the votes.

The total votes for each candidate will appear on the screen, along with a breakdown of the vote by grade level (1–8) and sex. (If you use more than one computer, be sure to add the totals from all of the computers together.) Results are displayed on the screen only. The program does not allow you to print them or save them on disk or cassette. It does allow you to review the breakdowns as many times as you wish, though.

Over the address system, members of the committee should announce the winners and the information breakdown provided by the computer.

RECORD THE VOTE

On the morning of Election Day, have teachers give each of their students a paper ballot like the one in the box on page 60. Tell students that the questions on the paper ballot are the questions the computer program will ask.

Have students mark the ballot with numbers for their grade level (1–8), sex (1 for girls, 2 for boys), and choice of candidate (1–4 depending on how many candidates are running in your election). Also have students write "C" on the paper ballot. Explain that this final step will clear the computer screen for the next voter.

Students take these ballots to the polls and use them as a reference. It is important that students enter the correct information because votes cannot be changed once cast.

PROGRAM LISTING FOR COMPUTERIZED VOTING BOOTH

Who says 10-year-olds are too young to vote? With this simple voting program, your school can become a computerized polling place where *everyone* can vote. The program was written for students in first to eighth grade.

REM 10 COMPUTERIZED VOTING BOOTH #1984 SCHOLASTIC INC. HOME : CLEAR 20 30 DIN 6(650), 86(650), CND(650), C(650) 40 DIN GC(650),BC(650),G1(650),G2(650),G3(650),G4(650) 50 CODES = "STOP":V = 0 60 PRINT " WELCOKE TO THE..." 70 PRINT : PRINT "..... 80 PRINT ". COMPUTERIZED VOTING BOOTH ... PRINT " FOR MANY CANDIDATES ARE RUNNING?": INPUT NC IF NC > 4 THEN PRINT " YOU CAN ONLY HAVE UP TO 4 90 100 110 CANDIDATES.": GOTO 100 FOR X = 1 TO NC PRINT " ENTER THE NAME OF CANDIDATE #":X 120 130 PRINT "AND PRESS (RETURN)." 140 INPUT CNS(X) PRINT " IS ";CNS(X);" CORRECT (Y/N)?": INPUT ZS IF ZS = "N" THEN 130 IF ZS < > "Y" THEN 160 150 160 170 180 190 NEAL A HORE : PRINT " YOU ARE NOW READY TO BEGIN VOTING." PRINT "AFTER THE LAST VOTER HAS CAST HIS OR" PRINT "HER VOTE, ENTER THE CODE (";CODEs;")" PRINT "IN PLACE OF 'C'." NEXT X 200 210 220 230 PRINT " THE COMPUTER WILL THEN AUTOMATICALLY" PRINT "TALLY THE VOTES AND GIVE THE RESULTS." PRINT : PRINT " PRESS «KETUKN» TO BEGIN VOTING.": INPUT ZS 240 250 260 HOME :V . V . 1: REM V=VOTER NUMBER 270 PRINT " VOTER #":V:" 280 PRINT : PRINT " WHAT GRADE ARE YOU IN?" PRINT : PRINT " (ENTER A NUMBER FROM 1 TO 8 AND" PRINT "PRESS (RETURN).)" 290 300 310 INPUT G(V): IF G(V) > & OR G(V) < 1 THEN 320 PRINT : PRINT " ARE YOU A GIRL OR A BOY?" PRINT : PRINT " (ENTER 1 FOR GIRL OR 2 FOR BOY." 320 330 340 PRINT "PRESS (RETURN).)" 350 INPUT BG(V): IF BG(V) $\langle \rangle$ 2 AND BG(V) $\langle \rangle$ 1 THEN 360 KONE : PRINT " HERE ARE YOUR CHOICES FOR OFFICE:" 360 370 FOR X = 1 TO NC 380 PRINT : PRINT " ":X:". ";CNS(X) 390 NEXT X 400 410 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE AND" PRINT "PRESS (RETURN)." 420 INPUT CND(V): IF CND(V) > NC OR CND(V) < O THEN 430 PRINT : PRINT " IF YOU ARE THE LAST VOTER, LEAVE THE" PRINT "VOTING BOOTH NOW." 430 440 450

You can also use it for a single class election.

The program listing is for use on Apple II series computers. To convert the program for use on other computers, see Program Conversions, page 153. By Richard Devir

PRINT " IF YOU ARE NOT THE LAST VOTER, TYPE" 460 PRINT "'C' AND PRESS (RETURN) BEFORE LEAVING" PRINT "THE BOOTH." 470 480 INPUT ZS: IF ZS = "C" THEN 270 490 500 IF 25 < > CODES THEN 490 REN TALLY VOTES PRINT " ONE MOMENT, PLEASE...." 510 520 FOR Y = 1 TO V 530 FOR X = 1 TO NC 540 IF CND(Y) = X THEN C(X) = C(X) + 1 550 560 IF BG(Y) = 1 AND CND(Y) = X THEN GC(X) = GC(X) + 1 IF BG(Y) = 2 AND CND(Y) = X THEN BC(X) = BC(X) + 1 570 580 NEXT X 590 FOR W = 1 TO 8 600 IF G(Y) = W AND CND(Y) = 1 THEN G1(W) = G1(W) + 1 610 IF G(Y) = W AND CND(Y) = 2 THEN G2(W) = G2(W) + 1IF G(Y) = W AND CND(Y) = 3 THEN G3(W) = .G3(W) + 1620 IF G(Y) = W AND CND(Y) = 4 THEN G4(W) = G4(W) + 1 630 640 NEXT W 650 NEXT Y 660 HONE : REM . BREAKDOWN BY CANDIDATE 670 PRINT : PRINT "CANDIDATE","VOTES" 680 690 FOR Y = 1 TO NC 700 PRINT : PRINT X:". ":CNS(X).C4(X) NEXT X 710 PRINT : PRINT "-----720 PRINT : PRINT "TOTAL VOTES CAST: ";V PRINT : PRINT " PRESS (RETURN) FOR THE BREAKDOWN" PRINT "BY GRADE.": INPUT 24: HOME 730 740 750 760 REN BREAKDOWN BY GRADE PRINT "GRADE CND #1 CND #2 CND #3 CND #4" PRINT "_____ 770 780 FOR W = 1 TO 8 PRINT : PRINT " ";W;" 790 800 ":G1(W):" ":G2(W):" ":G4(W) ":G3(W);" 810 NEXT W PRINT : PRINT " PRESS (RETURN) FOR BREAKDOWN BY SEX." 820 INPUT ZS: HONE 830 PRINT "CANDIDATE", "BOYS", "GIRLS" 840 PRINT "---850 FOR X = 1 TO NC 860 PRINT : PRINT CNS(X), BC(X), GC(X) 870 NEYT Y 880 PRINT : PRINT " TYPE 'R' TO REVIEW RESULTS OR PRESS" 890 *see PDF page 163



GRAPH THE RESULTS

Have students graph elements of the vote breakdown, either by hand or by using a simple computer graphing program. (See sample bar graph, this page.)

Kids can also graph how each grade voted.

Display students' graphs on a bulletin board titled "Election Central." Use the graphs to ask questions about the voting population. For example, does your school have a gender gap (a marked difference between the way males and females vote)? Are eighth grade students more conservative than fourth grade students?

Have students form hypotheses about the results.

Lesli Rotenberg

NATIONAL LETTER WRITING WEEK



Veryone loves to send and receive greeting cards. To celebrate National Card and Letter Writing Week, why not show your students a new way to send and receive them? Show them how to do so electronically. The following program listing is all you need.

HOW THE PROGRAM WORKS

The *Electronic Mailbox* program allows students to send greetings to their friends via computer. When a student runs the program, it asks how many cards the student wants to send. The student types in a number.

Next, the program asks who should receive the first card, what the card should say, and how the card should be signed. (Note: Students cannot use commas in their responses.) The program stores the student's answers in its memory. It continues in this way until the student has sent all the cards he or she wanted to send.

Then the program asks if anyone else wants to send a card. If the student types "Y" for yes, another student can enter cards in the computer.

After all of the students have en-

tered their cards, the computer displays the name of the first person to receive mail. That student presses the RETURN key to see a display of the first card that was sent to him or her. The program continues displaying the cards, one at a time, in the order that they were entered into the computer.

HOW TO USE THE PROGRAM

The program is designed to be used in a number of different ways with both primary and upper elementary students.

1. You or one of your students can simply type the program listing into the computer, and then save the program on a cassette or disk. During Letter Writing Week, set aside one day for electronic card sending. Allow students to take turns during the day entering their cards into the computer. Have the last student press "N" when the computer asks, IS THERE ANYONE ELSE WHO WANTS TO SEND A CARD? The computer will then display messages for students, one at a time. As their names are displayed, let kids come up and read their electronic messages. (Note: In order to insure that all students receive at least one greeting, you might enter your own messages to each of your students.)

2. You can challenge your students to modify the program for other *Electronic Mailbox* applications. For example, students might modify the program so that it is designed specifically for sending monthly birthday greetings to classmates.

3. Suggest that your more advanced students create some graphics for the greeting card program.

4. Here are some ideas for using the program to reinforce some of your basic curriculum objectives.

History: Have your students send greeting cards to famous people in history. Remind them to comment in the greeting card on each person's historical accomplishments.

Language Arts: Organize a Poetry Greeting Card Day. Have students compose four-line poems to send to their classmates.

Social Studies: Have teams of primary students compose greeting cards to leaders in the community. Each greeting card should identify how that leader contributes to the community.

Bob Muller and Debbie Kovacs

PROGRAM LISTING FOR ELECTRONIC MAILBOX

This program listing is for use on Apple computers. To convert the program for use on other computers, see Program Conversions, page 153.





LETTER FROM A STAR WORKSHEET

NATIONAL LETTER WRITING WEEK

FIRST FULL WEEK OF NOVEMBER

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granted to reproduce for classroom

NAME:

tice the letter uses variables. String variables, to be exact.

(called a string). In BASIC programming, string variables stand for words. For example, stand for your name.

know the words that the string variables stand for. Follow Steps 1 and 2 to find out.

blanks below. For example, if your name is Michael, you would write "Michael" in the

64

NATIONAL CHILDREN'S BOOK WEEK

Μ

THIRD WEEK IN NOVEMBER

E

FOR books into your library, so they'll be available for your students to check out during National Children's Book Week. The books were recommended by librarian Judy Simmons and media spe-

FICTION BOOKS

CHIP MITCHELL: THE CASE OF THE STOLEN COMPUTER BRAINS

cialist Candy Colburn.

Fred D'Ignazio has written a delightful collection of computer capers. They are published together under the title *Chip Mitchell: The Case of the Stolen Computer Brains* (E.P. Dutton; 1982; \$8.69).

In the book, Charlie "Chip" Mitchell is a seventh grade computer whiz who uses his computer prowess to solve 10 mysteries.

For example, in "The Case of the Killer Robot," Chip and his dad are visiting a computerized factory, when one of the employees is discovered to be fatally injured, presumably by a killer robot. Chip uses logic and computers to discover the true identity of the guilty party.

THE COMPUTER THAT SAID STEAL ME

In The Computer That Said Steal Me (Four Winds Press; 1983; \$8.95), by Elizabeth Levy, Adam, a sixth grader, is so obsessed with wanting to own a computer chess game that he steals one. When he gets the computer home, fear and guilt begin to

haunt him. To ease his conscience, Adam tries to slip the computer back into the store, but he is caught and must face the consequences. The fast moving plot makes this book popular reading for sixth and seventh graders.

CUPID COMPUTER

Cupid Computer (Atheneum; 1981; \$8.95), by Margie Milcsik, is a computer-related story with a female lead. When her junior high school announces that dates for the Valentine's Day dance will be matched by computer, Toni Moretti tries to answer the computer questionnaire so that she will be matched with Kevin, her current dreamboat. Instead, she is matched with a boy she thinks she has nothing in common with and who, of course, turns out to be the perfect match.

THE GREAT GRADEPOINT MYSTERY

This book is part of a series for middle graders called MICROkid Mysteries. In The Great Gradepoint Mystery (Macmillan; 1983; \$9.95), by Barbara Bartholomew, 12-year-old Ricky Foster meets ALEC, a computer with a personality, at the Schlieman Institute. The fact that ALEC has a personality might make this sound like fantasy, but once the reader accepts ALEC's personality quirks, such as its habit of making bad puns, the story reads like a solid mystery. In this particular adventure, ALEC's access to thousands of data bases helps Ricky identify the person who has been tampering with the report card grades for two junior high schools.

THE MARK OF CONTE

Sixth graders should find interesting Sonia Levitin's book, *The Mark of Conte* (Atheneum; 1980; \$8.95). The book is about Conte Mark, a student whose name also appears in the school computer as both Conte Mark and Mark Conte. The error allows Conte to assume a double identity and earn twice the credits in half the time! With a little clever scheming, ingenious scheduling, and covert computer manipulation, Conte manages to "leave his mark" on the school.

MY TRIP TO ALPHA I

Stories from well-known author Alfred Slote help to fill the never-largeenough collection of science fiction for seven- to 10-year-olds. In My Trip to Alpha I (Lippincott; 1978; \$9.95), Jack Stevenson takes a trip to visit his Aunt Katherine on the planet Alpha I. He travels to Alpha I via VOYA-CODE, a process in which the body stays in one place while the mind is sent to a duplicate body at the new destination. The trip's purpose is to help Aunt Katherine move back to earth. When he arrives, she has changed her mind about returning to earth. Disturbed by his aunt's sudden change in plans, Jack sets out to uncover her reasons. With quick action and clever thinking, Jack unravels the mystery.

NEXT STOP, EARTH

Third or fourth grade science fic-

tion fans will love William E. Butterworth's *Next Stop*, *Earth* (Walker and Company; 1978; \$5.95).

In this short novel, 12-year-old Charley Wilson awakens to find that his space ship has been obstructed by a robot and is speeding back toward earth, out of control. Charley finally manages to use the ship's computer to summon help.

OLLIE'S TEAM AND THE BASKETBALL COMPUTER

This book by Clem Philbrook is a typical sports story with a computer twist that readers in grades five to eight will enjoy. *Ollie's Team and the Basketball Computer* (Hastings House; 1969; \$5.95) tells about Ollie Scruggs' struggle on a failing basketball team and the team's eventual success—thanks to the IDIOT (International Data Integrating Organization Tabulator).

PRINT OUTS: THE ADVENTURES OF A REBEL COMPUTER

One of the most unusual fiction books that I have seen is *Print Outs: The Adventures of a Rebel Computer* (Nerve Press; 1982; \$5.95), by Claudia Cornwall. Talk about computer oriented—the print is computer type on pin feed paper!

Written for nine- to 12-year-olds, the book details the adventures of Edgar, a personable computer who finds ways to express himself, much to the dismay of his programmers. Computer concepts abound, and there is a handy glossary of terms and definitions.

THE ROBOT AND REBECCA AND THE MISSING OWSER

For third and fourth graders who love science fiction, consider *The Robot and Rebecca and the Missing Owser* (Knopf; 1981; \$4.99), by Jane Yolen. Owsers are rare pets that are being stolen more and more frequently. Rebecca and her pet robot, Watson II, set out to capture the owse-napper. Although the plot is somewhat contrived, there is plenty of action.

THE VIDEO AVENGER

This book by Douglas Colligan is part of Scholastic's Twistaplot series, in which the reader becomes actively involved in a story by choosing the direction it will take. More than 20 different endings are possible for one story.

In *The Video Avenger* (Scholastic; 1983; \$1.95), the reader has just won an ME-II computer. All of a sudden, the reader is trapped inside the machine with electronic dinosaurs and video warriors. He or she must decide whom to trust and which way to turn. The book is suitable for intermediate grade children.

NONFICTION BOOKS

COMPUTERS IN THE HOME

The primary graders in your school will enjoy *Computers in the Home* (Franklin Watts; 1984; \$9.90), by Nigel Hawkes. This book is chock-full of appealing, color photos and diagrams that demonstrate the current and potential uses of computers in the home. Home uses involving medicine, entertainment, and telecommunications are explained in large, bold print.

COMPUTERS IN YOUR LIFE

Melvin Berger documents the impact of computers in everyday life in *Computers in Your Life* (Harper & Row; 1981; \$4.95). Emphasizing events of special interest to children, he discusses the use of computers in medicine, government, law enforcement, communication, and transportation. For example, in the chapter on medicine, Berger tells the story of an eight-year-old girl who uses a computer to overcome a speech disability. The book has attractive blackand-white photos and is suitable for upper grade children.

MESSNER'S INTRODUCTION TO THE COMPUTER

The lively writing style of Messner's Introduction to the Computer (Simon and Schuster; 1983; \$10.29), by Fred D'Ignazio, can draw junior high readers into the world of York, NY 10003. Simon and Schuster; Walker & Co., ' York, NY 10003.

computers. D'Ignazio describes the history of computers in an unusual way. He acquaints readers with computer pioneers through short biographies that include information on their personal lives, dreams, and accomplishments. He also predicts the future of computers by introducing readers to today's computer leaders and explaining what they are up to.

THE STAR WARS QUESTION AND ANSWER BOOK ABOUT COMPUTERS

Frank D'Ignazio has combined the popularity of the *Star Wars* movies and the growing interest in computers in a manual for children in intermediate grades called *The Star Wars Question and Answer Book About Computers* (Random House; 1983; \$7.99). Throughout the book, C3PO and R2D2, the famous *Star Wars* robots, give brief, easy-to-understand answers about computers. Photographs enliven every page, so kids will love thumbing through the book.

PUBLISHERS' ADDRESSES

Atheneum, 597 Fifth Ave., New York, NY 10017.

E.P. Dutton, 2 Park Ave., New York, NY 10010.

Four Winds Press, 730 Broadway, New York, NY 10003.

Franklin Watts, 387 Park Ave. South, New York, NY 10016.

Harper & Row, 10 E. 53rd St., New York, NY 10022.

Hastings House, 10 E. 40th St., New York, NY 10016.

Knopf, 201 E. 50th St., New York, NY 10022.

Lippincott, 10 E. 53rd St., New York, NY 10022.

Macmilan, 866 Third Ave., New York, NY 10022.

Nerve Press, 5875 Elm St., Vancouver, BC, Canada, V6N 1A6.

Random House, 201 E. 50th St., New York, NY 10022.

Scholastic, 730 Broadway, New York, NY 10003.

Simon and Schuster, 1230 Ave. of the Americas, New York, NY 10020. Walker & Co., 720 Fifth Ave., New York, NY 10019.



GOBBLE UP THOSE **COMPUTER BOOKS**

Encourage students to read computer books during National Children's Book Week with this display idea.

On a bulletin board entitled "Books to Gobble About," tack a simple turkey shape made from brown construction paper. (See illustration.)

Each time a student reads a computer book, give him or her a bright colored paper feather. Each child should write on the feather his or her name and the name of the book and its author. Let students attach the feather to the turkey on the bulletin board. You'll have one gorgeous gobbler by the end of the week!

Doug Hanson

STORE COMPUTER BOOKS IN THE GUTTER

Now this doesn't mean throw your books into the sewer! It means to use aluminum rain gutters as display racks in your classroom for computer books and manuals. Rain gutters are cheap, easy to install, and are great space savers.

We've placed two gutters in our computer corner, one above the other, approximately one foot apart. Not only do the gutters make an attractive display, but they also save time. Rather than hunt through a stack of computer books, kids can skim the gutters quickly for material they need.

Joan Lippman



"Books to Gobble About" board.

ALPHABETIZE A BOOK LIST

This program helps you create your own electronic list of books on any Commodore computer and lets you print out a copy for each of your students.

To make the list, enter the following BASIC program into the computer. When you reach the data statements, starting with line 300, substitute for Watership Down the title of a book that you recommend. Enter the name of the book's author in the next data statement (line 310). Follow this two-line procedure for each book on your list.

When you run the program, the computer reminds you to turn on the printer. It then asks you to enter the number of books in your list. Next, it alphabetizes the book title statements. Finally, the computer prints out an alphabetical list of the titles. Each title on the printout is followed by the name of the book's author.

This listing is for the Commodore 64 and VIC-20 computers. Conversions for Apple II and Radio Shack computers follow the listing.

10 PRINT "TURN YOUR PRINTER ON AND PRESS RETURN,":INPUT A\$ 20 PRINT "HOW MANY BOOKS ARE IN THE READING LIST?": INPUT N 30 DIM B1\$(N), W1\$(N), B2\$(N), W2\$(N) 40 FOR C = 1 TO N 50 READ B\$, W\$ 60 B1\$(C) = B\$: W1\$(C) = W\$ 70 NEXT C 80 W = 190 FOR M=1 TO N 100 FOR D = 1 TO N 110 IF B1\$(D)<B1\$(W) THEN W=D 120 NEXT D 130 B2(M) = B1(W)140 W2(M) = W1(W)150 B1\$(W) = "XXXXXXXXX" 160 NEXT M 170 OPEN 99.4 180 PRINT#99: PRINT#99: PRINT #99. "SUGGESTED READING LIST" 190 FOR D = 1 TO N 200 PRINT#99, " ";B2\$(D) 210 PRINT#99, " "W2\$(D) 220 NEXT D 230 CLOSE99: PRINT "DO YOU WANT TO PRINT OUT ANOTHER LIST? (Y/N)":IN-PUT Q\$ 240 IF Q\$="Y" THEN 170 250 END 300 DATA "WATERSHIP DOWN" 310 DATA "RICHARD ADAMS"

Conversions

Apple II series: In line 170, change OPEN 99.4 to PR #1. In lines 180, 200, and 210, delete #99. In line 230, change CLOSE99 to PR#0.

TRS-80 Model III: In line 170, change OPEN 99,4 to LPRINT. In lines 180, 200, and 210 change PRINT #99 to LPRINT. In line 230, delete CLOSE99. David Kerwin

THANKSGIVING THANKSGIVING

reate a festive writing environment in your classroom during Thanksgiving. All you need is a word processing program and the four task cards in this feature. The cards provide exercises in vocabulary enrichment, as well as practice in letter and diary writing. The exercises are not only instructive but are also fun. Each card has a Thanksgiving theme.

Students can use any word processing program to perform the writing activities. In the process, they'll find that word processing helps them become better writers. It makes correcting errors much easier, allowing them to do more revising and experimenting.

Before students use the task cards, they will need to know some basic word processing skills. They should know how to insert, delete, and replace text using word processing commands. Students should also know how to call up a file and how to save information on a blank disk or cassette. If you have access to a printer, show children how they can print their own copies of the files they create.

To prepare for this writing unit, photocopy and laminate the task cards on pages 69 and 70. Then review the Teachers' Notes. These notes discuss the learning objectives of each card and the materials and teacher preparation needed. In some cases you will need to type information on a disk or a cassette (referred to as a *data disk* or *data cassette*) for students to use with the task cards. This information is supplied under the "preparation" headings.

Place the task cards, word processing program, data disk or cassette, and some blank disks or cassettes in your computer center and encourage students to work on the cards individually or in pairs.

THANKSGIVING TASK CARDS 1-4

Word Processing Prerequisites: Students must be able to access and save data files and insert, delete, and replace words in text.

Teaching Objectives: Students practice inserting and deleting words, using a dictionary to define words, and writing a letter. They also learn a little history by tracing the Pilgrims' actions—from the day they set sail from England on the *Mayflower* to the day they celebrated their first Thanksgiving.

Materials: Data disk or data cassette and a blank disk or blank cassette.

Preparation: Using a word processing program, type the diary entry exactly as it appears below (capital letters and all) onto your data disk or cassette. Save the material under the name ALFRED.

Alfred's Diary October 10, 1620 Dear Diary:

Last night we were in the middle of a huge storm. The whole ship rocked all night. It was awful. In the PART BELOW THE DECK, clothes, food, and boxes were sliding every which way. I walked to the FRONT OF THE SHIP and could barely hang onto the railing. The BACK OF THE SHIP was no better. The *Mayflower* seemed suddenly tiny in the huge Atlantic ocean.

Captain Jones was in his LARGE PRIVATE CABIN when suddenly there was a great boom, like the sound of a cannon. He rushed onto the UPPER DECK, and a sailor told him that a main beam had cracked near the STEERING EQUIPMENT. Luckily, the LEVER SAILORS USE TO STEER and the BLADE IN THE WATER were still working.

Some of the passengers thought we should return to England, but Captain Jones said no. He said the *Mayflower* was a strong, sturdy ship. Captain Jones and a few men repaired the cracked beam and we sailed on to the New World.

Signed, Alfred

Photocopy and laminate Task Cards 1-4.

Activity: Have students read Task Card 1 for background information on the *Mayflower*. Then have them complete Task Cards 2, 3, and 4. Task Card 2 asks students to write definitions for the names of standard ship parts. Task Card 3 has kids substitute long phrases from a diary entry with single, succinct words. In Task Card 4, students use background material from the first three cards to write and edit a letter about the *Mayflower* voyage.

Beth Deardorff







Here are some of the parts of the Mayflower that you may not

know. Look up each of the words in the dictionary. Using a word processing program, type each word on the computer screen and write a short definition in your own words. Save the words and definitions on a blank disk or cassette.

bow stern hold forecastle steerage tiller rudder stateroom

HOLIDAY TASK CARD



Ask your teacher for the data disk or cassette that goes with

this card. Load it and call up the

file named ALFRED. Pretend that a boy named Alfred was a young passenger on the *Mayflower* and that he kept a diary. On your screen is a possible page from that diary.



You'll see that Alfred didn't know the correct names for many parts of the ship. Help him out by replacing the phrases written in capital letters with the correct names for ship parts. (For help, see your word list from Task Card 2.) Here is how to replace the words:

1. Remove the data disk or cassette and load a blank disk or cassette.

2. Use INSERT, DELETE, and RE-PLACE, commands to change the diary page.

3. After you replace the words, read the page again. Does it sound better now?

4. Save the letter on a blank disk or cassette.

HOLIDAY TASK CARD



On December 11, 1620, the Pilgrims landed at the site of their new home in Plymouth. Pretend you were a passenger on the *Mayflower*. You have an older brother named James who stayed behind in England to work and go to school.

Write a letter to James, telling him about the trip across the Atlantic. Describe the wilderness land called Plymouth.

Don't forget to date the letter at the beginning and to put a closing like "Sincerely yours," or "Yours truly," followed by your name at the end.

Save the letter on a blank disk or cassette.



THANKSGIVING

GUESTS

K C P S Г

START

MAKE A FLOWCHART OF A THANKSGIVING DINNER

To give students practice with flowcharts, I have them chart Thanksgiving dinner with their families. I ask students to pretend that they are giving directions to someone who has never attended a Thanksgiving dinner. I tell them to include the events that occur from the time the guests arrive to the time they leave. Here is a sample flowchart for one student's Thanksgiving meal.


FOURTH THURSDAY IN NOVEMBER

MAKE THANKSGIVING PLACE CARDS

Here's how your students can use an Apple computer to make festive Thanksgiving Day place cards.

First, tell kids to bring to class a list of the people they will be sharing Thanksgiving dinner with. Next, enter the BASIC program below into the computer and have students run it. The computer will ask them to input the name of a Thanksgiving guest. The computer displays that name along with a picture of the Pilgrims' ship, the *Mayflower*. The computer then asks students if they want a printout of the display.

Have students take turns running the program and making a printout for each name on their guest lists.

Next, have children cut out fourinch squares from colorful construction paper, one square for each printout. Tell students to trim the printouts to fit on the four-inch squares, then tape one printout to each square and color it.

Voila! Students will have a personalized place card to set in front of each dinner guest's plate.

10 HOME

20 PRINT "TYPE IN A GUEST'S NAME."

30 INPUT AS	5			
40 PRINT "H	APPY THAN	VKSGI	VING ";A\$	
50 PRINT:PR	INT			
60 PRINT "		XXXX	,	
70 PRINT "	Х	XXX	Κ"	
80 PRINT "	Х	XX	X"	
90 PRINT "	Х	XX	X"	
100 PRINT "	Х	XX	X"	
110 PRINT "	Х	XX	X"	
120 PRINT "	XXXXXX	XXXX	XXXXXXX"	
130 PRINT "		XX"		
140 PRINT "	XXXX	XX	XXXX"	
150 PRINT "	X XXX	XXXX	XX XX"	
160 PRINT "	X MAY	FLOV	VER X"	
170 PRINT "	Х		X"	
180 PRINT "	XXX	XXXX	XX"	
190 PR #0				
200 PRINT:P	RINT "WOU	LD Y	OU LIKE T	0
HAVE TH	HIS PRINTE	D (Y/N)?"	
210 INPUT Z	\$			
220 IF Z\$="	" THEN 250	0		
		No. and the second		

230 IF Z\$="N" THEN HOME:PRINT TAB (17)"BYE":END

240 PRINT "TYPE 'Y' OR 'N'.": GOTO 200

250 PR#1:PRINT:PRINT:GOTO 40

As you can see, the *Mayflower* is made by using BASIC PRINT commands. If your students have programming experience, encourage them to program their own Thanksgiving designs using PRINT commands.

type :GOTO 10 at the end of line 60.

RUN the program again to see a

Remember to press the CTRL and

Challenge students to write a pro-

C keys or your computer's break key

gram that gives them a screenful of

TURKEY or some other dish that re-

screenful of THANKS.

when you've seen enough.

minds them of Thanksgiving.

Mary Ellen Switzer

PROGRAM A SCREENFUL OF THANKS

Here's a program listing that will bring THANKS to any computer screen. Type it into your computer. Then type RUN and press RETURN or ENTER to see the results.

Next, type LIST and press RE-TURN or ENTER. Now add a GOTO statement that will make the program repeat over and over. To do this,

0 REM THA	NKS									
10 PRINT "	XXXXXXX	Х	Х	Х		Х	Х	Х	Х	XXXXX"
20 PRINT "	X	Х	Х	Х	Х	X	х х	Х	Х	X''
30 PRINT "	Х	XX	XXX	Х	Х	Х	ХХ	ХX	X	X''
40°PRINT"	X	Х	Х	XX	Χ	Х	ХХ	Х	Х	′ X"
50 PRINT "	X	Х	Х	Х	Х	Х	XX	Х	Х	Х"
60 PRINT "	Х	Х	Х	Х	Х	Х	X	Х	Х	XXXXXX"

UNSCRAMBLE A TURKEY DAY RIDDLE

Q: What do you get when you cross a computer with a turkey?

The program below asks kids this riddle and shows the answer. To find the answer, have kids type in the program as it appears. Then tell them to type RUN and press RE-TURN or ENTER.

10 REM RIDDLE

- 20 PRINT "WHAT DO YOU":GOTO 40
- 30 PRINT "THANKSGIVING DINNER" :GOTO 50
- 40 PRINT "GET WHEN YOU CROSS":GOTO 60

50 PRINT "ON THE MENU." END

60 PRINT "A COMPUTER WITH A TUR-KEY?":GOTO 30

SOFTWARE SUGGESTIONS

The first New England Thanksgiving was celebrated by a group of Pilgrims that had recently settled in the new land. The following software programs teach students about the difficult conditions explorers such as the Pilgrims experienced.

Geography Search

As crew members on ancient sailing ships, students simulate the search for a New World. They do this by navigating a ship into unfamiliar territory and planning a strategy for survival.

Apple II series; TRS-80 III, 4; Franklin 1000, 1200; grades 5-9; McGraw-Hill Book Co., Webster Division, 1221 Ave. of the Americas, New York, NY 10020. The \$180 price includes 20 student workbooks. *Community Search*

As members of an ancient civilization that has been driven from its homeland, students work as a group in this simulation to find a suitable place to live.

Apple II series; TRS-80 III, 4; Franklin 1000, 1200; grades 5-9; McGraw-Hill Book Co., Webster Division, 1221 Ave. of the Americas, New York, NY 10020. The \$180 price includes 20 student workbooks.

FIND THE COMPUTERS **WORKSHEET**

THANKSGIVING

FOURTH THURSDAY IN NOVEMBER

NAME:

DIRECTIONS: There are nine computers hidden in this picture. Put an X on each. Color the picture.



THANKSGIVING MENU READER WORKSHEET

THANKSGIVING

FOURTH THURSDAY IN NOVEMBER

NAME:

any computer programs have menus. The menus list things that the user can do with the program. For example, a menu might ask you to choose between writing a story and reading a story that you already wrote.

Our Thanksgiving Menu Reader game works a lot like a computer program menu. Look at the Main Menu (on top). You can choose either A (turkey) or B (ham). Let's say a certain Mr. Gobble chooses A, turkey.

Because he chose turkey, Mr. Gobble then goes to the Turkey Menu (middle row). On this menu, he has a choice between dark meat and white meat. He picks B, white meat. That means Mr. Gobble goes to the White Meat Menu (bottom row). From this menu, he can choose A (no gravy) or B (gravy). He picks A. Altogether, Mr. Gobble has chosen turkey, white meat, no gravy. Sound good? That's only one out of eight main courses he could have chosen from the Thanksgiving Menu Reader.

Each person below ate a different meal for Thanksgiving. We've told you what letters they chose from the Menu Reader. Match the letters with the choices on the menu to find out what each ate. The first one is done for you.

	MA A J Go	AIN I A. Tu B. Ha	MENU rkey m		1. Mr. He ate: <i>whit</i> 2. Mis She ate 3. Mrs She ate	Gobble chose A, B, A. <i>Jurkey,</i> <i>te meat, no gravy</i> s Piglet chose B, B, B. : . Bird chose A, A, B.
TURK A. Da B. W Go to th	EY MEN ark meat hite mea	NU it iu.	HAM A. Bo B. Ro Go to the	MENU Diled Dasted e next menu.	4. Mr. He ater 5. Ms. She ate	Pork chose B, A, A.
DARK MEN A. Gra B. No g	MEAT IU vy gravy	WHI A. B.	TE MEAT MENU No gravy Gravy	BOILEI MEN A. Mus B. No r	D HAM NU tard nustard	ROASTED HAM MENU A. Mustard B. No mustard



HANUKKAH AND CHRISTMAS

HANUKKAH DATES VARY; DECEMBER 25



Free's a lively language arts unit for the Hanukkah and Christmas holidays. All you program and the six task cards in this feature. The cards provide exercises in important writing skills, such as capitalization and proper grammar, as well as practice in recipe and poetry writing. The exercises are not only instructive but are also fun; in fact, they're downright jolly! Each card has a Hanukkah and/or Christmas theme.

Students can use any word processing program to perform the writing activities. In the process, they'll find that word processing helps them become better writers. It makes correcting errors much easier, allowing them to do more revising and experimenting.

Before students use the task cards, they will need to know some basic word processing skills. They should know how to insert, delete, replace, and move text using word processing commands. Students should also know how to call up a file and how to save information on a blank disk or cassette. If you have access to a printer, show children how to print copies of the files they create. To prepare for this writing unit, photocopy and laminate the task cards on pages 78, 79, and 80. Then review the Teachers' Notes. These notes discuss the learning objectives of each card and the materials and teacher preparation needed. In some cases you will need to type information on a disk or cassette (referred to as a *data disk* or *data cassette*) for students to use with the task cards. This information is supplied under the "preparation" headings. Task cards are grouped according to Hanukkah and Christmas holiday themes.

Place the task cards, word processing program, data disk or cassette, and some blank disks or cassettes in your computer center and encourage students to work on the cards individually or in pairs.

TEACHERS' NOTES

HANUKKAH TASK CARDS 1–2

Word Processing Prerequisites: Students must be able to access and save data files, insert, delete, and replace letters, and move words within a piece of text.

Teaching Objectives: Students practice moving words in text, spelling correctly, and putting instructions

in correct order. They also learn the history of Hanukkah and how to make potato latkes, a traditional Hanukkah food.

Materials: Data disk or data cassette and a blank disk or cassette.

Preparation: Using a word processing program, type the potato latke recipe exactly as it appears below (misspellings and all) onto the data disk or cassette. Save the recipe under the file name LATKES.

Potato Latkes

Latkes are a favorite Hanukkah food. Some say that the oil used to fry latkes symbolizes (or stands for) the oil that burned for eight days and nights in the Temple of Jerusalem.

- Ingredients:
- 3 larje potatoes
- 1 small oniun
- 3 eggz
- 1 teespoon salt

2 tablespoons flower

vegatable oil

Directions: Add the last ingredients, salt and flour. First wash, pare, and grate the raw potatoes. Serve them with sour cream or apple sauce for a tasty finishing touch. The third thing you do is beat the eggs well and add them to the potatoes and onion. Second, grate and add the onion to

the potatoes. Continue frying until the underside is golden brown. Start to fry the batter in the hot oil. Mix all the ingredients well. Then turn them over and fry the other side. The recipe makes about 18 pancakes. Remove the latkes from the pan and drain them on absorbent paper. Pour the batter in pancake-size portions into a frying pan.

Activity: Have students read about the story of Hanukkah on Task Card 1 first. Then have them try the activity in Task Card 2. The card contains a recipe for making potato latkes, a traditional Hanukkah food. Some of the ingredients in the recipe are misspelled, however, and the steps for making latkes are out of order. Students are to fix these errors in spelling and order.

CHRISTMAS TASK CARDS 3–4 Word Processing Prerequisites:

Students must be able to access and save data files and insert, delete, and replace words in text.

Teaching Objectives: Students practice inserting, deleting, and replacing words, and identifying parts of speech by reworking a famous Christmas poem.

Materials: Data disk or data cassette, a blank disk or cassette, pencil or pen, and paper.

Preparation: Using a word processing program, type the poem, written by Clement Moore, exactly as it appears below onto the data disk or cassette. Save the story under the file name ST.NICK.

A Visit From St. Nicholas

'Twas the night before (1).

- When all through the (2)
- Not a (3) was stirring, not even a (4); The stockings were hung by the (5) with care,
- In hopes that (6) soon would be there;
- The (7) were nestled all snug in their beds,
- While visions of (8) danced in their heads;
- And, Momma in her (9), and I in my cap,

Had just settled our (10) for a long winter's nap,

- When out on the lawn there arose such a (11),
- I sprang from my (12) to see what was the matter.
- Away to the window I (13) like a flash,
- Tore open the (14) and threw up the sash.
- The moon, on the breast of the (15) snow,
- Gave a lustre of midday to objects (16),
- When, what to my wondering eyes should appear
- But a miniature (17) with eight tiny (18),
- With a little old driver, so lively and (19),

I knew in a moment it must be (20).

Activity: Task Card 3 asks students to write down a word to fit each of the 20 categories (usually parts of speech) listed on the card. In Task Card 4, children create funny stories by substituting the words on their 20word list for some of the words in Moore's poem.

HANUKKAH OR CHRISTMAS TASK CARDS 5–6

Word Processing Prerequisites: Students must be able to access and save data files and to insert, delete, and replace words in text.

Teaching Objectives: Students practice inserting, deleting, and replacing words, and correcting spelling, punctuation, and structure by reworking a gift list and a thank-you letter.

Materials: Data disk or data cassette, a blank disk or cassette, pencil or pen, and paper.

Preparation: Using a word processing program, type the letters exactly as they appear below (misspellings, incorrect punctuation, capital letters, and all) onto a data disk or cassette. Save the first letter under the file name GIFT. Save the letter to Aunt Mabel under the file name THANKS.

Gift List

Deer;

Ive bin a reel good kid this year. Here are sum of the things I wouldn't mind gettin for

1. Purple goldfish

- 2. Free passes to the video arcade
- 3. Michael Jackson's glove
- 4. Empire State building
- 5. Robot that will do my homework Thanks alot,

Sincerely:

Thank-you Letter

Dear AUNT MABEL, Sincerely,

Thank you for the PLASTIC RAIN BONNET you gave me for HAL-LOWEEN. I like it because IT KEEPS MY LARGE EARS DRY WHEN IT RAINS. It looks very STUPID on me.

Thanks again. RICKY RELATIVE AUNT MABEL NEW YORK, NY 12 PARK PLACE 10128

Activity: Task Card 5 asks students to correct the spelling and punctuation in a holiday letter. It also asks them to substitute gifts they would like to receive for the gifts mentioned in the letter, and to personalize the letter by inserting the name of a recipient in the greeting, the holiday involved (Hannukkah or Christmas) in the body of the letter, and their own name in the closing.

In Task Card 6, children substitute their own words for the words that appear in capital letters in a thankyou note. They also make the following corrections in the letter's structure: Aunt Mabel's address must be moved to the beginning of the letter; the city and state should follow the street address and the zip code should follow the state; the closing, "Sincerely," must be moved to the end of the letter; and Ricky Relative's signature should follow the closing.

Beth Deardorff

Photocopy, cut out, and laminate the six Holiday Task Cards on pages 78, 79, and 80.





2. Look at the recipe on the

1. Remove the data disk or cassette and load a blank disk or cas-

Howie found the recipe and changed it to play a joke on you.

Before you begin cooking, you must repair the recipe. Here is

how:

sette.





COPY

CHRISTMAS



ah! Humbug. That's what Ebenezer Scrooge says about Christmas. Titus Grump says the same thing about computers in this takeoff on A Christmas Carol, by Charles Dickens—until Mr. Grump learns about the history of computers, that is!

This play is written for intermediate grade students. Assign each student a part and perform the play for another class. You can adjust the size of the cast by increasing or decreasing the number of doll characters. (See the character list on this page.)

If you wish to keep costumes for the play simple, dress Noel (a Christmas doll) in red, Micky Microwave (a robot) in silver, and Sandy Spaceshot (a video game character) in bright colors. Dress the others in a similar, simple fashion according to their nationality and time period. Performance time is 30 minutes.

To add to the production, ask your best artists to draw on posterboards the historical computers mentioned in the play. Set up an easel and appoint one student to post the picture of each machine as it is discussed.

224/24

Characters:

Titus Grump	Blaise Pascal
Mrs. Moe Dern	Charles Babbage
Mr. Moe Dern	Lady Ada
	Lovelace
Noel	Herman
	Hollerith
Mickey Microwave	Howard Aiken
Sandy Spaceshot	Dr. Presper
80% IST	Eckert

Ooga Wama Chinese person Sally Ride Dr. John Mauchly Mr. Green Mrs. Green Gerta Green

Time: December 24, 4 p.m.

Setting:

The entire play takes place in a toy store. A table is stage right and a couch made of three chairs is center stage. The exit door is stage left. The entrance door is stage right.

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SCENE 1 A Christmas Present for Lerna

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Dolls are posed in horizontal rows upstage. Downstage, Mr. and Mrs. Moe Dern are speaking with Mrs. Dern's father, Titus Grump, owner of the toy store.

Grump: And what about a Christmas present for my granddaughter, little Lerna? How about a nice doll? Here's a new one: Sally Ride. She comes with a space shuttle and a space suit. (*He pulls Sally's string.*)

Sally Ride: Hi. My name is Sally Ride. I'm the first American woman astronaut.

Mrs. Dern: Actually, Dad, Moe and I want to buy Lerna a computer for Christmas this year.

Grump: Rubbish, garbage, and fiddlesticks. No granddaughter of mine will get a computer for Christmas, not if I can help it.

Moe: Why not, Mr. Grump?

Grump: Suddenly everyone is talking about computers. I just don't trust those new machines.

Moe: But Mr. Grump, computers are not new at all. Computers are tools for calculating. And people have been counting things for a very long time.

Grump: (Laughs hysterically) I've been around longer than you, sonny boy, (getting louder) and I can assure you that this computer rage is just another fad that's sure to fade away like pet rocks and disco. This year it's computers. Next year everyone will ask, "Remember that silly computer rage?"

Mrs. Dern: Don't get so excited, Dad. It's not good for your heart. (*To her husband*) I think we should go now, dear. (*To her father*) We'll see you at dinner tomorrow. Good-bye. (*They exit.*)

Grump: (Out of breath, he sits on the couch.) She's right. I am getting excited. I'd better rest. (He falls asleep, snoring loudly.)

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CHRISTMAS

SCENE II The Dolls Teach Grump About Computers



While Grump sleeps, the dolls begin to look around. They slowly start to stir. Sally Ride and Noel (a Christmas doll) walk downstage center.

Sally Ride: I think it's time to teach ol' Grumpy a lesson about computers. And because it's Christmas and you're so wise, I think you should do it, Noel.

Noel: Okay, Sally. But I'll need some help.

Micky Microwave: (Micky is a robot with very choppy speech.) I'd love to help, No-el. I know all about com-puters.

Sandy Spaceshot: (Sandy is a character from a video game and has a squeeky voice) I can help, too.

Sally: Maybe all the dolls can help.

Everyone: (Agreeing in a manner appropriate to each character) Yes... Sure, we'll all help...Lovely (A British doll)...(And so on)

Noel: (*Shaking Grump*) It's time to wake up, Mr. Grump.

Grump: Who said that? (He looks

around at all the dolls. The dolls giggle.)

Noel: I did, Grump.

Grump: Don't be ridiculous. Dolls can't talk. (More laughter from the dolls)

Noel: At Christmastime anything can happen. Something magical is going to happen right now. The dolls are going to teach you a lesson about computers, Grump. Just follow my assistants. (*Grump follows Micky and Sandy as they walk toward the Stone Age dolls.*)

Sandy: You see, Grump, even people in the Stone Age used tools to help them count things.

Ooga: Yah, I keep track of all the buffalo I see by carving notches on the side of our cave.

Wama: And I don't like it one bit. The cave looked much nicer when you counted things with your fingers and toes.

Ooga: (With a big smile) Yabba Dabba Do!

Noel: (*Leading Grump to a Chinese doll holding an abacus*) The Chinese invented the first machine for counting. It is called the abacus.

Chinese doll: To make an abacus, you string flat wooden beads onto wires. Then you attach the wires to a frame. We count numbers by moving the beads up and down, like this. (Demonstrates counting with the abacus)

Micky: That's how the Chi-nese count-ed. And it worked very well. Then, a-bout the time the pil-grims were having their first Thanks-giv-ing din-ner in A-mer-i-ca, a young man in France in-ven-ted a 'mach-ine for count-ing. (*Pascal enters stage right.*)

Here he is now. (To Pascal) Hello, Blaise Pascal.

Pascal: Bonjour.

Noel: How old are you, young man?

Pascal: I'm 19 years old.

Sandy: Tell us about your machine.

Pascal: (Displaying a picture of his calculating machine) Instead of the beads on the abacus, I use a wheel that turns one notch for each number. When the wheel turns past nine, it hooks a second wheel and turns it one notch. (He exits stage right.)

Noel: You see, Grump, as time went on, man kept searching for a better tool for calculating. And all of his inventions led to the computer.

Sally: Wait a minute. What about women? Didn't women do anything to help create computers?

Sandy: Of course, they did. In fact, a woman helped design the first real computer in 1835. It was never built, but the plans for it were used to build other computers.

(Babbage and Lady Lovelace enter stage right.)

Sandy: (Noticing Babbage) Oh, excuse me, Mr. Babbage. I didn't know you were here.

Babbage: Not at all. I'd like you to meet my remarkable friend, Lady Ada Lovelace. Lady Lovelace helped me raise money and wrote about my work.

Lady Lovelace: Charles, I must interrupt. You've forgotten to tell them the most important thing I did. (*To* others) I convinced Charles to use the binary number system. That's a special number system that computers understand. (*They exit stage right.*) **Grump:** I thought computers were made in America. But all of these inventors are from other countries.

Noel: Actually, Americans were the first to use a computer for a really big job. When it was time to take the census in 1890, the United States Census Office was still counting the people from the 1880 census. So the office held a contest to invent a faster way.

Hollerith: (Enters stage right) And I won! My name is Herman Hollerith and I'm from New York. I invented a machine to count 63 million Americans from information punched into cards. (He exits stage right.)

Grump: Wow! That's amazing. Imagine counting information about 63 million people. (Everyone looks at Grump, and he puts his hand over his mouth, ashamed that he reacted. To cover up, he yawns as if he is bored. Eckert and Mauchly enter stage right.)



Dr. Eckert: That's nothing. My computer can do five thousand calculations in a second.

Grump: Who are you?

Dr. Eckert: I'm Dr. Presper Eckert and this is Dr. John Mauchly. We created the first electronic digital computer at the University of Pennsylvania. We called the computer ENIAC.

Dr. Mauchly: It used vacuum tubes instead of mechanical switches. EN-

IAC weighed over 30 tons.

Grump: You two work well together. No wonder you made the computers we use today.

Sandy: But they didn't. (*Eckert and Mauchly exit.*) The computer changed even more in 1961 when the transistor was invented. The transistor took up less space than vacuum tubes.

Noel: So the new computers were smaller and cheaper.

Grump: Like the one my granddaughter wants for Christmas.

Noel: No. She wants a microcomputer. Micros use tiny things called integrated circuit chips. They are even smaller, faster, and cheaper than computers made with transistors.

Grump: So the computer I buy for Lerna won't be as big as a gymnasium or cost as much as a house?

Micky: Not at all. In fact, some micro-com-pu-ters are as small as school books, and you can learn from them, too.

Grump: Can my granddaughter learn to count with a computer?

Micky: Oh, yes. And she can learn read-ing, writ-ing, his-tor-y, ge-og-ra-phy, sci-ence, and lots more.

Grump: What a practical toy!

Noel: Well, it's not really a toy. But it is fun to use. Banks use computers to manage your money. Hospitals use computers to care for sick people.

Sally: And astronauts use computers to explore space.

Sandy: You could use a computer in your store to help you run your toy business. (*There is a knock on the door. Suddenly the dolls freeze.*)

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SCENE 3 Grump Teaches the Greens About Computers

Grump opens the door. A man, a woman, and a child enter stage left.

Mr. Green: Hello. We're looking for a doll for my daughter, Gerta.

Mrs. Green: Do you have the one that cries, takes a bath, and eats real food at the same time?

Grump: Oh, that's a silly doll. I have a better idea for a Christmas present. Why don't you buy Gerta a computer?

Mr. Green: A computer? Why?

Grump: Computers are wonderful tools. Did you know that people have been using tools to calculate since the Stone Age?

Mrs. Green: I didn't know that.

Grump: But computers have changed a lot over the years. Now we have microcomputers. They are much smaller and less expensive than the first computers. But they are more powerful.

Gerta: Oh, I would love to have a computer for Christmas. Would you buy one for me, Mommy and Daddy, please?

Mr. Green: It sounds like a wonderful idea. (*To Grump*) Thank you for helping us, sir.

Mrs. Green: Goodbye and Merry Christmas! (They exit stage left.)

Grump: (Waving to them from the door) Merry Christmas to you! (The dolls giggle. Curtain.)

Lesli Rotenberg

SOFTWARE WORKSHEET 1

HANUKKAH AND CHRISTMAS HANUKKAH DATES VARY; DECEMBER 25

NAME:

DIRECTIONS: Software can be stored on different devices. Label the software devices below. Use these names: card, cartridge, tape, disk. Color the picture.



Inc.

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Answer: Your teacher has the



Answer: Your teacher has the answer. It is on page 156 of the book, Holiday Computer Activitie



WRITE LETTERS FROM SANTA

Each December, I cut out the words "Printouts for Santa" from felt, glue them onto a Christmas stocking, and hang the stocking in my computer corner. I tell kids the stocking is their direct line to Santa. They are to put any printouts they are particularly proud of in the stocking and I will see that Santa gets them.

Each week, I take the stocking home and review the printouts. I then compose a letter from Santa on my computer. Each letter summarizes the good computer work kids did in the printouts.

I hang each letter on a bulletin board in the computer corner. The kids love seeing their names in a letter from Santa. There are other benefits, too. The letters motivate kids to do more computer work, and reading what others did gives students new ideas to try.

Maxine Brown

UNSCRAMBLE A CHRISTMAS JOKE

Question: Why couldn't Santa Claus get his computer to work?

The program below asks you this joke and shows the answer. To find the answer, tell kids to type in the program below, type RUN, and press RETURN or ENTER.

- 10 REM JOKE
- 20 PRINT "WHY COULDN'T SANTA":GOTO 40

30 PRINT "IT HAD": GOTO 50

40 PRINT "CLAUS GET HIS": GOTO 60

- 50 PRINT "FROSTBYTE."END
- 60 PRINT "COMPUTER TO WORK?":GOTO 30.



WRITE GIFT LISTS IN BASIC

This is the time all kids write lists of gifts they would like to receive for Hanukkah or Christmas. Have kids use the computer program below to write their lists.

Students should type in line 10 as is, but when they come to lines 20– 40, they should replace the gifts that are in quotes with ones they would like. If they would like to list more than three gifts, they can continue writing line statements like lines 20– 40. (Number lines by tens.)

10 PRINT "GIFT LIST"

20 PRINT "BIKE"

30 PRINT "DOG"

40 PRINT "COMPUTER"

Once they've typed their program, tell kids to type in RUN, press EN-TER or RETURN, and they'll have a computerized list of the presents they'd like!

Extension: You might consider having kids write an entire book of lists for December holidays. Lists could include Hanukkah and Christmas gifts kids plan to buy for friends, favorite seasonal songs, and so on.

WRAP GIFTS IN CUSTOMIZED PRINTOUT PAPER

Computer printout paper can make great wrapping paper—especially when it has seasonal graphics on it!

Using the PRINT statements below, kids can create a Christmas tree on the computer screen.

10 PRINT	**		×	ç,,		
20 PRINT	**		*	*'	,	
30 PRINT	**	*		*	¥**	
40 PRINT	"	*	*	*	*"	
50 PRINT	**		2	K "		

After the program is typed into the computer, have kids type in RUN and press ENTER or RETURN. They'll have a delightful Christmas tree!

Have students print out their tree and wrap their present so that the tree appears on the top center of the gift.

ILLUSTRATE YOUR HOLIDAY STORY HOUR

Our school purchased a Koala Pad, a pad that plugs into a microcomputer and transfers drawings that you produce on the pad with your finger or stylus onto a computer monitor.

The pad has become a big hit with many primary classes during story hour. As a teacher reads a holiday story, students are selected to use the Koala Pad to draw a series of illustrations about the story on the computer screen. For example, during a story about Christmas, one student was asked to draw a red-nosed reindeer on the computer screen. When the story is finished, the illustrations contain many important elements of the tale. This serves as a good discussion springboard.

Tom Boudrot

HANUKKAH AND CHRISTMAS

Make an Input Bank

In art class, my students make data banks that do not store words or numbers. Their data banks hold nickels, dimes, quarters, and an occasional half-dollar. Your students can make data banks of their own for keeping coins. Data banks also make great Hanukkah and Christmas gifts.

Cut a 3-inch slot in the plastic lid of an empty coffee can. Cover the sides of the can with construction paper and paste in place. In large letters on the side of the can, write "DATA BANK." Higher up on the can, in smaller letters, write "INPUT" and draw an arrow pointing toward the lid. Encourage kids to paste on decorations of their own, such as colorful trim or photographs of coins.

Make an Abacus

One of the earliest calculating devices was the abacus. Students can make their own abacuses for Christmas or Hanukkah gifts. Each student will need these materials: a gift box, fishing line, Cheerios (or other cereal with center holes), scissors, and a piece of cardboard. Follow these simple steps:

1. Cut four matching slits along the two longer edges of the box. Make the slits half as deep as the edges. (See illustration.)

2. Cut a piece of cardboard so that it fits lengthwise in the box. On one edge of the cardboard, cut four slits that correspond to the slits on the box. (See illustration.)

3. Place the cardboard in the box, about two-thirds of the way from one of the long sides.

4. Knot a piece of fishing line and string it through the first slit. String two Cheerios on the fishing line and place them above the cardboard insert.

5. String the line through the insert and then string five Cheerios on the line.

6. String the line through the bottom slit. Knot the line and cut it.

7. String three more rows of Cheerios in the same way.

This is a Chinese abacus. Other versions may differ slightly.

Ask two students to do research on the Chinese abacus and to teach the class how to add and subtract on one. (Most encyclopedias contain adequate information.)



As a holiday gift, make an abacus with strings of Cheerios or Froot Loops.

HOLIDAY PARTY GAMES

Play the Turtle Toss Game

Turtle Toss teaches students to use the Logo commands FORWARD, BACK, LEFT, and RIGHT. It's also a fun game for December holiday parties.



To play, cut out construction paper letters for the Logo commands FOR-WARD and BACK (FD and BK) and tape them to the front and back of an old ski cap. Do the same for the commands LEFT and RIGHT (LT and RT) and tape the letters to a pair of mittens, one command per mitten. Select a student to be the "turtle." This student wears the cap and mittens in their appropriate positions, allowing classmates to refer to the Logo commands and their meanings. Using a plastic tablecloth or butcher paper and a felt-tip pen, prepare a large grid for the floor. (See illustration.) Have the turtle toss a beanbag to a box on the grid. The other children direct the turtle to the box the beanbag landed on by giving Logo commands. To reach the beanbag in the illustration, the commands would be FD 2, RT 90. FD 3.

To make the game more challenging, I place on the grid candy canes, dreidels, and other Hanukkah or Christmas objects that the turtle must be instructed to move around. Dorothy J. Sphar

DECEMBER 21

WINTER PUZZLE WORKSHEET

FIRST DAY IN WINTER

NAME:

A rtists create pictures on a computer screen in many different ways. One way is to call up shapes that are stored in the computer's memory. They can call up all kinds of shapes, like spheres, triangles, and rectangles.

To make a house, for example, they start with a square, a triangle, and three small rectangles. They put the triangle on top of the square to form a roof. Then they put the rectangles inside the square to make windows and a door.

You can use paper shapes to make lots of different pictures. First color the shapes below. Then cut them out. Put two or more shapes together to make a winter picture.

Draw and cut out copies of the shapes so that you can make a whole holiday scene.

If you have a Logo program, boot it up and write a procedure for each shape. Then write another procedure that uses the shapes to draw a picture.



WINTER GREETINGS WORKSHEET

FIRST DAY IN WINTER

DECEMBER 21

NAME:

COPY

DIRECTIONS: The puzzle below contains 10 computer words. They are hidden in every direction—even diagonally.

In the puzzle, find and circle all 10 words listed below. The letters that are left over spell out a winter greeting. Write the winter greeting in the spaces provided below.





JANUARY 1

NEW YEAR'S DAY

rom January to December, the months of the year are chock-full of birthdays, holidays, and special events.

You can teach students what's in store for the coming year and some interesting facts about the months by creating a "Months of the Year" data base file. The data base will contain information on each month, including the name of the month, the number of days, the season, students' birthdays, holidays, school events, and additional facts.

You can use just about any simple data base program for this activity. Just follow these four easy steps.

STEP 1:

Create a MONTHS Data File

Boot your data base program into your computer. Design a file called MONTHS with the following fields, or categories. Save the file on disk or cassette.

MONTH: NO. OF DAYS: SEASONS: HOLIDAYS: SCHOOL EVENTS: STUDENT BIRTHDAYS: ADDITIONAL FACTS:

Editor's Note: Some programs allow only a limited number of characters per field. If you are using one of these programs, abbreviate field names.

STEP 2: Research the Months

Divide the class into 12 groups. Assign a different month to each group. Print out 12 copies of the MONTHS file and pass out one copy per group.

Have groups use calendars, school bulletins, the almanac, and guides to monthly holidays as resources to fill in all the fields in the MONTHS file, except BIRTHDAYS.



For HOLIDAYS and SPECIAL EVENTS with specific dates, write the name of the holiday or event first, followed by the date in parentheses. For example:

HOLIDAYS: VALENTINE'S DAY (14).

Here is a sample record for March. MONTH: MARCH NO. OF DAYS: 31 SEASONS: WINTER, SPRING HOLIDAYS: ST. PATRICK'S DAY (17), SPRING BEGINS (20), EASTER (30) SCHOOL EVENTS: PARENT'S DAY (13), SPRING BREAK (14-22) BIRTHDAYS:

ÁDDITIONAL FACTS: A POPULAR SAY-ING IS, "MARCH COMES IN LIKE A LION AND GOES OUT LIKE A LAMB." ALSO, "BEWARE THE IDES OF MARCH" (MARCH 15), WHICH IS THE DAY JULIUS CAESAR WAS KILLED.

STEP 3:

Add the Information to the Data File

Boot the data base program, call up the MONTHS file, and have groups add their information to the file. When everyone has finished, there will be 12 records in the MONTHS file, one for each month of the year.

Check students' records for misspellings and factual errors. Have children correct their mistakes.

Instruct kids to take turns entering their birthdays into the records. To do this, they will have to call up the record for the appropriate month. Then they will have to insert their names next to the STUDENT BIRTH-DAYS field, followed by the date in parentheses. Separate birthdays with a comma. For example:

STUDENT BIRTHDAYS: BILLY (9), NORA (12), MELISSA (30).

When students have finished, secretly add your own birthday to the file.

STEP 4:

Search for Specific Information

Review how to retrieve information with your data base program. Have students use the MONTHS data base to find out the following information:

1. Find the longest months of the year. (Hint: The longest months have 31 days.)

2. Find all the summer months.

3. Find your teacher's birthday.

4. According to an old saying, oysters should only be eaten during months with an "r" in them. (The saying was once a way to warn people that summer oysters spoil easily, but it no longer applies, due to modern refrigeration methods.) Find all the months with an "r" in them.

5. In what month is Easter this year?

6. When is the last day of school?

7. Is there any month in which nobody has a birthday?

8. Suppose it is January 15. Is anything special happening on this day?

Encourage students to add more fields to the MONTHS data base, including zodiac signs, the original names of the months, dates on which a full moon occurs, historic events, and so on.

Lorraine Hopping

NATIONAL BLOOD DONOR MONTH

MONTH OF JANUARY

COMPUTER BLOODBBANK PROGRAM

January is designated National Blood Donor Month. It's the perfect time for using this science program listing on human blood types.

The program is called *Computer Blood Bank*. It checks the blood types of a donor and a recipient to determine if a transfusion is possible. Not just any human blood type can be donated to or mixed with another. In this program, students learn which blood types are compatible.

HOW THE PROGAM WORKS

A "recipient" and a "donor" enter their names and blood types. The program determines if a transfusion is safe by comparing ABO and RH blood types.

Despite ABO and RH compatibility, blood still may clump, although the probability is very low. As a further safeguard, a *crossmatch test* (the actual mixing of blood samples to check for clumping) is used. This test is included in the program.

If blood types are not compatible, students can select another recipient or donor, or end the program.

USING THE PROGRAM IN YOUR SCIENCE CURRICULUM

Following are discussion topics and activities for using *Computer Blood Bank* in a unit on health or the human body.

1. Discuss blood types and transfusions. All humans have one of four blood types: A, B, AB, or O. When one human gives blood to another (a *transfusion*), blood types must be compatible. Otherwise, blood clumps together, and the recipient may die.

Blood types indicate the presence or absence of A and B *antigens*. Antigens produce *antibodies* that attack foreign particles in the body. Type A blood, for example, has A antigens that produce anti-B antibodies. When types A and B blood are mixed, the anti-B antibodies "attack" particles in the type B blood. That's what produces clumping.

Type O blood has no antibodies. Therefore, it can be added to any blood type without causing clumping. Type AB blood, on the other hand, contains both A and B antigens. It can only be donated to another AB blood type. (For more information on blood type relationships, see the chart on this page.)

Blood can also be RH (Rhesus) positive or negative. Most people are RH positive, meaning their blood has RH antigens. Blood from an RH positive donor can only be given to an RH positive recipient. An RH negative type may give to either an RH positive or an RH negative recipient.

Ask students why they think someone might need a transfusion. Common reasons are blood loss from accidents or surgery. Transfusions also help patients with anemia, hemophilia (inability of blood to clot), shock, and leukemia.

2. Check blood types. Have students use a blood testing kit to determine their blood types. (See list of suppliers at end of article.)

They are now ready to use *Computer Blood Bank*. After students have played both donor and recipient roles, have them construct a chart showing transfusion relationships. Here's a sample:

Transfusion Relationships of A-B-O Blood Groups

Blood	Can Donate	Can Receive
0	O,A,B,AB	0
Α	A, AB	O,A
В	B, AB	O,B
AB	AB	O,A,B,AB

Ask students why AB is called the "universal recipient" and O is called the "universal donor." (People with AB blood can receive A, B, AB or O blood. People with O blood can donate to people with A, B, AB, or O blood.)

Graph the percentage of A, B, AB, and O, and of RH positive and RH negative students in the class. Have each student make a list of all classmates who could safely donate blood to him or her.

3. Visit a blood bank. In the early 1900s, donors and recipients lay side by side, and the blood was transferred immediately. Now, blood from a donor is stored in containers until it is needed.

Arrange a field trip to a local blood bank to show students how a modern blood bank operates.

SUPPLIERS OF BLOOD TYPING KITS

Editor's note: Kit prices quoted are based on a 30-student standard.

• Carolina Biological Supply Co., 2700 York Rd., Burlington, NC 27215; \$17.50.

• Central Scientific, 11222 Melrose Ave., Franklin Park, IL 60131; \$11.50 (50 students).

• Connecticut Valley Biological Supply Co., PO Box 326, Southampton, MA 01073; \$8.50.

• Fisher Educational Materials, 4901 W. LeMoyne St., Chicago, IL 60651; \$7.50.

• Nasco, 901 Janesville Ave., Fort Atkinson, WI 53538; \$8.50.

• Redco-Science Inc., 11 Robinson Ln., Oxford, CT 06483; \$8.50.

• Sargent Welch, 7300 N. Linder Ave., PO Box 1026, Skokie, IL 60077; \$11.75 (25 students).

• Science Kit, Inc., 777 E. Park Dr., Tonawanda, NY 14150; \$10.95.

> Richard Bollinger (continued)

PROGRAM LISTING FOR COMPUTER BLOOD BANK

vert the program for use on Atari, Commodore, and page 154.

This program listing is for Apple computers. To con- | Radio Shack computers, see the Program Conversions,

10 REN CONPUTER BLOOD BANK @1984 SCHOLASTIC INC. 20 HONE : CLEAR 30 PRINT " WELCONE TO THE COMPUTER BLOOD BANK." REN GET INFO ON RECIPIENT 40 PRINT : PRINT " ENTER THE NAME OF THE RECIPIENT AND" 50 60 PRINT "PRESS <RETURN>." 70 INPUT RS: HOME PRINT " WHY DOES ":RS:" NEED & TRANSFUSION?" 80 PRINT : PRINT " 1 ANEMIA." 90 PRINT " 2 LEUKEMIA." PRINT " 3 HEMOPHILIA." 100 110 110 PRINT " 3 HEADPHILIA." 120 PRINT " 4 SHOCK." 130 PRINT " 5 BLOOD LOSS DUE TO ACCIDENT." 140 PRINT " 6 SURGERY." 150 PRINT " 7 OTHER." PRINT : PRINT " ENTER A NUMBER (1-7) AND PRESS" PRINT "<RETURN>.": INPUT I\$ 160 170 REN ENTER BLOOD TYPES OF RECIPIENT AND DONOR 180 190 HOME : PRINT " WHAT BLOOD TYPE IS ";R\$;"?" 200 GOSUB 1000: REM LIST BLOOD TYPES 210 INPUT RBS: IF RBS < > "A" AND RBS < > "B" AND RBS < > "O" THEN 210 220 HOME REM GET INFO ON DONOR 230 240 PRINT " ENTER THE NAME OF THE DONOR AND PRESS" 250 PRINT "(RETURN).": INPUT D\$ 260 PRINT : PRINT " WHAT BLOOD TYPE IS ";Ds;"?" 270 GOSUB 1000; REN LIST BLOOD TYPES 280 INPUT DBS: IF DBS < > "A" AND DBS < > "B" AND DBS < > "AB" AND DBS < > "O" THEN 280 290 REN CHECK FOR ABO COMPATIBILITY 300 IF DB\$ = "A" AND (RB\$ = "O" OR RB\$ = "B") THEN 590 310 IF DBS = "B" AND (RBS = "O" OR RBS = "A") THEN 590 320 IF DBS = "AB" AND RBS < > "AB" THEN 590 330 REM RH POSTITIVE OR NEGATIVE 340 HOME : PRINT " ABO BLOOD TYPES MATCH. IS THE" 350 PRINT "RECIPIENT, ";R\$;", RH POSITIVE" 360 PRINT "OR RH NEGATIVE?" 370 GOSUB 2000: REM LIST CHOICES 380 INPUT RHS: IF RHS < > "-" AND RHS < > "+" THEN 380 390 HOME : PRINT " IS THE DONOR, ";DS;", RH POSITIVE" 400 PRINT "OR RH NEGATIVE?" 410 GOSUB 2000: REM LIST CHOICES 420 INPUT DHS: IF DHS < > "+" AND DHS < > "-" THEN 420 430 REM CHECK FOR RH COMPATIBILITY IF DHS = "+" AND RHS = "-" THEN 590 440 REM RH BLOOD TYPES MATCH 450 HOME : PRINT " RH BLOOD TYPES MATCH. THE DOCTOR " 460 PRINT "WILL DO A CROSSMATCH TEST TO CHECK FOR" PRINT "CLOTTING." PRINT : PRINT " ONE MOMENT, PLEASE...." 470 480 490 PRINT : PRINT " 500 REM CROSSMATCH TEST 510 X = INT (100 * RND (1)) + 1 520 FOR Y = 1 TO 5000: NEXT Y 530 IF X = 50 THEN PRINT " CROSSMATCH TEST PRODUCED CLUMPING.": GOTO 61 < > "AB" AND RB\$

540 REM TRANSFUSION IS SAFE 550 PRINT : PRINT " CROSSMATCH TEST PRODUCED NO CLUMPING." 560 PRINT "TRANSFUSION IS SAFE. GOOD LUCK PRINT : PRINT " WHAT WOULD YOU LIKE TO DO NOW?" 570 **GOTO 640** 580 REN TRANSFUSION UNSAFE HOME : PRINT " BLOOD TYPES DO NOT MATCH. TRANSFUSION" 590 HOME : PRINT " 600 PRINT "NIGHT BE HARMFUL TO THE RECIPIENT." 610 PRINT : PRINT " WHAT DO YOU THINK IS THE BEST COURSE" PRINT "OF ACTION?" 620 630 640 PRINT : PRINT " 1 TRY ANOTHER DONOR." 650 PRINT " 2 TEST A NEW RECIPIENT AND DONOR." 660 PRINT " 3 END THE PROGRAM." 670 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE AND" PRINT "PRESS (RETURN>." 680 690 INPUT CHS IF CHS = "1" THEN 220 700 IF CHS = "2" THEN 10 710 IF CH# < > "3" THEN 690 720 730 PRINT " HAVE A NICE DAY 740 END 1000 REM LIST BLOOD TYPES 1010 PRINT : PRINT " PRINT " TYPE B" TYPE A" 1020 PRINT " TYPE AB" 1030 PRINT " TYPE O" 1040 PRINT : PRINT " ENTER A, B, AB, OR O. PRESS (RETURN)." 1050 1060 RETURN REM RH+ OR RH-2000 PRINT : PRINT " RH POSITIVE (+)" PRINT " RH NEGATIVE (-)" 2010 RH NEGATIVE (-)" 2020 PRINT : PRINT " ENTER + OR - AND PRESS (RETURN)." 2030 2040 RETURN

MARTIN LUTHER KING, JR.'S BIRTHDAY

JANUARY 15

WRITE BIOGRAPHY OF MARTIN MARTIN LUTHER KING IR.=

t's official: January 15 is a newly designated national holiday in celebration of Martin Luther King, Jr.'s birthday.

In honor of the occasion, we've put together a writing unit on the famous civil rights leader. In the unit, students research events in King's life and use a word processing program to write a short biography of him.

Children can use any word processing program to do this activity. They should know how to call up and save files, move the cursor, and insert and delete text.

RESEARCH KING'S LIFE

Objective: Students research basic facts about Martin Luther King, Jr.'s life. They also learn what type of information to include in a biography. **Preparation:** Cut out and laminate the Write a Biography task card on page 96.

Activity: Discuss with the class what a biography is. (A factual account, usually written, of a person's life.) Divide students into pairs and explain that each pair is going to write a biography of Martin Luther King, Jr.

Instruct student pairs to research King's life. They should look for information such as when and where he was born and died, what his childhood was like, great achievements in his life, and the names of his family members.

Load the word processing program into the computer and have students complete the Write a Biography task card (see page 96). The task card asks students to insert answers to questions about King's life. (Students will have to do additional research if they don't know the answer to a question.) The completed file will later serve as an outline for their biography.

Following is an example of a completed file. Additional or different information is acceptable for questions 3, 6, 7, and 9.

1. When and where was Martin Luther King, Jr. born? King was born on January 15, 1929 in Atlanta, Georgia.

2. What were the names of King's parents? How many brothers and sisters did he have? What were their names? Were they older or younger? King's father was Reverend Martin Luther King, Sr., and his mother was Alberta Williams King. King had an older sister named Willie Christine and a younger brother named Alfred Daniel.

3. Describe an event in King's boyhood that influenced his later life. One day, young Martin and his father walked into a shoe store. When they sat down, the sales clerk told them to

move to the back of the store. The clerk explained that he could serve black people only if they sat in the back. Rather than move, Martin's father took him by the hand and stormed out without buying any shoes. Martin remembered the event as an example of how blacks were treated unfairly.

4. What did King do for a living? He was a minister in the Baptist church.

5. Whom did King marry? How many children did the Kings have and what were their names? He married Coretta Scott. They had four children: Yolanda Denise, Martin III, Dexter Scott, and Bernice Albertine.

6. Tell about three great achievements or moments in King's life. In 1955, King led a boycott of public buses in protest of unfair laws against black passengers. The successful boycott showed people that rights could be won through nonviolent protest. In 1963, he led a successful march in Washington, DC, to help the civil rights cause. In 1964, King won the Nobel Peace Prize.

7. Describe King's dream for the future of the world as he explained it in his "I Have a Dream" speech. How did he think it could be achieved? King dreamed that people of all races, religions, and social classes would live together in peace, and that they would all be given equal opportunity to fulfill their dreams for a happy life. He believed that such freedom and

IANIJARY

MARTIN LUTHER KING, JR.'S BIRTHDAY

justice could be achieved through nonviolent protest.

8. When, where, and how did King die? King was shot in Memphis. Tennessee, on April 4, 1968.

9. Add any other information on King's life that you think is important. King united many groups in his campaign against poverty. Besides blacks, he called together American Indians, Spanish-speaking Americans, and others. He planned a Poor People's March on Washington, DC, for 1968 but did not live to lead it.

WRITE THE BIOGRAPHY

Objective: Students write a biography based on the outline they compiled in the previous activity.

Preparation: Print out students' outlines and check for spelling errors, missing information, factual errors, and inappropriate responses to the questions. Pass back the corrected outlines.

Load the word processing program into the computer.

Activity: Have students call up their outlines and make the changes and corrections that you indicated.

They are now ready to write the biography, using their answers to the questions as a first draft. They can put the information in any order by moving blocks of text. They can also insert and delete text to make the biography read more smoothly.

Encourage students to add more information to the biography. They might even wish to add quotations from King's speeches.

Lorraine Hopping

COPY

HOLIDAY TASK CARD

Write a Biography

processing program into the computer. Type in answers to the following questions. Use complete ing? sentences. Save the file on disk or cassette. Use your first name and last initial as a filename. (For example: JENNYP.)

1. When and where was Martin Luther King, Jr. born?

2. What were the names of King's parents? How many brothers and sisters did he have? What were their names? Were they older or younger?

3. Describe an event in King's

DIRECTIONS: Load the word | boyhood that influenced his later life.

4. What did King do for a liv-



5. Whom did King marry? How many children did the Kings have and what were their names?

6. Tell about three great achievements or moments in King's life.

7. Describe King's dream for the future of the world as he described in his "I Have a Dream" speech. How did he think it could be achieved?

8. When, where, and how did King die?

9. Add any other information on King's life that you think is important.



Dental Health Month 101

> **Groundhog Day** 104, 114

104, 114

Valentine's Day 104, 110, 112, 114

Washington's Birthday 104, 114



ebruary is Black American History Month. This Black American History Quiz program celebrates Black American heritage and quizzes students on four famous black leaders: Harriet Tubman, Frederick Douglass, Ida Wells Barnett, and Dr. Martin Luther King, Jr. You can use Black American History Quiz in February to supplement a unit on famous black leaders or expand the program to include information on several other Black Americans who have helped make America.

HOW THE PROGRAM WORKS

Black American History Quiz generates up to five clues, one at a time, on each of the four leaders. Using as few clues as possible, students try to guess the name of each leader. When students type in their guesses, they must spell out the person's full name correctly. If they spell the name incorrectly, the computer rejects the guess.

USING THE PROGRAM IN THE CURRICULUM

To give children an introduction to events, people, and issues in black American history, have them read at least one history book on the subject. (See bibliography, next page.)

• For a class project, construct a *Who's Who of Black American History*. Have each child pick a black civil rights leader, politician, writer, educator, scientist, scholar, musician, sports star, or other figure about whom to write a short biography. Alphabetize and assemble the biographies in book form, complete with index.

Add the Who's Who entries to the Black American History Quiz program. (See Expanding the Program, next page.)

• Have students read black fiction or poetry. (See bibliography, next page.) As a class, discuss issues raised by the books, such as discrimination, civil rights, segregation, busing, and slavery.

• Using Alex Haley's book, *Roots*, as an example, tell students that some authors use both fact and fiction to recreate historical events accurately and realistically. This *historical fiction* often takes the form of short stories, novels, poems, speeches, plays, or screenplays.

Have students pick a time, place, event, or person about which to write a short piece of historical fiction. Let them choose the medium they wish to use. Encourage kids to collaborate on projects to make a television miniseries or a short, historical novel in which each person writes a chapter.

One project might be an epic poem about Phillis Wheatley, a black woman born in Senegal, Africa, in the 1700s. She came to America as a child slave and later wrote her way to freedom as a poet. Another project could be a historical drama about Crispus Attucks, the first martyr of the Boston Massacre, and the events that led up to his death. Other suggestions include: a speech written by a civil rights protester, a news story published in an 1865 newspaper, and a screenplay about a black family in the 1980s.

• Discuss the phrase "separate but equal." Explain that in the late 1800s and early 1900s many states had *Jim Crow laws*. These laws required blacks and whites to use separate public facilities, such as schools, churches, restaurants, hotels, buses and trains, public toilets, and so on.

In 1896, in the case of *Plessy v. Ferguson*, the Supreme Court ruled that these "separate but equal" facilities for blacks and whites were constitutional.

In 1954, however, the Supreme Court ruled, in the case of *Brown v*. *Board of Education of Topeka*, that public schools were in fact separate but not equal. Most black schools were inferior to white schools, and so blacks did not have the same opportunities for education as whites. In 1969, the Court ordered schools to *desegregate*.

• Choose nine class members to represent judges of a newly formed Supreme Court. Divide the rest of the class in half for a debate on the "separate but equal" issue. To find arguments on both sides, have debaters research the Supreme Court cases mentioned above, speeches by civil rights supporters and attackers, and the Constitution, including the Civil Rights Act and the first 10 amendments.

After the debate, have the judges issue a written ruling explaining all sides of the issue and deciding by majority vote whether "separate but equal" in all facilities is constitutional or not.

EXPANDING THE PROGRAM

Expand Black American History Quiz to include other figures in history, such as George Washington Carver, Abraham Lincoln, Sojourner Truth, W.E.B. Du Bois, and so on. Here's how to expand the program to include George Washington Carver.

1. Before the END statement in the last line of the listing, add DATA statements containing the name of the historical figure and five clues about him or her. (Be sure to change the line number of the END statement.)

1300 DATA "GEORGE WASHINGTON CARVER."

1310 DATA "I WAS BORN IN MISSOURI IN 1864."

1320 DATA "I WAS KIDNAPPED AND SOLD AS A SLAVE."

1330 DATA "I BECAME A BOTANIST AND SCIENTIST."

1340 DATA "MY WORK IMPROVED THE SOUTH'S ECONOMY."

1350 DATA "I FOUND OVER 300 USES FOR THE PEANUT."

2. Set P in line 20 equal to the number of figures included in the program. For example, if you wanted to quiz students on 10 historical figures, line 20 would read: 20 HOME: CLEAR: P = 10.

3. RUN the program to check for errors.

BIBLIOGRAPHY Nonfiction

Black Frontiersmen: Adventures of Negroes Among American Indians, 1528–1918, by Norman Heard, (Harper & Row: 1969), grade 6 and up.

Black History: Events in February, by Ida S. Meltzer, (Book-Lab, Inc.: 1972), grades 4–12.

Black Pioneers of Science & Invention, by Louis Haber (Harcourt Brace Jovanovich: 1970), grade 5 and up.

Blacks in Early American History, by Ida S. Meltzer, (Book-Lab, Inc.: 1972), grades 4–9.

The Color Your Way into Black History Book, by Adrienne Sealy, (The Association for Family Living: 1980), workbook. The Ebony Book of Black Achievement, by Margaret Peters, (Johnson Publishing Co., Inc.: 1974), grades 4–8.

Junior History of the American Negro, by M.C. Goodman, (Fleet Press Corp.: 1969–70), grade 6–12.

They Showed the Way: Forty American Negro Leaders, by Charlemae Rollins, (Harper & Row: 1964), grade 4 and up.

Fiction

Apples on a Stick, by Barbara Michels and Bettye White, (Putnam Publishing Group: 1983), grades 3–6.

Black Crusaders for Freedom, by Bennett Wayne, (Garrard Publishing Co.: 1974), grade 5–12.

By Secret Railway, by Enid La Monte Meadowcroft, (Scholastic Inc.: 1969), grade 6 and up.

Guests in the Promised Land, by Kristin Hunter, (Scribner & Sons, Inc.: 1973), grade 5 and up.

Home Is Over the Mountains: The Journey of Five Black Children, by James Streeter, (Garrard Publishing Co.: 1972), grades 3–6.

My Name Is Black: Anthology of Black Poets, edited by Amanda Ambrose, (Scholastic Inc.: 1973), grade 3 and up.

Song About Black, by Ann McGovern, Coholastic Inc.: 1970), grades 2–5.

Striped Ice Cream! by Joan M. Lexau, (Scholastic Inc.: 1968), grade 4 and up.

Two Tales in Afro-American History, by Jon Rice, (The Committee: 1982).

Lorraine Hopping

PROGRAM LISTING FOR BLACK AMERICAN HISTORY QUIZ

This program listing is for Apple computers. To con-vert it for use on Atari, Commodore, and Radio Shack

10	REM BLACK AMERICAN HISTORY QUIZ @ 1984 SCHOLAS TIC INC.	420 430	IF ZS PRINT	= "Y" THEN SC = 0: RESTORE : GOTO 120 : PRINT " THAT'S ALL, FOLKS": END
20	HOME : CLEAR :P = 4	1000	DATA	"HARRIEL TUBRAN"
30	PRINT "WELCOME TO BLACK AMERICAN HISTORY QUIZ!"	1010	DATA	"I WAS BORN A SLAVE IN MARYLAND IN 1820."
40	PRINT : PRINT " THIS IS A QUIZ PROGRAM ON FOUR G	1020	DATA	"I AM THE MOSES OF MY PEOPLE."
	REAT"	1030	DATA	"I ESCAPED BY THE UNDERGROUND RAILROAD."
50	PRINT "LEADERS IN BLACK HISTORY."	1040	DATA	"I HELPED 300 OTHER SLAVES ESCAPE."
60	PRINT : PRINT " THE COMPUTER WILL GIVE YOU UP TO	1050	DATA	"I NURSED AND SCOUTED IN THE CIVIL WAR."
	FIVE"	1060	DATA	"FREDERICK DOUGLASS"
70	PRINT "CLUES ON EACH LEADER. YOU MUST GUESS"	1070	DATA	"AS A YOUNG SLAVE, I WORKED ON A SHIP."
80	PRINT "WHO IT IS BASED ON THE CLUES."	1080	DATA	"MY MASTER'S WIFE HELPED EDUCATE ME."
90	PRINT : PRINT " REMEMBER TO SPELL OUT THE FULL N	1090	DATA	"I ESCAPED AND CHANGED NY NAME IN 1838."
	ANE"	1100	DATA	"I SPOKE AGAINST SEGREGATION AND RACISM."
100	PRINT "CORRECTLY TO MAKE IT COUNT."	1110	DATA	"I FOUNDED AN ANTISLAVERY NEWSPAPER."
110	PRINT : PRINT " PRESS (RETURN) TO START THE QUI	1120	DATA	"MARTIN LUTHER KING JR."
	Z.": INPUT Z\$	1130	DATA	"I FOUGHT INJUSTICE BY PEACEFUL MEANS."
120	REM GIVE CLUES	1140	DATA	"I WAS A BAPTIST MINISTER FROM GEORGIA."
130	READ AS	1150	DATA	"I WON THE NOBEL PEACE PRIZE IN 1964."
140	IF AS = "END" THEN 380	1160	DATA	"I LED MARCHES AND SPOKE ON CIVIL RIGHTS."
150	FOR N = 1 TO 5: REM FIVE CLUES	1170	DATA	"I WAS ASSASSINATED ON APRIL 4, 1968."
160	READ CS	1180	DATA	"IDA WELLS BARNETT"
170	HOME	1190	DATA	"AT 14, I TAUGHT SCHOOL IN MISSISSIPPI."
180	PRINT " *** CLUE #";N;" ***"	1200	DATA	"I SAT IN A 'WHITES-ONLY' RAILROAD CAR."
190	PRINT : PRINT : PRINT CS	1210	DATA	"I PUT OUT A PAPER CALLED 'FREE SPEECH.'"
200	PRINT : PRINT : PRINT " WHO AM I?"	1220	DATA	"I HEADED AN ANTI-LYNCHING CAMPAIGN."
210	PRINT : PRINT : PRINT "ENTER THE FULL NAME AND P	1230	DATA	"I FOUNDED THE NEGRO FELLOWSHIP LEAGUE."
	RESS (RETURN)."	1300	DATA	"END"
220	INPUT GS			
230	IF GS = AS THEN 320			
240	PRINT : PRINT " SORRY, THAT'S NOT WHO I AM. CH			
	ECK"			
250	PRINT "YOUR SPELLING FOR ERRORS."			
260	PRINT : PRINT " PRESS (RETURN) TO GO ON.":			
	INPUT \$Z			
270	NEXT N			
280	HOME			
290	PRINT " MY NAME IS ";AS;"."			
300	PRINT : PRINT " PRESS (RETURN) TO CONTINUE.":			
850505	INPUT ZS			
310	GOTO 120			
320	HOME			
330	PRINT " YOU GOT IT! CONGRATULATIONS!":SC = SC	1 -		
	* 1			
340	PRINT : PRINT " I AM, INDEED, ";A\$;"."			
350	IF N < 5 THEN FOR M = N + 1 TO 5: READ CS: NEXT			
	X			
360	PRINT : PRINT " PRESS (RETURN) TO CONTINUE.":			
	INPUT ZS			
370	GOTO 120			
380	REM END OF QUIZ			
300	PRINT : PRINT " YOUR SCORE IS ":SC:" OUT OF ";			
350	D."."			
400	PRINT : PRINT " WOULD YOU LIKE TO TRY AGAIN (Y			
100	/N) ?"			
410	INPUT ZS: IF ZS < > "Y" AND ZS < > "N" THEN			
110	PRINT" TYPE 'Y' OR 'N' AND PRESS (RETURN).":			
	GOTO 410			

NATIONAL CHILDREN'S DENTAL HEALTH MONTH

MONTH OF FEBRUARY



ental Checkup is a BASIC program that takes a student, step by step, through a typical visit to the dentist. Along the way, the program's resident dentist, Dr. Gumm, quizzes the student on dental hygiene.

HOW THE PROGRAM WORKS

In the program, Dr. Gumm performs a make-believe dental examination in which she takes an X-ray, cleans the student's teeth, and fills any cavities that she finds.

During the examination, Dr. Gumm asks seven dental hygiene questions. The accuracy of the student's responses to these questions determines how many cavities the child has at the end of the checkup. Here are the questions:

• When was the last time you visited the dentist?

• How often do you brush your teeth?

• Describe how you brush your teeth.

How often do you floss?

Why are dental X-rays important?What are your front teeth called and what do they do?

How do cavities form?

For each question, a student chooses one of three possible answers. If he or she chooses the wrong answer, the computer adds cavities to the child's score. No cavities are added for correct answers. If a student accumulates more than five cavities (out of 11 possible), the computer reschedules him or her for another visit by starting the program over.

At the end of the examination, Dr.

Gumm reviews the dental hygiene rules that the student has learned.

INTRODUCING THE PROGRAM

Explain to students that children have three basic kinds of teeth: incisors, cuspids or canines, and molars. (See illustration.) Have students choose partners and take turns looking into each other's mouths to identify the different types of teeth.

Point out that the incisors, or the four front teeth on top and four front teeth on bottom, are very sharp. They can cut easily into food. Beavers have very long incisors so that they can bite into wood. What other animals have long incisors? (Squirrels, rats, mice, and other rodents.)

Cuspids, or canine teeth, are the four pointy teeth on either side of the top and bottom incisors. They tear tough foods, such as meats. Dogs have long canine teeth. Can students think of any other animals with long canines? (*Lions, sharks, and other meat-eating animals.*)

Molars are the eight flat teeth in the back of the mouth. They grind food into bits. Animals that eat soft foods, such as hippopotamuses, have a lot of flat, round molars.

Adult humans have a fourth type of tooth, called a bicuspid. There are eight bicuspids, two behind each canine tooth. Most adults also have four molars called wisdom teeth. Wisdom teeth usually grow in the back corners of the mouth when a person is about 20 years old.

Ask students how having so many different kinds of teeth is helpful to humans. (*They can eat many different* foods.) Explain that some foods humans eat, especially those with a lot of sugar, are very bad for teeth. They can cause tooth decay. Ask if anyone in the class knows what tooth decay is and how it forms.

Explain that everyone's mouth has germs. Germs eat food that is on teeth. When germs eat the food, they leave behind a very strong chemical called an acid. The acid wears down the outer layer of the tooth (the enamel). This wearing down is called tooth decay. (*Dental caries* is another term for tooth decay.)

Tooth decay can make a cavity, or hole, in the tooth. If the cavity is not filled, the hole gets deeper. If the decay reaches the center of the tooth, the tooth can die.

Brushing and flossing keeps food from building up on teeth. Without food, germs cannot produce the acid that causes tooth decay.

USING THE PROGRAM

Type in and save the *Dental Checkup* program listed on page 102. Have students run through the program individually.

Challenge programmers in the class to add special effects to *Dental Checkup* for the tooth cleaning and X-ray portions.

For more information on dental hygiene, write to the American Dental Association, sponsors of National Children's Dental Health Month, Bureau of Health Education and Audiovisual Services, 211 E. Chicago Ave., Chicago, IL 60611.

Lorraine Hopping (continued) vert the program for use on Atari, Commodore 64, Radio | ers, see Program Conversions, page 154.

This program listing is for Apple computers. To con- | Shack Color Computer, and TRS-80 Model III comput-

10 REM DENTAL CHECK-UP @1985 SCHOLASTIC INC. HOME : CLEAR 20 PRINT " 30 PRINT " . DR. GUMM'S OFFICE ." 40 PRINT " 50 PRINT : PRINT " PLEASE HAVE A SEAT. DR. GUNN WILL BE" 60 PRINT "WITH YOU SHORTLY." PRINT : PRINT " WHILE YOU'RE WAITING, ENTER YOUR NAME" 70 80 90 PRINT "INTO THE COMPUTER AND PRESS <RETURN>.": INPUT NS PRINT : PRINT " THANK YOU. ":NS:". DR. GUMM IS" 100 PRINT "READY FOR YOU NOW. SHE WILL ASK YOU A" PRINT "FEW QUESTIONS ABOUT YOUR TEETH. CHOOSE" 110 120 PRINT "THE BEST ANSWER FROM THE CHOICES GIVEN." 130 PRINT " IF YOU CHOOSE A WRONG ANSWER, THE" 140 PRINT "COMPUTER WILL ADD 'CAVITIES', OR POINTS' PRINT "TO YOUR SCORE. AVOID GETTING POINTS BY" 150 160 PRINT "ANSWERING THE QUESTIONS CORRECTLY." 170 GOOD LUCK, ";NS;"!" PRINT : PRINT " 180 PRINT : PRINT " GOOD LUCK, ";N\$;"!" PRINT : PRINT " PRESS <RETURN> TO BEGIN.": INPUT Z# HOME : PRINT " HELLO, ";N\$;"! I'N DR. GUNN." PRINT "WHEN WAS THE LAST TIME YOU WENT TO A" PRINT "DENTIST?" 190 200 210 220 PRINT " 2. MORE THAN A YEAR AGO." PRINT " 2. MORE THAN A YEAR AGO BUT LESS THAN" PRINT " TWO YEARS AGO " 230 240 250 PRINT " 3. TWO OR MORE YEARS AGO." 260 **GOSUB 10000** 270 IF C# = "2" THEN SC = SC + 1: REN ADD CAVITY FOR WRON 280 G ANSWER IF CS = "3" THEN SC = SC + 2 IF CS < > "1" THEN PRINT " YOU SHOULD VISIT THE DEN 290 300 TIST EVERY": PRINT "SIX MONTHS." IF CS = "1" THEN PRINT " I'M GLAD YOU ARE TAKING GOO D CARE OF: PRINT "YOUR TEETH, ";NS;"." 310 PRINT " HOW OFTEN DO YOU BRUSH YOUR TEETH?" 320 PRINT : PRINT " 1. ONCE A DAY." 330 PRINT " 2. TWICE OR THREE TIMES A DAY." PRINT " 3. LESS THAN ONCE A DAY." 340 350 GOSUB 10000 360 IF C# = "1" THEN SC .= SC + 1 370 IF CS = "3" THEN SC = SC + 2 IF CS = "3" THEN SC = SC + 2 IF CS < > "2" THEN PRINT " YOU SHOULD BRUSH AFTER E 380 390 VERY MEAL,": PRINT MS;", OR THREE TIMES A DAY." IF CS = "2" THEN PRINT " KEEP UP THE GOOD WORK,":N\$;"." 400 PRINT " WHICH ONE OF THE FOLLOWING BEST" 410 PRINT "DESCRIBES THE WAY YOU BRUSH YOUR TEETH?" 420 PRINT : PRINT " 1. I BRUSH UP AND DOWN THE FRONT OF" PRINT " MY TEETH." 430 440 PRINT " 2. I SCRUB THE TOP AND SIDES OF MY" 450 PRINT " BACK TEETH ROUND AND ROUND." 460 PRINT " 3. I DO BOTH 1 AND 2. THEN I USE" PRINT " THE TIP OF THE BRUSH TO REACH" 470 PRINT " 480 PRINT " BEHIND NY FRONT TEETH." 490 GOSUB 10000 500 IF C# = "1" OR C# = "2" THEN SC = SC + 1 510 PRINT " IF YOU BRUSH ALL PARTS OF YOUR TEETH," 520 PRINT N#;" (ANSWER #3), YOU WILL HAVE" 530 PRINT "FEWER CAVITIES. YOU WILL ALSO KEEP A" 540 PRINT "STICKY SUBSTANCE CALLED PLAQUE FROM" 550 560 PRINT "BUILDING UP. PLAQUE CAN HARM YOUR GUNS" 570 PRINT "AND CAUSE OTHER DENTAL PROBLEMS." PRINT " ANOTHER WAY TO WARD OFF PLAQUE AND" 580 PRINT "CAVITIES IS TO USE DENTAL FLOSS. DENTAL" 590 PRINT "FLOSS IS STRING THAT YOU RUB BETWEEN" 600 PRINT "YOUR TEETH TO REMOVE BITS OF FOOD." 610 PRINT " HOW OFTEN DO YOU FLOSS, ";N#;"?" 620 PRINT : PRINT " 1. NEVER OR NOT VERY OFTEN." PRINT " 2. ONCE OR TWICE A WEEK." PRINT " 3. AT LEAST ONCE A DAY." 630 640 650 660 **GOSUB 10000** IF C# = "1" THEN SC = SC + 2 670 IF CS = "2" THEN SC = SC + 1 680 IF CB = "2" THEN PRINT " KEEP UP THE GOOD WORK, ": N# ;"." 690 700

710 PRINT " WHEN YOU BRUSH YOUR TEETH, WATCH FOR" 720 PRINT "BLEEDING GUNS. THAT MEANS YOU ARE NOT" 730 PRINT "FLOSSING PROPERLY OR OFTEN ENOUGH." PRINT " ANOTHER WAY TO CHECK IF YOU ARE" 740 PRINT "FLOSSING AND BRUSHING PROPERLY IS TO" 750 PRINT "USE A DISCLOSING TABLET. WHEN YOU CHEW" 760 PRINT "THE TABLET, IT COLORS THE AREAS WHERE" 770 PRINT "THERE IS PLAQUE. THE COLOR WILL" 780 PRINT "DISAPPEAR AFTER YOU HAVE FLOSSED AND" 790 PRINT "BRUSHED AWAY THE PLAQUE. YOU CAN GET" 800 PRINT "DISCLOSING TABLETS AT A DRUGSTORE OR" 810 PRINT "FROM ANY DENTIST." 820 PRINT " NOW I'D LIKE TO TAKE AN X RAY OF YOUR" 830 PRINT "TEETH, ";N#;". SIT UP STRAIGHT, 840 PRINT "HOLD STILL, AND PRESS THE (RETURN) KEY.": INPUT 28 850 GR : TEXT : FOR D = 1 TO 1000: NEXT D: PRINT CHR# (7) 860 : GR : TEXT : FOR D = 1 TO 1000: NEXT D: HOME PRINT " THANK YOU, ":N#:". THAT WAS EASY," 870 PRINT "WASN'T IT? CAN YOU TELL HE WHY TAKING" 880 PRINT "X RAYS IS INPORTANT?" PRINT "Y RAYS IS INPORTANT?" PRINT : PRINT " 1. X RAYS SHOW WHETHER MY TEETH ARE" PRINT " GROWING PROPERLY OR NOT." 890 900 910 PRINT " 2. X RAYS PREVENT CAVITIES FROM" 920 PRINT " FORMING." 930 PRINT " 3. X RAYS CLEAN MY TEETH." 940 GOSUB 10000 950 IF C# < > "1" THEN SC = SC + 1 PRINT " X RAYS SHOW WHETHER YOUR TEETH ARE" 960 970 PRINT "GROWING PROPERLY. THEY CAN'T PREVENT PRINT "CAVITIES, BUT THEY CAN SHOW IF ANY" 980 990 PRINT "CAVITIES ARE HIDDEN BETWEEN YOUR TEETH." PRINT " NOW LET'S TAKE A LOOK AT YOUR TEETH." 1000 1010 PRINT NS;". OPEN WIDE. WHAT ARE YOUR" 1020 PRINT "FRONT TEETH CALLED AND WHAT DO THEY DO?" 1030 PRINT : PRINT " 1. THEY ARE CANINE TEETH. THEY TEAR" 1040 1050 PRINT "MEAT AND OTHER TOUGH FOODS." PRINT " 2. THEY ARE MOLARS. THEY GRIND FOOD." 1060 PRINT " 3. THEY ARE INCISORS. THEY CUT FOOD." 1070 1080 **GOSUB 10000** 1090 IF C# < > "3" THEN SC = SC + 1 1100 PRINT " INCISORS IS THE RIGHT ANSWER. CANINES" 1110 PRINT "ARE THE POINTY TEETH IN BACK OF YOUR" 1120 PRINT "INCISORS. NOLARS ARE THE FLAT TEETH IN" 1130 PRINT "BACK OF YOUR CANINES." 1140 PRINT " LET'S SEE IF I CAN SEE ANY CAVITIES," 1150 PRINT N#;" DO YOU KNOW HOW CAVITIES FORM?" 1160 PRINT : PRINT " 1. GERNS EAT AWAY THE ENV 1170 PRINT " OUTER LAYER OF THE TOOTH." 1. GERNS EAT AWAY THE ENANEL, OR" PRINT " 2. GERNS CAUSE ACLD TO FORM ON THE" PRINT " TOOTH. THE ACLD WEARS AWAY ENAMEL 1180 1190 TOOTH. THE ACID WEARS AWAY ENAMEL." PRINT " 3. EATING HARD FOODS CREATES A HOLE" PRINT " IN THE TOOTH." 1200 1210 1220 **GOSUB 10000** IF CS = "1" THEN SC = SC + 1 1230 IF C# = "3" THEN SC = SC + 2 1240 PRINT " CAVITIES ARE CAUSED BY ACID ON THE" 1250 1260 PRINT "TOOTH. THE ACID APPEARS WHEN GERMS IN" PRINT "YOUR MOUTH EAT FOOD THAT WASN'T BRUSHED" 1270 PRINT "OR FLOSSED AWAY." PRINT " NOW, I'M COTHE 1280 1290 NOW, I'N GOING TO CLEAN YOUR TEETH," 1300 PRINT NS;". FIRST, I'LL SCRAPE OFF THE' 1310 PRINT "PLAQUE. THEN I'LL POLISH YOUR TEETH SO" 1320 PRINT "THAT THEY'RE BRIGHT WHITE." 1330 PRINT " PRESS (RETURN) WHEN YOU ARE READY.": INPUT Z . PRINT " HERE WE GO....": FOR D = 1 TO 4000: NEXT D HOME : PRINT " ALL DONE. ";NS;", THE X RAYS SHOW" 1340 1350 PRINT "THAT YOU HAVE ";SC;" CAVITIES." 1360 1370 IF SC > 5 THEN 1590 1380 IF SC * 5 THEN 1390 1380 IF SC * 0 THEN PRINT " WAY TO GO, ";N\$;"! YOU ANSWE RED": PRINT "ALL THE QUESTIONS CORRECTLY.": GOTO 1510 1390 IF SC * 1 OR SC * 2 THEN PRINT " THAT'S NOT TOO BAD . NEXT TIME, TRY TO": PRINT "ANSWER ALL THE QUESTIONS CORRECTLY."

PROGRAM LISTING FOR DENTAL CHECK-UP

1400 FOR X = 1 TO SC 1410 PRINT " GET READY, ";N\$;". I'M GOING TO" PRINT "CLEAR OUT THE DECAY WITH A DRILL " 1420 1430 FOR D = 1 TO 6000: NEXT D 1440 FOR D = 1 TO 5: PRINT CHR# (7): NEXT D 1450 PRINT " OKAY, ";N#;", TIME FOR THE FILLING." FOR D = 1 TO 4000: NEXT D 1460 1470 PRINT : PRINT " I FILLED THE CAVITY WITH SILVER" 1480 PRINT "AMALGAM. PRESS «RETURN» TO CONTINUE." 1490 INPUT ZS: HOME NEXT X 1500 1510 PRINT " THAT'S IT FOR TODAY, ";NS;"." 1520 PRINT "REMEMBER TO FOLLOW THESE IMPORTANT" 1530 PRINT "RULES FOR DENTAL HYGIENE:" 1540 PRINT : PRINT " 1. AVOID EATING SUGARY FOODS." 1550 PRINT " 2. BRUSH AFTER EVERY MEAL." 1560 PRINT " 3. FLOSS ONCE A DAY." 1570 PRINT " 4. SEE YOUR DENTIST ONCE A YEAR."

1580 PRINT : PRINT " SEE YOU NEXT TIME, ";N\$;"....": END REM SCHEDULE ANOTHER APPOINTMENT 1590 1590 REM SCHEDDLE ANGINER AFFOLMINEN 1600 PRINT ";N\$;", YOU HAVE FAR TOO MANY" 1610 PRINT "CAVITIES. YOU ARE NOT TAKING PROPER" 1620 PRINT "CARE OF YOUR TEETH." 1630 PRINT " I HAVE SCHEDULED ANOTHER APPOINTMENT" 1640 PRINT "FOR YOU TO SEE ME RIGHT AWAY." 1650 PRINT " THIS TIME, SEE IF YOU CAN ANSWER ALL" PRINT "THE QUESTIONS PROPERLY." 1660 PRINT " PRESS (RETURN) TO BEGIN.": INPUT ZS: GOTO 10 1670 10000 REM ENTER ANSWER 10010 PRINT : PRINT " ENTER THE NUMBER OF YOUR CHOICE (1, " 10020 PRINT "2, OR 3) AND PRESS (RETURN)." INPUT CS: IF CS < > "1" AND CS < > "2" AND CS < > 10030 "3" THEN 10030

10040 HOME : RETURN

PRIMARY TEETH



This diagram shows the basic parts of a tooth: the enamel, pulp, root canal, and crown.

Children start with 20 primary teeth: eight incisors, four canines or cuspids, and eight molars.

Crown

Root

GROUNDHOG DAY, VALENTINE'S DAY, LINCOLN'S AND WASHINGTON'S BIRTHDAY



ids love folklore—the lively tales about famous heroes or nature's secrets that have been handed down from generation to generation. Such literature is associated with many of the holidays in February. There are tales behind the founding of Groundhog Day and Valentine's Day, as well as legends to tell about Abraham Lincoln and George Washington in honor of their February birthdays.

The existence of these tales makes February a perfect time to conduct a teaching unit on folklore. In the following unit, students will learn about two particular kinds of folklore: legends and folktales.

Legends are stories based on popular, yet difficult-to-prove, accounts of history. They may be stories about the virtues of heroes we know existed, such as George Washington and Abraham Lincoln, or of characters who probably were imagined, such as King Arthur and Ichabod Crane.

Folktales are stories that were made up to explain unexplainable events in nature. The main characters are usually animals who act as humans. Folktales were created long ago by people who did not have the scientific knowledge needed to understand most natural phenomena. Even though we have the knowledge today to disprove the explanations in most folktales, it is still fun to learn about them, because they tell us so much about how our ancestors thought.

The six task cards in this writing

unit will help students learn more about folklore. At the same time, the cards will help kids construct wellwritten sentences, paragraphs, and even original folktales. The cards also include exercises in using correct capitalization and punctuation.

Students can use any word processing program to perform the writing activities on the cards. They'll find that word processing helps them become better writers: It makes correcting errors much easier, which, in turn, allows students to do more revising and refining.

Before children use the cards, they will need to know some basic word processing skills. They should know how to insert, delete, replace, and move text using word processing commands. Students should also know how to call up a file and how to save information on a blank disk or cassette.

To prepare for this writing unit, photocopy and laminate the task cards on pages 107, 108, 109. Then review the teachers' notes on the following pages. These notes discuss the learning objectives of each card and the materials and teacher preparation required. In some cases you will need to type information on a disk or cassette (referred to as a data disk or data cassette) for students to use with the task cards. This information is supplied under the "Preparation" headings. Keep the task cards, word processing program, data disks or cassettes, and some blank disks or cassettes near your computer so kids can work on the cards independently as each holiday approaches.

TEACHERS' NOTES



GROUNDHOG DAY (FEB. 2) TASK CARD 1

Word Processing Prerequisites: Students must be able to access, save, insert, and replace text in a data disk or cassette.

Teaching Objectives: Students practice inserting and replacing words as well as using periods and capitalization correctly. They also learn the history of Groundhog Day. **Materials:** Word processing program, a data disk or cassette containing GROUNDHOG file, and a blank disk or cassette.

Preparation: Using a word processor, enter the paragraphs below onto a data disk or cassette. (Include all the mistakes in punctuation and capitalization that appear.) Save under



FEBRUARY 2, FEBRUARY 12, FEBRUARY 14, AND FEBRUARY 22

the name GROUNDHOG. **GROUNDHOG DAY**

february 2 is Groundhog Day. a folktale says that on february 2 the groundhog will wake up from its winter's sleep in search of food If the sun is shining when the groundhog steps outside its home, called a burrow, it will be frightened by its shadow and will return to the burrow. this means there will be six more weeks of winter

if it is cloudy when the groundhog steps out of its burrow, it won't be frightened by its shadow and will stay outside. this means that there will be an early spring. this is a sign to farmers that they can soon begin planting their crops

farmers in europe were the first to believe that animals like hedgehogs and badgers could predict the weather When European farmers came to this country, there were no hedgehogs or badgers, so they chose the groundhog to tell them when spring would arrive

can the groundhog really tell the coming of spring? What do you think? **Activity:** Task Card 1 asks students to correct this report by inserting periods and capital letters where needed. Then it asks them to write their own answers to the question: Can the groundhog really tell the coming of spring?

LINCOLN'S BIRTHDAY (FEB. 12) TASK CARD 2 Word Processing Prerequisites:

Students must be able to enter and save data on a disk or cassette.

Teaching Objectives: Students write reports on honesty. They also learn two legends about Honest Abe. **Materials:** Word processing program and a blank disk or cassette.

Activity: Task Card 2 presents two legends about Lincoln. After reading the legends, students use a word processing program to write about honesty in their lives.



VALENTINE'S DAY (FEB. 14) TASK CARD 3

Word Processing Prerequisites: Students must be able to access, save, insert, delete, and replace text on a data disk or cassette.

Teaching Objectives: Students use a dictionary to help them correct misspelled words. They also learn about the legend of St. Valentine.

Material: Word processing program, a data disk or cassette containing VALENTINE file, a blank disk or cassette, and a dictionary. **Preparation:** Using a word processing program, type the three paragraphs, exactly as they appear below, onto a data disk or cassette. Save them under the name VALEN-TINE.

The Legends of St. Valentine

There are many legands about St. Valentine. One legend says that he was a wunderful gardener and raised beauteful flowers. Often he would give them to children who lived near his home in Rome.

When Valentine lived en Rome, it was against the law to preech Christianity. Becus Valentine would not stop preaching, he was put in jail. The children mised him, so they tied notes to flowers and threw them into Valentine's window at the jail. Later, he was put to death. Each year on the anniversary of his death, people send flowers and notes, which they call valentines, to their friends.

Another legend says that while in jail, Valentine became friends with the jailer's blind daughter. During their friendship, Valentine wrote letters to her and sighned them, "From your Valentine." Valentine praied for her, and she reganed her sight. From that time on, letters of friendship sent on Febuary 14 have been called valentines.

Activity: Task Card 3 tells students to use the dictionary to help them find correct spellings for misspelled words in the St. Valentine's legends. Students then replace the misspelled words with the correct spelling.



GROUNDHOG DAY, VALENTINE'S DAY, LINCOLN'S AND WASHINGTON'S BIRTHDAY



VALENTINE'S DAY (FEB. 14) TASK CARD 4

Word Processing Prerequisites: Students must be able to type information into the computer and save it on a disk or cassette.

Teaching Objectives: Students supply words for the symbols in a rebus and practice keyboarding skills. They also learn about valentine symbols.

Materials: Word processing program and a blank disk or cassette.

Activity: Task Card 4 contains a rebus on valentine symbols. Students type the rebus story from the task card into the computer and save it on a disk or cassette. As students come across a rebus symbol, they figure out what word it represents and insert that word in their typed text.



WASHINGTON'S BIRTHDAY (FEB. 22) TASK CARD 5 Word Processing Prerequisites:

Students must be able to access, save, and move text on a data disk or cassette.

Materials: Word processing program, a data disk or cassette containing TREE, a blank disk or cassette.

Preparation: Using a word processing program, type the incidents as they appear below onto a data disk or cassette. Save the file under the name TREE.

Washington's Boyhood

1. One day he struck his father's cherry tree with his hatchet.

2. "I cannot tell a lie, Father. I did it with my little hatchet."

3. His father demanded to know who ruined his tree.

4. At the age of six, George Washington received a hatchet.

5. "George, do you know who killed my cherry tree?"

6. The bark was damaged, and the cherry tree died.

7. He was very fond of his hatchet and loved to go around the yard chopping sticks and flowers.

8. George went to his father with his little hatchet.

Activity: Task Card 5 tells students to use the MOVE command in their word processing program to put the events listed in the data disk or cassette into the correct chronological order.

Teaching Objectives: Students practice sequencing events and moving text. They also learn about the legend of Washington and the cherry tree.

Solution: 4, 7, 1, 6, 3, 5, 8, 2.



WRITE A FOLKTALE TASK CARD 6

Word Processing Prerequisites: Students must be able to enter and save text on a disk or cassette.

Teaching Objectives: Students write their own folktales.

Material: Word processing program and a blank disk or cassette.

Activity: Task Card 6 presents a formula on how to create folktales. Students use the formula to write and edit original folktales.

Photocopy and laminate the six February Folklore word processing task cards on pages 107, 108, and 109.



COPY AND LAMINATE



Groundhog Dav

A student named Chuck wrote a report on the folktale about Groundhog Day. To read Chuck's report, boot your word processing program into the computer, load the data disk or cassette that goes with this card,

and call up the GROUNDHOG file.

Although Chuck wrote an interesting report, he left out many capital letters and periods. See if you can help him by inserting the capitals and periods where they are needed.

Here's how:

1. Remove the data disk or cassette and load a blank disk or cassette.

2. Find the 10 small letters that need to be changed to capital letters. Use the DELETE and INSERT commands to make the changes.

3. Find the five places where the periods are missing. Use the INSERT command and place them in the text.

4. Read the last paragraph in Chuck's report again. Do you believe a groundhog can tell the beginning of spring? At the end of the report insert a paragraph that tells what you think and why.

5. Save your corrected report on the blank disk or cassette.





Honest Abe

Many legends are told about why Abraham Lincoln was nicknamed Honest Abe. Here are two:

When Lincoln was young, he

end of one day he was counting his cash, and he learned that he had charged someone too much. He closed the store and walked miles worked at a country store. At the to the person's house to repay him.

Another time, Lincoln discovered that he had used the wrong weight on a scale when he was weighing out a woman's tea. He should have given her more tea. As soon as he figured out his mistake, he weighed out the tea that was due her and took it to her house.

Lincoln was a model of honesty.

1. Load your word processing program into the computer and write about three incidents that you know of involving honesty. Write a paragraph about each one. Don't forget to indent each paragraph and to give your report a title.

2. Save your report on a blank disk or cassette.






A Man Named Valentine

How did Valentine's Day get its | Rome 1,700 years ago, when Chrisname? Many people believe the day tianity was a new religion. He was was named after a Christian priest put to death for his belief and was named Valentine. Valentine lived in later called a saint.

To learn more about Valentine. boot your word processing program into the computer, load the data disk or cassette for this card, and call up the file VALENTINE. As you read the story, you will see that 11 words are misspelled. To correct the errors, here is what you do:

1. Remove the data disk or cassette and load a blank disk or cassette.

2. Reread the story. When you come to a misspelled word, look up the word in a dictionary. Use the DELETE and INSERT commands to correct the spelling.

3. Save the corrected story on the blank disk or cassette.





Valentine's Day Rebus

A rebus is a riddle that uses symbols to stand for words. Below is a rebus on the symbols used on Valentine's Day. It has 6 symbols in it. If you can figure out what the symbols represent, try this:

1. Boot your word processing pro- | blank disk or cassette.



gram into the computer and load a blank disk or cassette.

2. Type the paragraphs below into the computer. When you come to a symbol, type in the word that it stands for. Save your story on the

Valentine Symbols and Colors

Many symbols and colors are connected with Valentine's Day.

A ()ed child carrying arrows is known as Cupid. He is often seen on valentine cards and candy (\Box)). (\mathcal{D}) are also used on valentine cards. They stand for, or symbolize, love and peace. Some countries consider (%) magical. The symbol most widely used on Valentine's Day is the (). It is Cupid's target and the basic symbol of love.

Two colors are used on Valentine's Day. They are red and white. The color red is a symbol of warmth and also of the human (🖤). The color white stands for faith and goodness.



COPY AND LAMINATE





Washington's Boyhood

Do you know the famous legend about George Washington and the cherry tree? To find out more about it, boot your word processing program into the computer, load the data

disk or cassette that goes with this card, and call up the file named TREE.

Read the story. Does it make sense to you? If not, it is probably because the events are not in order. Here is how to put the events in order:

1. Remove the data disk or cassette and load a blank disk or cassette.

2. Read through all the events carefully. Use the MOVE command in your word processing program to put the events in the right order.

3. Save the corrected legend on the blank disk or cassette.





Write Your Own Folktale

Folktales are stories that tell or explain something about events in nature. Animals are usually the main characters in folktales. Many years ago, people didn't have the knowledge we have today, so they would make up stories to explain nature. For example, the groundhog folktale



says that the groundhog can tell when spring will arrive.

Even today folktales are fun to create. Why not try to write one? Here is how:

1. Choose an animal or object in nature: for example, a raccoon.

2. Decide on a nature question

your folktale can answer. For example: Why does a raccoon wash its food before eating?

3. Develop a story that answers your question. For example:

A young raccoon named Harvey always washed his hands before eating. One day Harvey was invited to a picnic. Because the picnic was going to be in the deepest part of the woods, Harvey knew he would not be able to find water to wash his hands. Harvey decided that if he washed his food before he left his home he would not need to wash his hands before eating.

4. Once you think of a story, boot your word processing program in the computer and write a folktale.

5. Save it on a disk or cassette.



VALENTINE'S DAY



alentine messages have always been a means of expressing love and friendship. By using computer terms, students can now write valentine messages in a new way. The electronic way!

Computer use has added many new meanings to words. Boot no longer means just the covering to protect your feet from the snow. Instead it can mean to load a program into the computer. Chibs are more than just snacks to serve with dip. In the computer world, they are miniature electronic circuits. This Valentine's Day, February 14, have your students use computer words to write their valentine messages. Here's how.

To start your students off, list computer terms on the chalkboard. Let the students choose a word and think about what it means when referring to the computer.

Instruct your students to use the computer words they choose to write a short sentence about their valentines. For instance, if a student chooses the word disk, he or she knows that disks must be handled with care. The student may write a valentine like this: "My heart is like a DISK. Handle it with care!"

This exercise will probably take some brainstorming, so encourage your students to bounce ideas off each other. At first students may not | How do I love thee?

understand each other's messages, but if the computer words are used correctly, you'll see smiles of understanding gradually creep over their faces.

This exercise is not limited to words. Remind your students of some of the abbreviations used with the computer, such as RAM and ROM. Your students should think about what these letters stand for to use them in their messages. Here's one message using ESC: "You can't ESCape....So RETURN to me!" This message uses a computer term and a computer abbreviation. Encourage your students to use as much computer jargon as possible in their valentine messages.

If your students get stuck, here are some samples you can share with them:

When my CHIPS are down, you are there!

INPUT love: OUTPUT habbiness.

Valentine, you are the one; I need your love to make me RUN.

You may be VARIABLE, But I think you're marry-able.

Valentine, you have the PASSWORD to ACCESS my heart.

Let me LIST and RUN the ways.

I'm LOGO over you.

Valentine, you wrote the PROGRAM on BASIC love.

What's a valentine message without a card on which to present it? Once your students have either created or selected a saying, they should design a card to go with it. On the next page are two sample valentine cards. Students may wish to make these valentines or similar ones. If your students choose to make the RAM or the BYTE HEART on the next page, copy the page and pass it out to your students.

To assemble the ram, color and cut out the ram's head and matching heart. Glue the ram's neck to the back of a small, empty juice can that has been covered with colored paper. Position the ram's arms around the can, as if it is hugging it, and glue the heart to the arms where marked. Fill the can with nuts and raisins or valentine candy.

To make the BYTE HEART, color and cut the pattern. Write the message "You've taken a big BYTE out of my heart" in the center of the pattern. Fold in half where indicated. Now it's ready to be sent to a valentine.

> Wendy Caron Tom Conklin



COPY

Atari 400, 800, 800XL Radio Shack Color Computer TRS-80 Models I/III INSTANT VALENTINE INVITATIONS WORKSHEET

VALENTINE'S DAY

FEBRUARY 14

NAME:

ant to throw a Valentine's Day Party on February 14? Your computer can help you write the invitations! Here's how.

The Instant Valentine Invitation program on this page makes invitations for a Valentine's Day Party. You tell the computer where and when the Valentine's Day party will take place and the names of your guests. The computer prints a Valentine's Day party invitation addressed personally to each guest.

WHAT TO DO

Put your computer in BA-SIC. Type NEW and press RE-TURN or ENTER.

Type in the *Instant Valentine Invitation* program listing exactly as it appears.

Make sure the printer is ready. RUN the program and answer the questions as they appear. Press RETURN or ENTER after each answer. *Do not* use a comma or a colon in your answers.

When you have answered all the questions, the computer will print a Valentine's Day party invitation...instantly!

INSTANT VALENTINE INVITATION

10 PRINT "WHAT IS YOUR NAME?" :INPUT H\$ 20 PRINT "WHERE WILL THE PARTY TAKE PLACE?" :INPUT

L\$	ER GUESTS?" :INPUT Z\$		
30 PRINT "ON WHAT DAY?" : IN-	160 IF Z\$ = "Y" OR Z\$ = "YES"		
PUT D\$	THEN 60		
40 PRINT "AT WHAT TIME?"	170 END		
INPUT T\$			
50 PRINT "ENTER SPECIAL IN-	Note: Atari users add 1 DIM		
STRUCTIONS. (PRESS RETUR-	H\$(30), O\$(20), L\$(30), D\$(20),		
N/ENTER IF THERE ARE	T\$(20), I\$(40), Z\$(3), G\$(30). Radio		
NONE.)" :INPUT I\$	Shack users add 1 CLEAR 5000.		
60 PRINT "ENTER THE NAME			
OF A GUEST." : INPUT G\$	Challenge 1: Add fancy deco-		
70 PRINT:PRINT "PRESS RE-	rations to the program. (Hint:		
TURN/ENTER WHEN THE	Use the "*" key to make a		
PRINTER IS READY.":INPUT Z\$	pretty border or design.)		
80 LPRINT:LPRINT:LPRINT			
"DEAR ";G\$;","	Challenge 2: You can also		
90 LPRINT: LPRINT "YOU ARE	use this program to make invi-		
INVITED TO A VALENTINE'S	tations for other events, like		
DAY PARTY!"	birthday parties. To use this		
100 LPRINT: LPRINT "PLACE:	program to make invitations for		
":L\$	other occasions, you must		
110 LPRINT "DATE: ":D\$	make two changes.		
120 LPRINT "TIME: ":T\$	1. Add this line: 25 PRINT-		
130 LPRINT: LPRINT IS	PRINT "WHAT IS THE		
140 LPRINT:LPRINT	EVENT?" :INPUT O\$		
" CORDIALLY." :LPRINT	2.Change line 90 to LPRINT		
"":H\$: LPRINT "YOU ARE INVI -		
150 PRINT "ARE THERE OTH-	TED TO A ":O \$:" PARTY."		
	· · · · · · · · · · · · · · · · · · ·		
	DEAD		
DEAR MARY,	DEAR DAVE,		
WOLL ADE INVITED TO	YOU ARE INVITED TO A		
YOU ARE PARTY!	VALENTINE'S DAY DAD		
A BIRTHDAT THE	DAI PARTY!		
TACE: 720 BROADWAY	PLACE: 3 CHIPMINIK TO		
PLACE: 750 DICORD	DATE: FEBRUARY 14		
DATE: FEDROIM	TIME: 12 NOON TO 2 DAY		
TIME: AFTER COLL	100N 10 3 P.M.		
DCVP	I HOPE YOU CAN MAKE		
K.S.V.F.	MAKE IT!		
CORDIALLY,	CORDIALLY		
SHELLY	STEPHANIE		

Apple II Plus and IIe INSTANT VALENTINE INVITATIONS WORKSHEET

VALENTINE'S DAY

FEBRUARY 14

COPY

NAME:

ant to throw a Valentine's Day Party on February 14? Your computer can help you write the invitations! Here's how.

The Instant Valentine Invitation program on this page makes invitations for a Valentine's Day Party. You tell the computer where and when the Valentine's Day party will take place and the names of your guests. The computer prints a Valentine's Day party invitation addressed personally to each guest.

WHAT TO DO

Put your computer in BA-SIC. Type NEW and press RE-TURN or ENTER.

Type in the *Instant Valentine Invitation* program listing exactly as it appears.

Make sure the printer is ready. RUN the program and answer the questions as they appear. Press RETURN or ENTER after each answer. *Do not* use a comma or a colon in your answers.

When you have answered all the questions, the computer will print a Valentine's Day party invitation...instantly!

INSTANT VALENTINE INVITATION

10 PRINT "WHAT IS YOUR NAME?" :INPUT H\$ 20 PRINT "WHERE WILL THE PARTY TAKE PLACE?" :INPUT L\$ 30 PRINT "ON WHAT DAY?" : IN-PUT D\$ 40 PRINT "AT WHAT TI-ME?":INPUT T\$ 50 PRINT "ENTER SPECIAL IN-STRUCTIONS. (PRESS RE-TURN IF THERE ARE NONE.)" :INPUT I\$ 60 PRINT "ENTER THE NAME OF A GUEST." : INPUT G\$ 70 PRINT: PRINT "PRESS RE-TURN WHEN THE PRINTER IS READY." : INPUT Z\$ 80 PR#1:PRINT:PRINT:PRINT "DEAR ";G\$; "," 90 PRINT: PRINT "YOU ARE IN-VITED TO A VALENTINE'S DAY PARTY!" 100 PRINT: PRINT "PLACE: ";L\$ 110 PRINT "DATE: ";D\$ 120 PRINT "TIME: ":T\$ 130 PRINT: PRINT IS 140 PRINT: PRINT " COR-";H\$ DIALLY," : PRINT "

150 PR#0:PRINT "ARE THERE OTHER GUESTS?":INPUT Z\$ 160 IF Z\$ = "Y" OR Z\$ = "YES" THEN 60 170 END

Challenge 1: Add fancy decorations to the program. (Hint: Use the "*" key to make a pretty border or design.)

Challenge 2: You can also use this program to make invitations for other events, like birthday parties. To use this program to make invitations for other occasions, you must make two changes.

1. Add this line: 25 PRINT: PRINT "WHAT IS THE EVENT?" :INPUT O\$

2. Change line 90 to PRINT: PRINT "YOU ARE INVITED TO A ";0\$;" PARTY."

DEAR MARY,	DEAR DAVE,
YOU ARE INVITED TO	YOU ARE INVITED TO A
A BIRTHDAY PARTY!	VALENTINE'S DAY PARTY!
PLACE: 730 BROADWAY	PLACE: 3 CHIPMUNK TRAIL
DATE: FEBRUARY 19	DATE: FEBRUARY 14
TIME: AFTER SCHOOL	TIME: 12 NOON TO 3 P.M.
R.S.V.P.	I HOPE YOU CAN MAKE IT!
CORDIALLY,	CORDIALLY,
SHELLY	STEPHANIE

FEBRUARY HOLIDAYS

MONTH OF FEBRUARY

MAKE A VALENTINE CARD LIST

Valentine's Day, February 14, can be disappointing for students who don't receive many valentines. To encourage my students to send each member of the class a valentine, I give them a printout that lists all their classmates' names. The list is easy to make. In fact, we make it together.

C

K

- First I type in:
- 10 PRINT "STUDENTS IN MRS. GRAY'S CLASS"
- Next, I have each student type in his or her own name.
- 20 PRINT "STACY DAVIS"
- 30 PRINT "MATT BEAMER"
- 40 PRINT "ERIN O'DONNELL"

When all the names are entered we type RUN and press ENTER or RETURN. Our student list will appear on the screen. We review the list to be sure everyone's name is included and printed correctly.

If everyone's name has been spelled correctly, I make a printout of the list for each student. To make the printouts on an Apple computer, I add this line: 5 PR#1. If you have an Atari or Radio Shack computer, you must change PRINT to LPRINT to make the printouts.

FEBRUARY SOFTWARE TIPS

Elect one of these programs to help your students celebrate the birthdays of two famous U.S. presidents, Abraham Lincoln (February 12) and George Washington (February 22).

Lincoln's Decisions

Given the choices that Abraham Lincoln faced, students try in this simulation to guess the presidential decisions he made.



Apple II, IIe; Commodore 64; TRS-80 III, 4; grades 5–12; Educational Activities, PO Box 392, Freeport, NY 11520; 516/223-4666; \$63. *Meet the Presidents*

With the help of eight clues, students try to identify the president that is gradually displayed on the screen. Apple II series; grades 4–9; Versa Computing, 3541 Old Conejo Rd., #103, Newbury Park, CA 91320; 805/498-1956; \$39.95.

Р

S

President's Choice

In this simulation program, students deal with the problems and decisions that confront contemporary presidents.

Apple II series; IBM PC; Commodore 64; grades 6–12; Spinnaker Software; One Kendall Sq., Cambridge, MA 02139; 617/494-1200; \$39.95.

DECORATE A VALENTINE PRINTOUT

Cupids and hearts, sweet songs and poems. Everyone's thoughts turn to love on Valentine's Day, February 14. This activity lets your students express what love is to them and at the same time creates an attractive door decoration.

On the chalkboard write "Love is..." and ask your students to fill in the blank. You'll probably have to start them off by giving examples of what "love is" to you. Once your students start to express themselves, select one student to type their ideas into the computer. For example:

10 PRINT "LOVE IS ... "

- 20 PRINT "A DOG NAMED SAMSON, "
- 30 PRINT "SHARING CANDY WITH MY SIS-TER, "
- 40 PRINT "HELPING MOM WITH THE DISHES,"

50 END

After each student has contributed two or three examples, type RUN and press ENTER or RETURN. This will display the list, so the class can check for spelling errors.

When you've corrected all spelling errors, make a printout of the list. To make the printout using an Apple computer, add this line: 5 PR#1. If you have a Radio Shack or Atari computer, change the PRINT commands to LPRINT. Your students can decorate the printout with hearts, cupids, and flowers. Hang the printout on your door as a valentine from your class to the rest of the school.

GIVE STUDENTS PERSONAL VALENTINES

Did you know that teachers receive more valentines than any other professional group? Here's a BASIC program that you can use every Valentine's Day, February 14, to help you give as many valentines as you receive. This program will produce a personalized valentine for every student in your class.

To use the program, you must hook up your computer to a printer. When you run the program, the computer asks you to enter a student's first and last names. The computer will accept up to 16 characters in each student's name. After vou type in a name, the computer tells the printer to print out that student's name in the shape of a V and wishes him or her a Happy Valentine's Day. Each time the computer completes a printout, the program loops to the beginning and asks for another student's name.

- 10 INPUT "ENTER A STUDENT'S FIRST AND LAST NAME. THE COMPUTER WILL ACCEPT UP TO 16 CHARACTERS IN THE NAME.":P\$
- 20 INPUT "TURN YOUR PRINTER ON AND PRESS RETURN OR ENTER.";Z\$
- 30 N\$ = " " + P\$ +"
- 40 FOR L = LEN(N\$) TO 1 STEP -1
- 50 S = 30 L
- 60 PR#1:PRINT TAB (S) LEFT\$(N\$,L) RIGHT\$(N\$,L)
- 70 NEXT L
- 80 PRINT " HAPPY VALENTINE'S DAY ";P\$
- 90 PRINT:PRINT:PRINT:PR#0
- 100 INPUT "DO YOU WANT TO MAKE AN-OTHER VALENTINE? (YES/NO)";Q\$

110 IF Q\$ = "YES" THEN GOTO 10

This listing is for Apple computers. If you have a TRS-80 computer, you can use the program by deleting PR#1 and PR#0 in lines 60 and 90 and changing the PRINT command in lines 60. 80. and 90 to LPRINT.

Craig Dickinson

PLAY MUSICAL KEYBOARDS

Groundhog Day, Valentine's Day, and President's Day can provide great material for creative writing. My kids write about these holidays with the help of a fun word processing activity called Musical Keyboards.

Before beginning the activity, display these story titles on the chalkboard: "The Groundhog's Big Surprise," "My Hero Abraham Lincoln," "Cupid Strikes Again," and "The Adventures of Our First President."

To begin, assign a student to each computer. Have children boot up their word processing programs. Tell each child to select a story topic from the board and write an introduction for such a story. While students are writing, play music. About 10 minutes later, turn it off. Tell kids to stop typing, leave their stories on their screens, and move to a different computer.

After students are seated, begin the music again. At the new computers, tell children to read the stories on the screen and type in continuations of them. Again, stop the music after 10 minutes and have students move to a new computer. Continue until students have contributed to several stories.

Finally, tell them to return to their original computers, read the interesting twists their stories have taken. and write endings for them.

Mary Ellen Switzer

CREATE A VALENTINE BULLETIN BOARD

ary 14) bulletin board idea that helps students become aware of how com-Here's a Valentine's Day (Febru- puters are used in day-to-day lives.



This valentine display shows how computers are used in everyday life.

FEBRUARY HOLIDAYS

Cut out two computer shapes (each complete with keyboard and monitor) from butcher paper. Tack the shapes side by side in the center of the board. Draw a boy's face on one monitor and a girl's face on the other. Tack up paper letters that say "Be My Valentine Data Day" at the top of the board. Tear out pictures from magazines of how computers are used in day-to-day life, such as in grocery stores, banks, and offices. Tape these pictures onto red, white, or pink construction paper and post them on the board around the computers.

Donna Helm

USE LOGO TO MAKE ELECTRONIC VALENTINES

Here's a Logo activity in which students combine hearts of different sizes into electronic valentine designs they can display to the class. **Logo Prerequisites:** Students should be familiar with the FD, BK, RT, LT, CS or DRAW, PRINT, and REPEAT commands. They should also know how to use Logo variables, define procedures, and save and load or read programs.

Preparation: Copy and laminate the Logo Valentine Task Card below. Then type in and save the following procedures on a blank disk or cassette under the file name VALENTINE. TO H :D

HT LT 30 FD :D RT 30 TOP :D RT 30 FD :D RT 150 END

TO TOP :D ARC :D RT 180 ARC :D END

TO ARC :D

MAKE "RADIUS :D/4 REPEAT 18 [RT 5 FD :RADIUS * .174532 RT 5] END

Activity: Boot Logo and load the

VALENTINE procedures into the computer's memory. Students will save all their valentines on the same disk or cassette containing the VALENTINE program.

Have students take turns doing the task card. The task card tells students to make heart shapes in different sizes and to combine the hearts into a valentine design. Have each student make his or her electronic valentine for someone else in the class. (Draw names from a box. If there is an odd number of students, add your name to the list.)

Remind students that their valentine messages should be four lines or less; otherwise the extra lines will not appear on the screen.

On Valentine's Day, have each student load the program stored under his or her name on the VALENTINE disk or cassette. To read the valentine, the student types his or her name and presses RETURN or EN-TER.

Evelyn Dale

COPY AND LAMINATE LOGO VALENTINE TASK CARD LOVE-ABLE MESSAGES

1. Type H 50 to see a heart. Clear the

screen. Type H and put a different number in place of 50 to make a heart of a different size. Make hearts of other sizes, too.

2. Use H to make valentine designs. When you get a picture you like, define it as a procedure. Give the procedure the same name as the name of the person who will receive the valentine.

3. Use the PRINT or PR command to add a message to your valentine design. Remember

to put brackets around the words you want t print. Here is an example: PR [HAPPY VALENTINE'S DAY.]

PR [GUESS WHO?]

4. Save your valentine. The file name should be the same as your "valentine's" name.







he *Easy Draw* graphics program is a tool that turns your computer screen into an artist's canvas. It allows children to draw designs on the computer by pressing keys (Apple II and Radio Shack versions) or by manipulating a joystick (Atari version). It also allows kids to save their designs and retrieve them later.

To run the program, you need a keyboard, a monitor, and a disk drive. Atari users also need a joystick.

HOW THE PROGRAM WORKS

When the program is first loaded, instructions are offered. Users who are familiar with the instructions may start the drawing program immediately by pressing the "N" key.

The program allows you to draw with the cursor, to move the cursor to another location on the screen without drawing, to clear the screen, to save your picture on a disk, and to retrieve a picture you saved on a disk. The program does not allow you to print your designs on paper. The Apple and Atari versions of this program allow you to draw in color; the TRS-80 version of the program does not.

Easy Draw also features a menu that appears at the bottom of the screen to remind kids of the operating commands.

USING THE PROGRAM

Easy Draw provides many possibilities for stimulating creativity and for practicing design concepts. First show students how the program works. Then you might allow them to explore its creative potential on their own. Or, if you prefer to introduce the program with more structured drawing activities, here are some examples to get you started.

Reproduce an Artist's Pattern

Select some art books from your school library that feature simple patterns and designs. Ask students to choose their favorite patterns. Then have them use the *Easy Draw* program to reproduce the patterns on the computer screen. To challenge students, hold a contest and award prizes to the children whose computer pictures most closely resemble their selected patterns.

Imitate a Friend's Design

Students work in pairs for this activity. One student draws a design on the left side of the computer screen with the *Easy Draw* program. The student's partner imitates the design on the right side of the screen. Students switch roles to experience creating and imitating designs.

Complete the Picture

Working with a partner, one student uses the *Easy Draw* program to draw half of a picture on the left side of the screen. The other student completes the picture on the right side of the screen. Make sure both students get a chance to start and to complete a picture. (This makes a great lesson on symmetry.)

Make a Funny Face

Students use the *Easy Draw* program to draw the outline of a face on the computer screen. Then they use the letters in their first names to draw features on the face. For example, a student named Barb could use the two "bs" in her name for eyes, the "a" for a nose and the "r" turned on its side as a mouth.

EASY DRAW INSTRUCTIONS

On the following pages are separate listings for three versions of the Easy Draw program: an Apple version, an Atari version, and a Radio Shack version. Below are special instructions for using each of the program versions.

Apple II (DOS 3.3)

 CTRL-L allows you to move the cursor to another location on the screen without drawing.

 CTRL-D lets you draw. Each time you press CTRL-D, you must also choose a color to see your picture on the screen. (Information on color selections appears at the end of these instructions.)

• CTRL-C clears the screen. This command makes your picture disappear. Once you press CTRL-C, you can't get your picture back, unless you have saved it on a disk.

 CTRL-S saves the picture on your screen on a disk. You must give the picture a file name. To choose a file name, follow the SAVE rules you use for choosing a file name in BASIC or any word processing program.

• CTRL-F finds a picture you have saved on disk. If you try to find a picture that is not on the disk, the program ends. Type RUN to start the program again.

CTRL-E ends the program.

• To move the cursor in any of the following directions, press the corresponding keys

North	Ι
Northeast	0
East	K
Southeast	,
Southwest	N
West	J
Northwest	U
그는 사람이 많은 것이 많은 것이 같은 것이 같이 많은 것이 같이 같이 없다.	

HINT: You may want to place a piece of tape on each of the keys listed above to indicate the direction it represents.

 The program allows you to draw in 16 colors by pressing the following

number and letter keys:

- 0 Black
- 1 Magenta
- 2 Dark blue
- 3 Purple
- 4 Dark green
- 5 Grav
- 6 Medium blue 7 Light blue

 You erase by choosing black (zero) and then drawing over the section you want to erase.

 You must choose a color each time you press CTRL-D.

• On the Apple IIe computer, you can repeat a command by holding down the appropriate key.

• On the Apple II + computer, you must hold down the REPEAT key while you press the command key to repeat a command.

• If your Apple system uses Pro-Dos, you will need to make minor adjustments to run this program. Refer to your user's manual for instructions.

Atari

Joystick is required.

 "U" allows you to move the cursor to another location on the screen without drawing.

• "D" lets you draw.

• "C" clears the screen. This command makes your picture disappear. Once you press the "C" key you can't get your picture back unless you have saved it on a disk.

• "S" saves the picture on your screen on a disk. To save a picture, you must give it a file name made of eight or fewer characters.

 "L" loads a picture you have saved on disk. If you try to load a picture not on the disk, the computer flashes an error message and then returns you to the drawing program.

· "E" allows you to erase by drawing over the appropriate section with the joystick.

• "Q" allows you to quit (or end) the program.

• To move the cursor, you move the joystick in the desired direction.

• The program allows you to draw in three colors. Press "O" for orange, "B" for blue, and "G" for green.

• When you type the program into your computer, type the characters printed in italics in lines 1030, 1040, and 2920 in reverse field. To type in reverse field, press the Atari key along with the appropriate character. To exit the reverse field and return to normal mode, type the Atari key again.

TRS-80 Model III

• "U" allows you to move the cursor to another location on the screen without drawing.

• "D" lets you draw.

• "C" clears the screen. This command makes your picture disappear. Once you press the "C" key, you can't get your picture back unless you have saved it on a disk.

• "S" saves the picture on your screen on a disk. You must give the picture a file name. To choose a file name, follow the SAVE rules you use for choosing a file name in BASIC or any word processing program. The program saves pictures very slowly.

• "F" finds a picture you have saved on disk. If you try to find a picture that is not on the disk, the program ends. Type RUN to start the progam again.

• "E" allows you to exit the program.

• To move the cursor, you press any number on the keypad that is placed in the direction you wish to move.

 The program allows you to draw in black and white only. Press "W" for white and "B" for black.

 You erase by choosing black ("B") and then drawing over the section you want to erase.

Programs by Michael Milone, Henry Gaylord, and William Kraus.

8 Brown

9 Orange

- Y Yellow
- A Aqua W White

PROGRAM LISTING FOR EASY DRAW

This program will run on Apple II + and IIe computers, but not on Apple IIc. See page 119 for special instructions on how to run the program.

```
10 ONERR GOTO 740
20 TEXT : HOME :DS = CHRS (4)
30 VTAB 10: INPUT "DO YOU WANT INSTRUCTIONS (Y/N)?":As
40 IF AS = "N" THEN 270
50 IF AS < > "Y" THEN 20
50 HOME : PRINT "1. EACH COLOR HAS A NUMBER OR LETTER."
70 PRINT "TO CHOOSE A COLOR, PRESS THE NUMBER OR"
80 PRINT "LETTER OF THAT COLOR. TO ERASE, CHOOSE"
90 PRINT "'O' FOR BLACK."
100 HTAB 31: PRINT "I": HTAB 27: PRINT "U":: HTAB 35: PRINT "O"
110 HTAB 28: PRINT CHRS (92):: HTAB 31: PRINT "^":: HTAB 34: PRINT "/"
120 HTAB 29: PRINT CHRS (92):: HTAB 31: PRINT "!":: HTAB 33: PRINT "/"
130 PRINT "2. DRAW IN ANY DIRECTION":: HTAB 30: PRINT CHRS (92):"!/"
140 PRINT "BY PUSHING THE KEYS" :: HTAB 26: PRINT "J <----> K"
150 PRINT "SHOWN ON THIS CHART.":: HTAB 30: PRINT "/1": CHRS (92)
160 HTAB 29: PRINT "/":: HTAB 31: PRINT "!":: HTAB 33: PRINT CHRS (92)
170 HTAB 28: PRINT "/":: HTAB 31: PRINT "V":: HTAB 34: PRINT CHR5 (92)
     HTAB 27: PRINT "N":: HTAB 35: PRINT ",":: PRINT : HTAB 31: PRINT "N"
180
190 PRINT : PRINT "3. PRESS CTRL-C TO CLEAR THE SCREEN."
200 PRINT " PRESS CTRL-L TO LIFT THE PEN."
210 PRINT " PRESS CTRL-D TO DROP THE PEN."
220 PRINT " PRESS CTRL-S TO SAVE THE PICTURE."
230 PRINT " PRESS CTRL-F TO FIND THE PICTURE."
     PRINT " PRESS CTRL-E TO END THE PROGRAM."
240
     PRINT : HTAB 9: PRINT "PRESS RETURN TO BEGIN.":
250
260
     GET AS
270 GR :H = 18:V = 20:C = 15:P = 1
     FOR I = O TO 30 STEP 2: COLOR= I / 2: PLOT I,39: NEXT I
280
290
     HOME : FOR I = O TO 9: PRINT I:" ":: NEXT I
300 PRINT "G P C Y A W": PRINT "CTRL-L = LIFT PEN":: HTAB 20: PRINT "CTRL -D = ":: INVERSE : PRINT "PEN DOWN": NORMAL
310 PRINT "CTRL-C = CLEAR":: HTAB 20: PRINT "CTRL-E = END"
320 PRINT "CTRL-S = SAVE":: HTAB 20: PRINT "CTRL-F = FIND";
330 IF P = O THEN C = SCRN( H,V)
340 COLOR= C: PLOT H,V
350 K = PEEK ( - 16384): IF K < 128 THEN COLOR= (C = 0) + C * NOT SCRN(H,V): PLOT H,V: GOTO 350
360 K = K - 128: COLOR= C: PLOT H,V: IF V > 38 THEN V = 38: GOTO 330
370 POKE - 16368,0
380 IF K = 73 AND V > 0 THEN V = V - 1
390 IF K = 85 AND H > 0 AND V > 0 THEN H = H - 1:V = V - 1
400 IF K = 77 AND V < 38 THEN V = V + 1
410 IF K = 79 AND H < 39 AND V > 0 THEN H = H + 1:V = V - 1
420 IF K = 74 AND H > 0 THEN H = H - 1
430 IF K = 78 AND H > 0 AND V < 38 THEN H = H - 1:V = V + 1
440 IF K = 75 AND H < 39 THEN H = H + 1
450 IF K = 44 AND H < 39 AND V < 38 THEN H = H + 1:V = V + 1
460 IF K > 47 AND K < 58 THEN C = K - 48:K = 4
470 IF K = 71 THEN C = 10:K = 4
480 IF K = 80 THEN C = 11:K = 4
490 IF K = 67 THEN C = 12:K = 4
500 IF K = 89 THEN C = 13:K = 4
510 IF K = 65 THEN C = 14:K = 4
520 IF K = 87 THEN C = 15:K = 4
530 IF K = 5 THEN TEXT : HOME : END
540 IF K = 19 THEN 590
550 IF K = 6 THEN 670
560 IF K = 12 THEN P = 0: VTAB 22: HTAB 10: INVERSE : PRINT "LIFT PEN";: NORMAL : HTAB 29: PRINT "PEN DOWN"
570 IF K =. 4 THEN P = 1: VTAB 22: HTAB 10: PRINT "LIFT PEN":: INVERSE : HTAB 29: PRINT "PEN DOWN": NORMAL
580 GOTO 330
590 HOME : VTAB 22: PRINT "WHAT DO YOU WANT TO CALL THIS PICTURE?": INPUT PS
600 IF Ps = "" THEN 290
610 VTAB 24: INPUT "IS THE NAME CORRECT (Y/N)?";AS
620 IF AS = "N" THEN 590
630 IF AS < > "Y" THEN 610
640 COLOR= 0: HLIN 0.39 AT 39
650 PRINT DS;"BSAVE ":PS;",AS400, LS3F8"
660 GOTO 280
670 HOME : VTAB 22: INPUT "WHAT IS THE NAME OF THE PICTURE? ":PS
680
     IF PS = "" THEN 290
690 VTAB 24: INPUT "IS THE NAME CORRECT (Y/N)? ":AS
700 IF AS = "N" THEN 670
710 IF AS < > "Y" THEN 690
720 PRINT DS;"BLOAD ":PS:" .A5400"
730 P = 0:H = 2:V = 39:C = 1: GOTO 280
740 IF PEEK (222) = 255 THEN 270
750 HOME : PRINT "PROGRAM ERROR IN LINE ":256 . PEEK (219) + PEEK (218) : END
```

PROGRAM LISTING FOR EASY DRAW

This program will run on Atari 800 or 800XL computers. See page 119 for special instructions on how to run the program.

5 REM Characters in italics in lines 1030, 1040, and 2920 6 REM should be typed in reverse field. 10 C=1:S=100:X=80:Y=40:P=1:TC=1 15 DIM F\$(10),Q\$(8) 20 GOTO 1000 100 REM PLOT POINT 110 TX=X+DX:TY=Y+DY 120 IF TX<0 OR TX>159 OR TY<0 OR TY>79 THEN RETURN 130 SOUND 0,50+2.5*TY,10,4 140 X=TX:Y=TY 150 IF P=1 THEN PLOT X,Y 160 RETURN 1000 REM MAIN PROGRAM 1005 GRAPHICS 7 1010 TRAP 1010: PDKE 752.1 1020 PRINT CHR\$(125);"Press highlighted letter to select:" 1025 REM Type the O, G, B, E, C, U, D, L, S, and Q 1026 REM in the next two lines in reverse field. Clear" 1030 PRINT "Orange Green Blue Erase 1040 PRINT :PRINT "Pen Up Pen Down Save Quit"; Load 1100 Q=STICK(0) 1110 DX=(Q=5 OR Q=6 OR Q=7)-(Q=9 OR Q=10 OR Q=11) 1120 DY=(Q=5 OR Q=9 OR Q=13)-(Q=6 OR Q=10 OR Q=14) 1130 IF DX<>O OR DY<>O THEN GOSUB 100:GOTO 1100 1140 COLOR O: IF C=0 THEN COLOR 1 1150 PLOT X, Y: SOUND 0,0,0,0 1160 POKE 77, 1: POKE 694, 0: POKE 702, 64 1170 Q=PEEK(764): POKE 764,255 1180 IF Q=8 AND P=1 THEN C=1:REM DRANGE 1190 IF Q=61 AND P=1 THEN C=2:REM GREEN 1200 IF Q=21 AND P=1 THEN C=3:REM BLUE 1210 IF Q=42 AND P=1 THEN C=0:REM ERASE 1220 IF Q=18 THEN GOTO 1000:REM CLEAR 1230 IF Q=47 THEN POKE 752,0:END :REM QUIT 1240 IF Q=11 THEN P=0:TC=C:C=0:REM PEN UP 1250 IF Q=58 THEN P=1:C=TC:REM PEN DOWN 1260 IF Q=0 THEN GOSUB 2000:GOTO 1010:REM LOAD 1270 IF Q=62 THEN GOSUB 2100:GOTO 1010:REM SAVE 1280 COLOR C:PLOT X, Y:GOTO 1100 2000 REM LOAD PICTURE 2010 POKE 752.0:I=7:Q=4 2020 PRINT CHR\$(125); "Name of picture to load"; 2030 INPUT Q\$:GOSUB 2900:RETURN 2100 REM SAVE PICTURE 2110 POKE 752,0:I=11:Q=8 2120 PRINT CHR\$(125); "Name of picture to save"; 2130 INPUT Q\$:GOSUB 2900:RETURN 2900 TRAP 2990 2905 F\$="D:":F\$(3)=Q\$:OPEN #1,Q,O,F\$ 2910 REM The "*" and "d" in line 2920 must be in reverse field. 2920 Q\$="hhh*LVd" 2950 POKE 852, PEEK (88) : POKE 853, PEEK (89) 2955 POKE 850, I:POKE 856, 128:POKE 857, 12 2960 Q=USR(ADR(Q\$),16):CLOSE #1:RETURN 2990 CLOSE #1:PRINT :PRINT "*** DISK ERROR ***" 2995 FOR I=1 TO 1000:NEXT I:RETURN

This program will run on TRS-80 Model III computers. See page 119 for special instructions on how to run the program.

```
10 CLEAR 5000:DIM SC$(13)
20 CLS
30 PRINT@448,:INPUT"DO YOU WANT INSTRUCTIONS (Y/N) ":AS
40 IF AS="N" THEN 250
50 IF A$<>"Y" THEN 20
60 CLS:REM INSTRUCTIONS
70 PRINT "1. PRESS W TO DRAW IN WHITE OR B TO ERASE IN BLACK."
80 PRINT: PRINT@173,"8"
90 PRINT@232,"7";STRING$(4,32);CHR$(94);STRING$(4,32);"9"
100 PRINT@298, CHR$(92); CHR$(32); CHR$(32);"!"; CHR$(32); CHR$(32);"/"
110 PRINT "2. DRAW OR ERASE IN ANY DIRECTION"
120 PRINT @364,CHR$(92);"!/"
130 PRINT "BY PRESSING THE NUMBER KEYS AS"
140 PRINT@422,"4 <----*---> 6"
150 PRINT "SHOWN ON THIS CHART."
160 PRINT@492,"/!";CHR$(92)
170 PRINT@554,"/";CHR$(32);CHR$(32);"!";CHR$(32);CHR$(32);CHR$(92)
180 PRINT@616,"1";STRING$(4,32);"v";STRING$(4,32);"3"
190 PRINT@685,"2"
200 PRINT:PRINT"3. PRESS U FOR PEN UP, D FOR PEN DOWN, F
    TO FIND AND LOAD A"
210 PRINT "PICTURE FROM DISK, S TO SAVE A PICTURE TO DISK,
    C TO CLEAR THE"
220 PRINT "SCREEN, E TO END THE PROGRAM."
230 PRINT@980,"PRESS ENTER TO CONTINUE.":
240 K$=INKEY$:IF K$="" 'THEN 240
250 H=63:V=20:P=1:C=-1
260 CLS:REM ON-SCREEN MENU
270 FOR I=1 TO 14:PRINT STRING$(64,128);:NEXT I
280 PRINT@896,"U = PEN UP";
290 PRINT@960,"D = PEN DOWN";
300 PRINT@944,"C = CLEAR SCREEN";
310 PRINT@1008,"E = END";
320 PRINT@997,"S = SAVE";
330 PRINT@933,"F = FIND";
340 PRINT@913,"W = WHITE (DRAW);
350 PRINT@977,"B = BLACK (ERASE)";
360 IF P=0 THEN K$="U":GOTO 700
370 IF P=0 THEN C=POINT(H,V)
380 REM ERASE POINT AT H,V
390 IF C=0 THEN RESET(H,V):GOTO 420
400 SET(H,V):REM PLOT POINT AT H,V
410 REM GET INPUT FROM KEYBOARD
420 K$=INKEY$:IF K$<>"" THEN 440
430 SET(H,V):RESET(H,V):GOTO 420
440 IF V>41 THEN V=41:REM CHECK FOR SCREEN BOUNDARY
450 REM IF THE COLOR IS WHITE, THEN SET A POINT AT H.V.
460 IF C=-1 THEN SET(H,V):GOTO 500
-470 REM IF THE COLOR IS BLACK, THEN ERASE THE POINT AT H,V
```

480 RESET(H,V) 490 REM MOVE THE CURSOR IN THE DIRECTION INDICATED BY THE NUMBER 500 IF K\$="8" AND V>0 THEN V=V-1 510 IF K\$="7" AND H>O AND V>O THEN H=H-1:V=V-1 520 IF K\$="2" AND V<41 THEN V=V+1 530 IF K\$="9" AND H<127 AND V>0 THEN H=H+1:V=V-1 540 IF KS="4" AND H>0 THEN H=H-1 550 IF KS="1" AND H>0 AND V<41 THEN H=H-1:V=V+1 560 IF K\$="6" AND H<127 THEN H=H+1 570 IF K\$="3" AND H<127 AND V<41 THEN H=H+1:V=V+1 580 REM IF KEY 'C' IS PRESSED, THEN CLEAR THE SCREEN 590 IF KS="C" THEN 250 600 REM W STANDS FOR WHITE AND B STANDS FOR BLACK (ERASE) 610 IF KS="W" THEN C=-1:LC=C 620 IF K\$="B" THEN C=0:LC=C 630 REM IF KEY 'E' IS PRESSED, THEN END THE PROGRAM 640 IF K\$="E" THEN CLS:END 650 REM SAVE THE PICTURE 660 IF K\$="S" THEN 740 670 REM FIND A PICTURE ALREADY SAVED ON DISK 680 IF KS="F" THEN 890 690 REM U=PEN UP, D=PEN DOWN 700 IF KS="U" THEN P=0:LC=C 710 IF K\$="D" THEN P=1:C=LC 720 GOTO 370 730 REM SAVE THE PICTURE ON DISK 740 PRINT@896, CHR\$(31);"WHAT DO YOU WANT THE CALL THE PICTURE";:INPUT P\$ 750 IF P\$="" THEN PRINT@896,CHR\$(31);:GOTO 280 760 PRINT@896,CHR\$(31);"IS THE NAME ";P\$;" OK (Y/N)";:INPUT A\$ 770 IF A\$="N" OF A\$="n" THEN 740 780 IF A\$<>"Y" THEN 760 790 PRINT@896, CHR\$(31);"SAVING ";P\$ 800 FOR J=0 TO 13:SC\$(J)="":K=15360+64*J 810 FOR I=K TO K+63 820 SC\$(J)=SC\$(J)+CHR\$(PEEK(D)) 830 NEXT LJ 840 OPEN "O",1,P\$ 850 FOR I=0 TO 13:PRINT#1,SC\$(D:NEXT I 860 CLOSE 1 870 PRINT@896, CHR\$(31);:GOTO 280 880 REM FIND A PICTURE ALREADY SAVED ON DISK 890 PRINT@896, CHR\$(31); WHAT IS THE NAME OF THE PICTURE ";: INPUT P\$ 900 IF PS="" THEN PRINT@896,CHR\$(31);:GOTO 280 910 PRINT@896,CHR\$(31);"IS THE NAME ";P\$;" OK (Y/N)";:INPUT A\$ 920 IF A\$="N" OR A\$="n" THEN 890 930 IF A\$<>"Y" THEN 910 940 PRIN1@896,CHR\$(31);"FINDING ";P\$ 950 OPEN "I",1,P\$ 960 FOR I=0 TO 13:INPUT #1,SC\$(D:PRINT@I*64,SC\$(D:NEXT I 970 CLOSE 1 980 P=0:H=30:V=42 990 PRINT@896, CHR\$(31); 1000 GOTO 280

COMMODORE 64 PROGRAM LISTING FOR EASY DRAW

This program will run on Commodore 64 computers.

```
5 REM EASY DRAW, COMMODORE 64 VERSION
10 POKE 53281, 0: PRINT CHR$(5): REM BLACK BACKGROUND
 WHITE CURSOR
20 PRINT CHR$(142); CHR$(8): REM UPPERCASE
30 CLR:PRINT CHR$(147):DIM C$(5000):R=1
40 R$=CHR$(29):REM RIGHT CURSOR
50 L$=CHR$(157):U$=CHR$(145):REM LEFT,UP
60 D$=CHR$(17):RO$=CHR$(18): REM DOWN, REVERSE ON
70 PRINT " DO YOU WANT INSTRUCTIONS (Y/N)";
80 INPUT Z$: IF Z$<>"Y" AND Z$<>"N" THEN 80
90 IF Z$="Y" THEN GOSUB 10000
100 GOSUB 20000: REM ON-SCREEN MENU
110 REM CHECK FOR ERASE MODE
120 IF ER=1 THEN GOSUB 6000:GOTO 210
130 REM SET BLINKING CURSOR
140 PRINT RO$;" ";CHR$(146);L$;
150 FOR F=1 TO 100
160 GET Y$: IF Y$<>""THEN 210
170 NEXT F
180 PRINT " ";L$;
190 FOR F=1 TO 100:NEXT F:GOTO 130
210 GOSUB 1000: REM KEYBOARD COMMANDS
220 IF SW=0 THEN C$(R)=Y$:R=R+1
230 SW=0:GOTO 110
1000 REM RESPOND TO KEYBOARD COMMANDS
1010 IF YS="1" THEN PRINT CHR$(144);:ER=1:RETURN
1020 IF YS="2" THEN PRINT CHR$(5);:ER=0:RETURN
1030 IF YS="3" THEN PRINT CHR$(28);:ER=0:RETURN
1040 IF Y$="4" THEN PRINT CHR$(159);:ER=0:RETURN
1050 IF Y$="5" THEN PRINT CHR$(156);:ER=0:RETURN
1060 IF Y$="6" THEN PRINT CHR$(30);:ER=0:RETURN
1070 IF YS="7" THEN PRINT CHR$(31);:ER=0:RETURN
1080 IF YS="8" THEN PRINT CHR$(158);:ER=0:RETURN
111Ø REM MOVE CURSOR AND DRAW
1120 IF Y$="I" AND V>1 THEN PRINT U$;RO$;" ";L$;:V
=V-1:RETURN
1130 IF Y$="M" AND V<19 THEN PRINT D$;RO$;" ";L$;:
V=V+1:RETURN
1140 IF Y$="K" AND H<40 THEN PRINT R$; RO$;" ";L$;:
H=H+1 . RETURN
1150 IF Y$="J" AND H>1 THEN PRINT L$; RO$;" ";L$;:
H=H-1:RETURN
1160 IF YS="U"AND H>1 AND V>1 THEN PRINT LS;US;ROS
;" ";L$;:H=H-1:V=V-1:RETURN
1170 IF YS="0" AND V>1 AND H<40 THEN PRINT US; RS; R
0$;" ";L$;:V=V-1:H=H+1:RETURN
1180 IF YS="N" AND V<19 AND H>1 THEN PRINT LS:DS:R
0$;" ";L$;:V=V+1:H=H-1:RETURN
1190 IF YS=","AND H<40 AND V<19 THEN PRINT D$; R$; R
0$;" ";L$;:V=V+1:H=H+1:RETURN
1200 IF YS="C" THEN GOSUB 2000: REM CLEAR
1210 IF YS="E" THEN GOSUB 3000:REM END
1220 IF YS=""" THEN GOSUB 4000:REM LIFT PEN
1230 IF YS="S" THEN GOSUB 8000:REM SAVE
1240 IF YS="F" THEN GOSUB 9000:REM FIND
1250 SW=1:RETURN
2000 REM CLEAR THE SCREEN
2005 PRINT CHR$(147); CHR$(5)
2010 PRINT " ARE YOU SURE YOU WANT TO CLEAR THE"
2020 PRINT "SCREEN (Y/N)?"
2030 INPUT Z$: IF Z$<>"Y" AND Z$<>"N" THEN 2030
2050 IF Z$="N" THEN GOSUB 7000
2060 IF Z$="Y" THEN R=1: GOSUB 20000
```

2070 RETURN 3000 REM END THE PROGRAM 3005 PRINT CHR\$(147); CHR\$(5) 3010 PRINT " ARE YOU SURE YOU WANT TO QUIT (Y/N)?" 3020 INPUT Z\$: IF Z\$<>"N" AND Z\$<>"Y" THEN 3020 3040 IF ZS="N" THEN GOSUB 7000 3050 IF Z\$="Y" THEN PRINT "GOODBYE ... ": END 3060 RETURN 4000 REM LIFT PEN AND MOVE CURSOR 4010 IF SW=0 THEN C\$(R)=Y\$:R=R+1:GOSUB 5000 4020 IF SW=1 THEN JK=JK+1:Y\$=C\$(JK):REM CONTINUE R EDRAW 4030 REM MOVE CURSOR WITHOUT DRAWING 4040 IF YS="K" AND H<40 THEN PRINT RS::H=H+1 4050 IF YS="J" AND H>1 THEN PRINT LS;:H=H-1 4060 IF Y\$="I" AND V>1 THEN PRINT U\$;:V=V-1 4070 IF YS="M" AND V<19 THEN PRINT D\$;:V=V+1 4080 IF YS="U" AND V>1 AND H>1 THEN PRINT U\$;L\$;:H =H-1:V=V-1 4090 IF Y\$="0" AND V>1 AND H<40 THEN PRINT U\$; R\$;: H=H+1:V=V-1 4100 IF YS=""N" AND V<19 AND H>1 THEN PRINT D\$;L\$;: H=H-1:V=V+1 4110 IF YS="," AND V<19 AND H<40 THEN PRINT DS;R\$; :H=H+1:V=V+1 4120 IF Y\$<>"D" THEN 4000 4130 IF SW=0 THEN C\$(R)=Y\$:R=R+1 4140 RETURN 5000 REM + SIGN AS CURSOR 5010 GA=55295+H+40*(V-1) 5020 GB=1023+H+40*(V-1) 5030 GC=PEEK(GA):GD=PEEK(GB) 5040 POKE GB,43 5050 POKE GA, PEEK (53281)+1 5060 GET Y\$: IF Y\$="" THEN 5060 5070 POKE GB, GD 5080 POKE GA,GC 5090 RETURN 6000 REM ERASE WITH BLACK 6010 TE=PEEK(53281) 6020 TF=55295+40*(V-1)+H 6030 POKE TF, TE+1 6040 TG=1023+40*(V-1)+H 6050 POKE TG,42 6060 GET Y\$: IF Y\$="" THEN 6060 6070 POKE TG,224 6080 POKE TF, TE 6090 RETURN 7000 REM REDRAW PICTURE 7010 SW=1:GOSUB 20000:EI=0 7020 FOR JK=1 TO R 7030 Y\$=C\$(JK):GOSUB 1000 7040 NEXT JK 7050 EI=1:RETURN 8000 REM SAVE PICTURE ON DISK 8010 PRINT CHR\$(147); CHR\$(5) 8030 PRINT " WHAT DO YOU WANT TO CALL THE PICTURE 2" 8040 INPUT AS 8050 IF LEN(A\$)>9 THEN PRINT " THE NAME MUST BE L ESS THAN 9 LETTERS.":GOTO 8040 8060 PRINT " PUT YOUR DISK IN THE DRIVE AND PRESS"

8070 PRINT "<RETURN>.": INPUT Z\$ 8075 PRINT:PRINT " SAVING ";A\$;"..." 8080 OPEN 5,8,5,"@0:"+A\$+",S,W" 8090 PRINT#5,R 8100 FOR X=1 TO R 8110 PRINT#5,C\$(X) 812Ø NEXT X 813Ø CLOSE 5 814Ø GOSUB 7ØØØ:RETURN 9000 REM RETRIEVE FROM DISK 9010 PRINT CHR\$(147):PRINT CHR\$(5):R=1 9020 PRINT " PUT YOUR DISK IN THE DISK DRIVE AND" 9030 PRINT "PRESS <RETURN>.": INPUT Z\$ 9040 PRINT " WHAT IS THE NAME OF THE PICTURE YOU" 9050 PRINT "WANT TO RETRIEVE?" 9060 INPUT A\$ 9070 PRINT " IS ";A\$;" SPELLED CORRECTLY (Y/N)?" 9080 INPUT Z\$ 9090 IF Z\$="N" OR Z\$="NO" THEN 9040 9095 PRINT " LOOKING FOR ";A\$;"..." 9100 OPEN 5,8,5,"0:"+A\$+",S,R" 9110 INPUT#5,R 9120 FOR X=1 TO R 913Ø INPUT#5,C\$(X) 914Ø NEXT X 9150 CLOSE 5:GOSUB 7000:RETURN 10000 REM INSTRUCTIONS 10010 PRINT CHR\$(147) 10020 PRINT " USE THESE KEYS TO DRAW:" 10030 PRINT: PRINT TAB(14)" U I 0 " 10040 PRINT TAB(14)" 1 10050 PRINT TAB(14)" ... 11/ 10060 PRINT TAB(14)"J-+ -K" 10070 PRINT TAB(14)" .. ****" 10080 PRINT TAB(14)"/ 10080 PRINT TAB(14)"/ | 10090 PRINT TAB(14)" N M .. 10100 PRINT:PRINT:PRINT "TYPE THIS: TO DO THIS:" 10110 PRINT:PRINT "'E' KEY END THE PROGRAM" 10120 PRINT "'C' KEY CLEAR THE SCREEN" 10130 PRINT "'S' KEY SAVE THE PICTURE" 10140 PRINT "'F' KEY FIND A SAVED PICTURE" 10150 PRINT "'^' KEY LIFT THE PEN " 10160 PRINT "'D' KEY DROP THE PEN" 10170 PRINT:PRINT " PRESS <RETURN> TO CONTINUE." 10180 INPUT Z\$:PRINT CHR\$(147) 10190 PRINT " YOU CAN DRAW IN THESE COLORS: 10200 PRINT:PRINT CHR\$(5);"WHITE = 2 ";CHR \$(30);"GREEN = 6" 10210 PRINT CHR\$(28);"RED = 3 ";CHR\$(31) ;"BLUE = 7" 10220 PRINT CHR\$(159);"CYAN = 4 ":CHR\$(15 8);"YELLOW = 8" 10230 PRINT CHR\$(156);"PURPLE = 5";CHR\$(5)

10240 PRINT:PRINT " TO CHOOSE A COLOR, PRESS THE NUMBER" 10250 PRINT "KEY OF THE COLOR YOU WANT. FOR EXAMPL E," 10260 PRINT "PRESS THE 3 KEY TO DRAW IN RED." 10270 PRINT: PRINT " TO ERASE, PRESS 1 FOR BLACK. TO STOP" 10280 PRINT "ERASING, CHOOSE A COLOR FROM 2 TO 8." 10290 PRINT:PRINT " PRESS <RETURN> TO BEGIN." 10300 INPUT Z\$:RETURN 20000 REM ON-SCREEN MENU 20010 PRINT CHR\$(147) 20020 FOR X=1 TO 18:PRINT:NEXT X 20030 REM COLOR BAR 20040 PRINT "PICK A COLOR: ";CHR\$(5);"2 ";CHR\$(2 20050 PRINT CHR\$(156);"5 ";CHR\$(30);"6 ";CHR\$(31);"7 ";CHR\$(129);"8 " 8);"3 ";CHR\$(159);"4 " 20060 PRINT CHR\$(5); 20070 PRINT:PRINT "S.....SAVE C CLEAR" E.....END" 20080 PRINT "F.....FIND 20085 PRINT "^....LIFT PEN 1 (BLK)..ERASE" 20090 PRINT "D.....DROP PEN"; 20100 PRINT CHR\$(19); 20110 FOR X=1 TO 9:PRINT:NEXT X 20120 FOR X=1 TO 18:PRINT R\$;:NEXT X 20130 V=10:H=19 20140 RETURN

READY.

MUSIC IN OUR SCHOOLS MONTH

MONTH OF MARCH

v class is alive with the sounds of music and yours can be, too! What's that? You say you can't play an instrument or direct a choir? That's all right. You don't have to be a musician to teach music-not if you have a computer. There is a lot of good software available to help you teach students about the subject. Some programs drill students on music theories and concepts; some teach children how to use musical notation to play an instrument or compose a score; still others provide historical background on great musicians.

Below are three sound-sational music programs that I use with my students. I've provided summaries of the programs as well as supplementary activities to use with the entire class. Everything you need to teach yourself and your students about the magic of music is here.

MUSIC

Computer: Apple Level: Preschool–Grade 2 Price: \$34.95 Contact: Lawrence Hall of Science, University of California, Berkeley,

CA 94720; 415/642-3167.

Music is part of the Micros for Micros series, a collection of software for preschool and primary students that was developed by the Math and Computer Education Project (MCEP) at the Lawrence Hall of Science. In Music, students choose from a menu of three programs. The choices are "Make Music," "Note Sandwich," and "Play a Tune." Each program uses the same basic format. The number keys "1" through "8" on your computer keyboard act as notes on a scale. When students press these keys, the notes are not only heard, but they are displayed as numbered and colored bars that vary in length according to the pitch of the particular note. For example, the sound of do is a long red bar numbered one; sol is a medium-sized orange bar numbered five; and do prime is a short yellow bar numbered eight.

"Make Music" is an open-ended activity that allows students to use the keyboard to compose short tunes or random sounds. The computer stores the notes and can play them back at a fast, slow, or moderate tempo. Students also have a choice of whether to hear just the notes, see only the bars, or hear the notes *and* see the bars of the music they have created. The one limitation of this program is that the computer can play and store only 20 notes at a time. To play more notes, the student must erase the 20 preceding notes and begin again.

The second program in *Music*, "Note Sandwich," tests children's listening, memory, and estimating skills. The computer plays two notes of the scale, and students try to guess the note that falls between the two. If a student gets stumped with just the sounds, he or she can ask the computer to flash the music bars on the screen, to get a visual clue.

"Play a Tune," the final option on the program, is a game similar to Name That Tune. Students select one of six tunes for the computer to play. The computer plays as many as 14 notes of the tune and displays the bars of the notes on the screen. From this information, students must recreate the song by pressing the appropriate number keys. The six tunes are familiar children's songs, including "Happy Birthday," "The Farmer in the Dell," and "Twinkle, Twinkle Little Star." Because the songs are well known, students can hum them as they try to guess each note. On the bottom of the screen, the computer displays instructions: PRESS "H" TO HEAR THE COMPUTER'S SONG AGAIN. PRESS "P" TO HEAR THE SONG YOU CREATED. This allows children to compare their final notes and bars to the computer's notes and bars. This game can be difficult for early preschoolers to play, but they still enjoy hearing how close their songs come to the original.

Supplementary Activities

• Use the "Make Music" program to play Recognize the Notes, a game I created to familiarize students with the notes of the scale. First, on the chalkboard, draw eight bars to represent the scale as it appears on the computer. Turn the monitor away from the class and select one student to play a set of 10 random notes. Ask the child to play the composition again. Students must listen carefully to the sounds and draw the bars that represent the pattern of notes they hear. Play the music a third time and instruct students once again to draw the sound bars they hear. Now turn the monitor to face the class and play back the notes and bars together. Have kids compare their drawings to the the actual musical pattern. Students are pleased to find that the last pattern they drew is often closer to the actual pattern. They realize the more they listen to a melody, the easier it becomes to recognize individual sounds.

• Here's an adaptation of "Note Sandwich," in which students identify notes that fall between other notes on the scale.

Bring to class a butter knife and eight empty glass jars that are the same size. Label the jars "1" through "8." Explain to your students that these jars represent the notes of a scale, and after they are filled with different amounts of water, each jar gives a different tone when tapped with a butter knife. Fill jar "1" threequarters full with water; this will be the lowest note in the scale. Leave jar "8" empty; this will be the highest note in the scale. Tap both jars lightly with a butter knife to demonstrate the different tone of each jar. Explain that the larger the volume of water in the jar, the lower the sound will be. Now have students estimate how much water should be poured into jar "4" to make a sound that falls in between jar "1" and jar "8." Do this for each of the jars, always checking the progression of the scale by tapping the jars with the butter knife. If the sequence is not right, the sounds in the jars can always be changed by adding or pouring out water.

Because students are estimating the sounds through trial and error, the experiment may get a bit messy as you pour water from one jar to another to ensure the correct progression of the scale. It will be worth it, though, when students finally hear the water scale they have created.

• If you know how to write music, try this activity with your students.

On the chalkboard, write the scale of C, and label each note on the staff. After students have correctly played a song that challenged them in the "Play a Tune" program, pass out music paper and instruct kids to write the notes in the scale of C, using the staff on the chalkboard as a guide. The note bars will remain on the screen, as an extra guide, until the students press the space bar. To see if the students wrote the correct notes, have them exchange papers and play each other's songs.

ROCK 'N' RHYTHM Computers: Commodore 64; Atari (joystick required) Level: Grade 4–Adult Price: \$32.95. Contact: Spinnaker Software, One Kendall Square, Cambridge, MA 02138; 617/494-1200.

Rock 'N' Rhythm turns your computer into a recording studio. It lets kids use sounds from three different instruments: two keyboards (melody) and drums (rhythm) to compose songs. As real recording engineers do, children can edit their songs until they like the way they sound. They can also transcribe their original compositions, save the songs on disk, and play them back later.

To compose songs with *Rock 'N' Rhythm*, you enter notes from the computer keyboard (a cutout keyboard overlay shows where the notes are located). The notes are displayed as letters on a special melody screen. Using the space bar, you can actually tap out the rhythm of a melody. From the melody screen, you can travel to the control room. The control room features a tape recorder that lets you play and rewind compositions. It also has a metronome that helps you keep a steady beat. Other equipment allows you to change the song's tempo and volume, and to alter the lighting in the performance room.

The performance room is where you make an actual recording of your song. There you use the joystick to play the drums along with a melody of your choice. You can save your compositions in a jukebox which holds up to 27 songs, including nine songs already on the disk.

Supplementary Activities

 Here's a variation of Musical Chairs that helps kids recognize changes in rhythm. Arrange the chairs in the classroom as if you were plaving Musical Chairs: in a circle, with one chair less than the number of participants. Play the drum track from an original song one of your students created with Rock 'N' Rhythm or from one of the prerecorded songs on Rock 'N' Rhythm. Instruct your students to march to the beat. After the kids have marched around the chairs a few times, change the tempo. Instruct students that as soon as the tempo changes, they should scramble for one of the seats. The child that remains standing must sit out for the rest of the game. Remove one chair and repeat the game until only one kid is standing and one is sitting. The one who successfully sits in the remaining chair wins

• Rock 'N' Rhythm can be used to encourage kids to compose their own music. Have students work in pairs and instruct them to think of a feeling, a theme, or an idea they would like to write a song about. The tricky part of this activity is that children may use only sounds, not words, to express themselves. When the students have completed their compositions, select one student from each pair to play the original score for the class. Let the class guess what feeling or thought the writers are trying to convey.

• Here is a variation of Name That Tune that encourages students to listen carefully for melodic patterns. Use the *Rock 'N' Rhythm* program to record segments of 10 popular songs. Play back the recordings and have students try to guess each song. Did anyone correctly name all 10? To make the game a little more challenging, play the songs in a slightly different way from the popular version; change the tempo or experiment with the note, tone, and octave controls (on the Commodore 64 version only).

MECC MUSIC PROGRAMS Computer: Music Theory for the Apple; Music I, II, III for the Atari. Level: Grades 5–12 Price: Music Theory \$49; Music I, II, III \$46 each. Publisher: MECC, 3490 Lexington Ave. North, St. Paul, MN 55112; 612/481-3500.

For the more advanced music class, I recommend these programs by MECC: *Music Theory*, for Apple users, and similar programs for Atari users called *Music I*, *Music II*, and *Music III*. Each program offers a wonderful variety of quizzes on subjects including aural intervals, counting, enharmonics, key signatures, and rhythm. The programs use musical tones and graphics to quiz students,

Each set of exercises has levels of difficulty, and students choose the level and the number of questions they would like to try. If a student answers incorrectly, the computer gives the correct answer. The computer also keeps track of the student's score for each set of exercises.

Supplementary Activity

• A fun way to test students on the music facts they learned with Music Theory and Music I. II. III is through an adaptation of the game Mother May I? I instruct students to stand in a straight line in the the back of the classroom. I randomly call on students to answer music questions. For example, "How many beats does a dotted eighth-note receive?" or "What does mezzo mean?" The student may advance one step if he or she answers the question correctly. If the student answers incorrectly, he or she must move back one step. The first student to reach the finish line (i.e., the computer) gets to play his or her favorite music program.

Lane Weiss

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SHEEP COUNTER WORKSHEET

LAST DAY OF MARCH

s the saying goes,

March comes in like

a lion and goes out

like a lamb. Because a

lamb is actually a baby sheep, the end of March is

a good time to try our

program good for? Well,

some people believe that if

they count sheep, they

will fall asleep faster. But

most people don't have

many sheep on hand to

count. The Sheep Counter

program creates 10 sheep on the computer screen.

The sheep appear one at a time so that they're easier

to count. Not only that,

but the computer will

wool over your eyes with

this program, or does

sheep counting really make you sleepy? Try

Sheep Counter and decide

This program will run on most brands of computers. If you use a TRS-80 Model III, leave out lines 30, 200, 210, and 220.

for ewe-self!

WHAT TO DO

Are we trying to pull the

count along with you!

What is a Sheep Counter

Sheep Counter program.

1. Put your computer in BASIC.

2. Type NEW and press RETURN or ENTER.

3. Type in the *Sheep Counter* program listing. Be careful to include all the spaces between quotation marks.

4. Type RUN and press RETURN or ENTER.

SHEEP COUNTER PROGRAM LISTING

10	FOR SHEEP = 1 TO 10
20	PRINT "SHEEP #":SHEEP
30	PRINT
40	PRINT ""
50	PRINT ""
60	PRINT " +())
70	PRINT ""
80	PRINT "
90	PRINT " ++ +
100	PRINT " .
110	PRINT " 0
120	PRINT " .
130	PRINT "
140	PRINT "
150	PRINT " " "
160	DRINT "
170	PRINT
180	PRINT
190	PRINT
200	PRINT
210	PRINT
220	PRINT
230	FOR D = 1 TO 800
240	NEXT D
250	NEXT SHEEP
260	END

SHEEP COUNTER CHALLENGES

Try these programming challenges. How many can you do?

MONTH OF MARCH

You don't feel the least bit sleepy yet. Make the program count 100 sheep.
Make the program count sheep *backward*.

• "Cool" sheep counters count by fives. Be a cool sheep counter and change the program to count by fives.

• Write a program that counts cows, pandas, or any other animal.

SHEEP COUNTER SUPERCHALLENGE

Use computer graphics to draw a sharp-looking sheep in a colorful meadow. Put a fence around the sheep. Add clouds and a sun in the sky. Can you make the sheep say, "baa"?

NAME:

KNOCK KNOCK JOKE TELLER WORKSHEET

NATONAL HUMOR MONTH

MONTH OF APRIL

NAME:

mor Month. Cele- QUITO BIT ME. brate with Knock! Knock! program. The program makes the computer tell really funny knock knock jokes. No kidding!

WHAT TO DO

1. Put your computer in BASIC.

2. Type in the Knock!, Knock! program listing exactly as it appears below.

3. Type RUN and press **RETURN** or ENTER.

KNOCK. KNOCK! PROGRAM LISTING

This program listing will work for most brands of computers. 10 READ X\$, Y\$ 20 IF X\$="STOP" THEN 100 " KNOCK. 30 PRINT KNOCK!" 40 INPUT A\$ 50 PRINT X\$ 60 INPUT A\$ 70 PRINT Y\$ 80 PRINT 90 GOTO 10 100 PRINT "THAT'S ALL, FOLKS...." 110 END

pril is National Hu- 120 DATA AMOS, A MOSthis 130 DATA CHIP. CHIP **CHIP HOORAY!** 1000 DATA STOP, STOP

KNOCK, KNOCK! CHALLENGES

How many of these programming challenges can vou do?

 Add this joke to the program:

Knock, Knock! Who's There?

Amos. Amos Who?

Amos Begoing.

• Add your own knock knock joke to the program.

• Change the program so that the computer tells the jokes in a random order. (A random order is an order that varies or changes.)

• Change the program so that the player can input a guess at the answer. Have the computer say if each guess is right or wrong.

Also, let the player "give in" at any time. If the player gives in, the computer should print the punch line.

• Write a program that makes the computer tell other kinds of jokes, such as riddles.

Lorraine Hopping

WRITE YOUR OWN JOKE

DIRECTIONS: Write your own knock knock joke in the space below. Add it to the program.

1.					
2.		2			
3.					
4.					
5.	3 <u></u>				

PASSOVER BREAD WORKSHEET

PASSOVER

BEGINS IN APRIL OR MARCH

NAME:

Passover is a Jewish holiday that lasts for seven to eight days. It starts on the 15th day of the Hebrew month Nissan. During Passover, Jews celebrate the escape of their ancestors, the Israelites, from Egypt. The escape took place more than 3000 years ago. The Israelites secretly fled from Egypt because the Egyptians had forced them to become slaves.

Jews celebrate Passover with a feast called a Seder (sād-er). At the Seder, the story of the Israelites' escape is read aloud. Food that symbolizes, or stands for, their flight from Egypt is placed on the table. One of the most important foods is unleavened (flat or unraised) bread called matzah. According to the Bible, the Israelites left Egypt in such a hurry that they did not have time to let their bread rise. They made flat, unleavened bread instead.

You can make *matzah* on the Logo screen. Follow these steps.

WHAT TO DO

1. Load Logo into your computer. (You can use almost any version of Logo.)

2. Type in the following BREAD and HOLE procedures exactly as they appear.

TO BREAD

REPEAT 2 [FD 100 RT 90 FD 139 RT 90] END

TO HOLE

REPEAT 10 [FD 1 RT 36] END

3. Type BREAD and press RETURN or EN-TER to see the outline of the *matzah*. Type HOLE

and press RETURN or ENTER to see the hole.

4. Combine the BREAD and HOLE procedures into a new procedure called MATZAH. The MATZAH procedure should draw the picture of *matzah* at below.

MATZAH CHALLENGE

During the Seder, the father of the family breaks a piece of *matzah* in half. He hides one half of the bread somewhere in the house. The first child to find the piece of broken *matzah* wins a prize. Can you break the *matzah* on the Logo screen exactly in half?

Lorraine Hopping

Use Logo to make a piece of matzah bread. Here's how the matzah looks on a computer screen.

Permission

EASTER

FIRST SUNDAY FOLLOWING FIRST FULL MOON AFTER MARCH 20

EASTER Q U I C K T I P S

DECORATE LOGO EASTER EGGS

The Easter bunny meets the Logo turtle. That's one way to describe this Apple Logo program. The program lets students use Logo turtle graphics to decorate egg shapes. A special INSTANT procedure in the program makes it especially appealing for younger users. This procedure lets kids move the turtle by pressing only one key. For instance, to move the turtle back 10 spaces, the user presses the "B" key rather than typing BK 10.

Boot up Apple Logo and enter the listing. To get the turtle on the screen, a student types INSTANT. When the student presses the "E" key, the turtle draws an egg. The student decorates the egg by using one-key commands that tell the turtle to pick its pen up and to move to a different spot on the egg. Using two more one-key commands, the student tells the turtle to put its pen down and to draw a shape.

Following is a list of the 15, onekey commands used in the program and an explanation of what each one does: "E" draws an egg; "A" draws a star; "T" draws a triangle; "S" draws a square; "O" draws a small circle; "H" sends the turtle to the center of the screen; "U" picks up the pen; "D" puts down the pen; "F" moves the turtle forward 10 spaces; "B" moves the turtle back 10 spaces; "G" randomly changes the background to any of the six colors in Apple Logo; "P" randomly changes the pen color to any of the six colors in Apple Logo; "R" turns the turtle right 15 degrees; "L" turns the turtle left 15 degrees; "C" clears the screen.

Make a list of these commands and

IF : X = "O[O]IF :X = "H [HOME]IF :X = "U [PENUP] IF :X = "D [PD]IF : X = "F [FD 10]IF : X = "B [BK 10]IF :X = "R [RT 15] IF : X = L [LT 15]IF :X = "C [CS]IF :X = "P [CHANGEPC] IF :X = "G [CHANGEBG] END TO CHANGEBG MAKE "COLOR REMAINDER :COLOR +16SETBG :COLOR END TO CHANGEPC MAKE "COLOR REMAINDER :COLOR +16SETPC : COLOR END TO SQ REPEAT 4[FD 20 RT 90] END TO STAR REPEAT 5[FD 20 RT 144] END TO TRI REPEAT 3[FD 20 RT 120] END TO O REPEAT 45[FD 2 RT 8] END TO EGG SETSCRUNCH 1.5 REPEAT 360 [FD 1 RT 1] SETSCRUNCH .75 END

Joanne Davis

WISH STUDENTS A HAPPY EASTER

If you have an Atari computer, greet your students with a computerized Easter message. The BASIC program below displays HAPPY EAS-TER, the name of one of your students, and FROM YOUR FRIEND THE EASTER BUNNY in graphics mode on the monitor. A few seconds later it repeats this message but replaces the student's name with the name of another student.

To use the program, type in the listing below. When you reach line 800, type the word DATA and substitute the names CAROL, TIM, ELLEN, FRED, for your students' names. List the names one after the other, separating each by a comma. Type in CLASS as the last name. (Line 70 tells the computer to display the names again when it reaches CLASS.) To stop the display, press the BREAK key. 10 DIM A\$(100), Z\$(100) 20 GRAPHICS 18:SETCOLOR 2,4,8 30 POSITION 0,1:? #6;" " 40 POSITION 1,3:? #6;" HAPPY EASTER 50 POKE 77,0

- 60 READ A\$
- 70 IF A\$="CLASS" THEN RESTORE 800
- 80 POSITION 0,7:? #6; " FROM YOUR FRIEND"
- 90 POSITION 0,9:? #6: " THE EASTER BUNNY"
- 100 FOR X=1 TO 6
- 110 POSITION 7.5:? #6: "
- 120 FOR W = 1 TO 100:NEXT W
- 130 POSITION 7,5:? #6;A\$
- 140 FOR W = 1 TO 300:NEXT W
- 150 NEXT X
- 160 POSITION 7,5:? #6;A\$:FOR W=1 TO 800:NEXT W:GOTO 60
- 800 DATA CAROL, TIM, ELLEN, FRED, CLASS

Jim Alvaro

GRAPH A BAG OF JELLY BEANS

Give your students a lesson on how to read graphs using an old-time Easter favorite-jelly beans. The only tools you'll need for the lesson are a bag of jelly beans and this Apple bar graph.

Assign students to work in pairs. Give each pair a handful of jelly beans to sort by color. Have them count the number of beans in each color. These amounts are the data students will use in the program.

When students run the program, the computer asks for the number of categories in the graph. Tell students to enter the number of different colored beans in their supply. Next, the computer asks for a color word (i.e. red, black, white) for each category and the number of their jelly beans that are each color. After students have entered this information, the computer displays the data in a bar graph on the monitor and makes a printout of the display.

- 10 HOME:CLEAR
- 20 INPUT "WHAT IS THE TITLE OF YOUR GRAPH?":T\$
- 30 PRINT: INPUT "HOW MANY CATEGO-RIES ARE IN THIS GRAPH?":NC:HOME
- 40 FOR Z=1 TO NC
- 50 PRINT: PRINT "ENTER THE COLOR OF CATEGORY ":Z;"."
- 60 INPUT ST\$(Z)
- 70 PRINT: PRINT "ENTER THE AMOUNT OF ";ST\$(Z);" JELLY BEANS.":INPUT AMT(Z) 80 NEXT Z

```
90 HOME: PRINT T$
```

100 FOR Z = 1 TO NC 110 PRINT ST\$(Z)

- 120 FOR N=1 TO AMT(Z)
- 130 IF AMT(Z) = 0 THEN PRINT " "
- 140 PRINT "O";

150 NEXT N

- 160 PRINT: PRINT: NEXT Z
- 170 PR#0:VTAB 23:INPUT "PRESS RE-TURN TO CONTINUE.":Z\$
- 180 HOME:PRINT "DO YOU WANT TO MAKE A PRINTOUT OF THE GRAPH?"

190 INPUT Q\$

- 200 IF Q\$="N" OR "NO" THEN END
- 210 PRINT: INPUT "MAKE SURE YOUR PRINTER IS READY AND PRESS RE-TURN.":Z\$

220 PR#1:GOTO 90

After students have created a color graph, they can create a flavor graph. Start by having students bite into each of their jelly beans. Point out to students that one color bean might have two different tastes. For example, some white jelly beans taste like pineapple, while other white jelly beans taste like coconut. After students have sampled their beans, have them total up the number of beans that fell into each flavor category. Tell students to run the graph program again, substituting their flavor data wherever color data is called for.

Now have students compare the two graphs they've made. Are there more color categories or flavor categories? Which has more: the red category or the cherry category?

Richard Devir

SARA AND TED'S JELLY BEANS		
RED	0000000000	
BLACK	0000000	
WHITE	00000	
YELLOW	000000000000	
) 2 4 6 8 10 12	

BASIC program that creates a simple | Students graph the number of colored jelly beans in a jar.

pring is here, the weather is warmer, and kids are getting ready to ride their bicycles once again. Before they take those two-wheelers out of the garage, however, bikers need to be reminded of the bicycle safety rules that govern the road.

To make bike enthusiasts aware of the bicycle safety rules they must obey, the National Safety Council has designated the third week in April as National Bicycle Safety Week. During this week, use this *Bicycle Safety* program with your students to remind them of a few bicycle safety rules.

HOW THE PROGRAM WORKS

The *Bicycle Safety* program presents five potentially hazardous biking situations. In each situation, students must choose between four possible courses of action. If they make the right choices, they proceed easily and safely to their final destination. If they make any incorrect decisions, they run into complications (*e.g.* loss of time, minor crashes) along the way.

INTRODUCING THE PROGRAM these situat these situat these situat these situat the transformation of accidents involving the transformation of transformation of the transformation of transformation o

bicycles occur each year. Almost half of them happen to kids under 14 years old. Many of these accidents could have been avoided if the children involved had followed a few simple safety rules.

Hang up the bicycle safety miniposter on the next page. Discuss each of the rules with the class. Demonstrate hand signals for stopping and turning.

USING THE PROGRAM

Type in and save the *Bicycle Safety* program listed on pages 138 and 139. Have students go through the program individually.

When students have finished, review the five rules covered in the program: (1) Keep the bike in working order; (2) Coast on slippery pavement; (3) Give pedestrians the rightof-way; (4) Never carry passengers on the handlebars; (5) Obey traffic signs and signals.

Ask if anyone can think of other bike-riding situations in which riders must make safety decisions. If you have experienced programmers in your class, have them incorporate these situations into the *Bicycle Safety* program.

| SOURCES FOR ADDITIONAL | INFORMATION

The following companies and associations offer free or low-cost materials on bicycle safety.

American Automobile Assoc., Falls Church, VA 22042; 703/222-6000. Call or write for the location of your local branch. Local branches have free printed matter and posters.
Lutheran Brotherhood, 701 Sec-

Data Protection of the second secon

Michigan Ave., Chicago, IL 60611; 312/527-4800. Ask for the free "Bicycle Safety" packet.

• Schwinn Bicycle Co., Consumer Relations Dept., 1856 N. Kostner Ave., Chicago, IL 60639; 312/292-2900. Ask for free pamphlets on bicycle safety.

• U.S. Consumer Product Safety Commission, Washington, DC, 20207; 800/638-2666 (outside Maryland) or 800/492-2937 (Maryland residents). Ask for free pamphlet "Bicycling: Fun With Safety."

Richard Bollinger

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THIRD WEEK IN APRIL

NATIONAL BIKE SAFETY WEEK

The kids above use bicycle hand signals to turn right, to turn left, and to stop.

1. Keep your bicycle in good shape. Check the brakes, handlebars, seat, chain, and tires regularly.

2. Ride defensively. Watch out for cars, motorcycles, and other bikers.

3. Obey all traffic signs, signals, road markings, and laws. Use bicycle lanes whenever possible.

4. Ride with the traffic and not against it. Stay near the curb or shoulder of the road.

5. Use legal hand signals for turning and stopping. (See illustration.)

6. At intersections, slow down, clothes and use a liplook and listen, and give cars and tors on your bicycle.

pedestrians the right-of-way. Walk your bike across busy streets.

7. Watch for drain gates, soft shoulders, slippery pavement, and other hazards.

8. Watch for car doors opening and for cars pulling into traffic from side streets and parking spaces.

9. When biking with others, ride in single file.

10. Do not carry passengers or packages in front of you. They can block your line of vision.

11. At night, wear bright-colored clothes and use a light and reflectors on your bicycle.

PROGRAM LISTING FOR BICYCLE SAFETY

This program listing is for use on Apple computers. To convert the program for use on Atari, Commodore, and

BICYCLE SAFETY 01985 SCHOLASTIC INC. 10 REM CLEAR : HONE PRINT " YOU ARE GETTING READY TO RIDE YOUR" 20 30 PRINT "BIKE OVER TO YOUR FRIEND JENNY'S HOUSE." 40 PRINT "WHAT DO YOU DO FIRST?" PRINT : PRINT " 1 CHECK THE PRESSURE IN THE TIRES." PRINT " 2 MAKE SURE THE HANDLEBARS AND SEAT" 50 60 70 PRINT "ARE TIGHT." 80 PRINT " 3 TEST THE BRAKES." PRINT " 4 ALL OF THE ABOVE." 90 100 GOSUB 1000 110 IF AF = "1" THEN GOSUB 2000 120 IF AS = "2" THEN GOSUB 2100 130 IF AS - "3" THEN GOSUB 2200 140 PRINT " ALL PARTS CHECK OUT FINE AND YOU" PRINT "START TO RIDE DOWN THE STREET. YOU SEE" 150 160 PRINT "A PILE OF WET LEAVES IN YOUR PATH. IT'S" PRINT "TOO LATE TO AVOID THEM. WHAT DO YOU DO?" PRINT : PRINT " 1 COAST THROUGH THE LEAVES, READY TO" 170 180 190 PRINT "BRAKE IF NEEDED." PRINT " 2 BRAKE HARD IMMEDIATELY." 200 210 PRINT " 3 DO A WHEELIE OVER THE LEAVES." 220 PRINT " 4 NOTHING SPECIAL." 230 GOSUB 1000 IF A# < > "1" THEN GOSUB 2300 IF A# = "1" THEN PRINT " YOU COAST THROUGH THE LEAVE S SAFELY." 240 250 260 YOU APPROACH A BUSY INTERSECTION. YOU" 270 PRINT " PRINT "WANT TO TURN LEFT. WHAT DO YOU DO?" PRINT : PRINT " 1 GET OFF YOUR BIKE AND WALK ACROSS" 280 290 PRINT "THE INTERSECTION." 300 PRINT " 2 SIGNAL FOR A LEFT TURN AND PROCEED." PRINT " 3 MOVE LEFT SLOWLY BEFORE TURNING." PRINT " 4 STOP IN THE MIDDLE OF THE INTER-" 310 320 330 PRINT "SECTION. THEN TURN QUICKLY." 340 GOSUB 1000 350 IF AS < > "1" THEN GOSUB 2400 PRINT " YOU CONTINUE DOWN THE STREET. YOU SEE" 360 370 PRINT "A PEDESTRIAN WALKING IN THE CROSSWALK." 380 PRINT "HE DOESN'T SEE YOU. WHAT DO YOU DO?" 390 PRINT : PRINT " 1 GO AROUND HIM QUICKLY." PRINT " 2 RING YOUR BELL. THEN GO AROUND HIM." 400 410 PRINT " 3 STOP AND LET HIM PASS." PRINT " 4 RIDE ONTO THE SIDEWALK." 420 430 440 GOSUB 1000 GOSUB 1000 IF AS = "1" OR AS = "2" THEN GOSUB 2500 IF AS = "4" THEN GOSUB 2600 PRINT " YOU ARRIVE AT JENNY'S HOME. SHE WANTS" PRINT "TO RIDE ON YOUR HANDLEBARS. WHEN IS IT" 450 460 470 480 PRINT "SAFE FOR SOMEONE TO RIDE ON HANDLEBARS?" 490 PRINT : PRINT " PRINT " 1 WHENEVER THERE IS ENOUGH ROOM." 2 ANYTINE, AS LONG AS THE BIKE IS IN" 500 510 PRINT PRINT "GOOD CONDITION." 520 PRINT " 3 WHEN THE RIDER IS HALF YOUR WEIGHT." PRINT " 4 NEVER." 530 540 550 GOSUB 1000 IF AS < > "4" THEN GOSUB 2700 PRINT " IT'S TIME FOR YOU TO LEAVE. ON THE" 560 570 PRINT "WAY BACK, YOU SEE WORKERS PUTTING IN A" PRINT "STOP SIGN. WHAT DO YOU DO?" 580 590 PRINT : PRINT " 1 KEEP GOING." 600 PRINT " 2 STOP AND GET OFF THE BIKE." PRINT " 3 SIGNAL THAT YOU ARE GOING TO STOP" 610 620 PRINT "BEFORE STOPPING." 630 PRINT " 4 SPEED UP SO THAT THE WORKERS DON'T" 640 PRINT "SEE YOU PASS." 650 GOSUB 1000 660 IF As = "1" OR As = "4" THEN GOSUB 2800 IF As = "2" THEN GOSUB 2900 PRINT " YOU ARRIVE HOME SAFELY....": END 670 680 690 REN ENTER ANSWER 1000 PRINT : PRINT "ENTER THE NUMBER OF THE BEST ANSWER AND" 1010 PRINT "PRESS (RETURN)." 1020 1030 INPUT AS IF AS < > "1" AND AS < > "2" AND AS < > "3" AND AS < > "3" AND AS < > "4" THEN 1030 1040 HOME : RETURN 1050 REN CHECK PRESSURE 2000 PRINT " YOU CHECK THE TIRES AND THEN PROCEED" 2005 PRINT "DOWN THE DRIVEWAY. YOU ARE HAVING" 2010 PRINT "TROUBLE STEERING. YOUR HANDLEBARS ARE" PRINT "LOOSE! THE BIKE GOES OUT OF CONTROL AND" 2020 2030 PRINT "YOU RUN OVER THE CURB INTO A BUSH. YOU" 2040

Radio Shack computers, see the Program Conversions, page 155.

PRINT "WALK BACK TO THE HOUSE AND TIGHTEN THE" 2050 PRINT "HANDLEBARS AND SEAT. YOU ALSO CHECK THE" 2060 PRINT "BRAKES BEFORE RIDING. PRESS (RETURN)." 2070 2080 INPUT ZS: HOME : RETURN REN CHECK HANDLEBARS AND SEAT 2100 PRINT " THE HANDLEBARS AND SEAT ARE FINE. YOU" 2110 PRINT "THE HANDLEBARS AND SEAT ARE FIRE. TOU PRINT "RIDE INTO THE STREET. NEARING A STOP" PRINT "SIGN, YOU SIGNAL FOR A STOP AND APPLY" PRINT "THE BRAKES. THE BRAKES DON'T WORK! FOR-" PRINT "TUNATELY, NO CARS ARE AROUND. YOU" 2120 2130 2140 2150 PRINT "MANAGE TO STOP THE BIKE AND WALK IT" 2160 PRINT "HOME. YOU BORROW YOUR SISTER'S BIKE." 2170 PRINT "THIS TIME, YOU REMEMBER TO CHECK ALL" 2180 PRINT "PARTS BEFORE RIDING. PRESS (RETURN)." 2190 INPUT Z#: HOME : RETURN 2195 REN CHECK BRAKES 2200 PRINT " THE BRAKES WORK FINE. HALF WAY TO" 2210 PRINT "JENNY'S HOUSE, YOU NOTICE THAT THE REAR" 2220 2230 PRINT "TURE IS LOW. YOU WALK THE BIKE TO THE" PRINT "NEAREST GAS STATION, TWO MILES AWAY." 2240 PRINT "AFTER FILLING THE TIRE WITH AIR, YOU" 2250 PRINT "CHECK THE HANDLEBARS AND SEAT TO MAKE" 2260 PRINT "SURE THEY ARE TIGHT. PRESS (RETURN)." 2270 INPUT Z#: HOME : RETURN 2280 2300 REN WET LEAVES PRINT " YOU HIT THE LEAVES AND SKID OUT OF" 2310 PRINT "CONTROL, NEARLY SMASHING INTO A CAR." 2320 PRINT "YOU BRUSH YOURSELF OFF AND REMEMBER" 2330 PRINT "THAT COASTING AND PREPARING TO BREAK IS" 2340 PRINT "THE SAFEST WAY TO PROCEED ON SLIPPERY" PRINT "OR LOOSE ROADS. PRESS (RETURN)." 2350 2360 2370 INPUT Z#: HOME : RETURN 2400 REN BUSY INTERSECTION PRINT " HONK! HONK! AS YOU ARE TURNING, A BIG" 2410 PRINT "TRUCK NEARLY HITS YOU. NEXT TIME YOU" 2420 2430 PRINT "MUST CROSS & BUSY INTERSECTION, YOU" PRINT "WILL REMEMBER TO WALK THE BIKE ACROSS." 2440 PRINT "PRESS <RETURN>.": INPUT 24: HOME : RETURN 2450 2500 REM PEDESTRIAN IN CROSSWALK PRINT " JUST AS YOU START TO GO AROUND THE" 2510 PRINT "PEDESTRIAN, HE LOOKS UP. HE JUMPS IN" PRINT "THE WRONG DIRECTION, TRYING TO AVOID" 2520 2530 PRINT "YOU. CRASH YOU KNOCK HIN DOWN. FOR-" PRINT "TUNATELY HE IS OKAY. YOU APOLOGIZE AND" 2540 2550 PRINT "HELP HIN TO HIS FEET. YOU REMEMBER TOO" 2560 2570 PRINT "LATE THAT THE PEDESTRIAN HAS THE RIGHT" PRINT "OF WAY. PRESS <RETURN>." INPUT Z#: HOME : RETURN 2580 2590 REM ON SIDEWALK 2600 PRINT " YOU RIDE UP THE CURB AND ONTO THE" 2610 PRINT "SIDEWALK. A WORAN APPEARS SUDDENLY FRON" PRINT "AROUND THE CORNER. YOU TURN SHARPLY TO" 2620 2630 PRINT "AVOID HER AND CRASH INTO SOME BUSHES." 2640 PRINT "YOU REMEMBER TOO LATE THAT BIKES BELONG" 2650 PRINT "IN THE STREET. NEXT TIME, YOU WILL STOP" PRINT "AND LET PEDESTRIANS CROSS THE STREET" 2660 2670 PRINT "FIRST. PRESS (RETURN)." 2680 INPUT ZO: HOME : RETURN 2690 REM RIDE ON HANDLEBARS 2700 PRINT " JENNY CLIMBS ON THE HANDLEBARS AND" 2710 PRINT "YOU START DOWN THE DRIVEWAY. THE BIKE" 2720 PRINT "STARTS TO WOBBLE. JUST AS YOU ARE ABOUT" 2730 PRINT "TO FALL, JENNY'S MOTHER COMES RUNNING" 2740 PRINT "OUT OF THE HOUSE AND STEADIES THE BIKE." 2750 PRINT "AS JENNY GETS DOWN, HER NOTHER REMINDS" 2760 PRINT "YOU THAT RIDING ON HANDLEBARS IS ALWAYS" 2770 PRINT "DANGEROUS. PRESS (RETURN)." 2780 INPUT ZS: HOME : RETURN 2790 2800 REM STOP SIGN 2810 PRINT " THE WORKERS SPOT YOU AS YOU GO BY." PRINT "THEY REMIND YOU THAT YOU MUST OBEY ALL" 2820 PRINT "TRAFFIC SIGNS AND LIGHTS, JUST AS CARS" 2830 PRINT "DO. PRESS (RETURN)." 2840 INPUT 24: HOME : RETURN 2850 REN SIGNAL STOP 2900 PRINT " YQU STOP SHARPLY. AS YOU ARE GETTING" PRINT "OFF THE BIKE, A CAR PULLS UP BEHIND" 2910 2920 PRINT "YOU. THE DRIVER REMINDS YOU THAT YOU" PRINT "MUST SIGNAL WITH YOUR HANDS BEFORE" 2930 2940 PRINT "STOPPING. SHE ALSO MENTIONS THAT YOU" 2950 PRINT "DON'T HAVE TO GET OFF YOUR BIKE WHEN" 2960 2970 PRINT "YOU STOP. PRESS (RETURN)."

INPUT 24: HOME : RETURN

2980

NATIONAL FITNESS AND SPORTS MONTH

MONTH OF MAY

L & O & G & O O L V N P I C S

Celebrate the 1984 Summer Olympics with four gold-medal Logo activities. The activities also will help students "go that extra mile" in developing language arts and math skills.

ay is National Fitness and Sports month. What could be more *fit*ting than to celebrate with a takeoff on the Summer Olympic Games?

With the help of this Logo teaching unit, you'll be able to challenge students to sprint faster than speeding turtles, to leap turtle hurdles in a single bound, and to last the duration in a grueling Maraturtlethon! They'll also get a chance to light a Logo Olympic torch, to create five Logo designs in a special Logo event called the Penturtlethon, and to write their own procedures for Olympic Minute commercials.

All of these activities will develop your students' Logo programming skills. But that's not all! The events will also help students learn research and writing skills, estimation, angles, slope, geometry, and problem solving. You can use almost all versions of Logo for the Logo Olympics events. Popular Logo versions include Commodore, Krell, and Terrapin Logos (all are licensed by MIT; Krell and Terrapin Logos run on Apple computers); Apple and Atari Logos (developed by Logo Computer Systems, Inc.); TI Logo (Texas Instruments); and Color Logo (Tandy/Radio Shack). So what are you waiting for? Help kids go that extra mile with Logo.

EVENT 1 Olympic Minute

Subject: Language Arts (Writing, Research Skills)

Objective: Students use the Logo text screen to write short fact files on events and contenders in the Summer Olympics.

Prerequisites: Students must know how to use the PRINT command and to define procedures.

Preparation: Gather reference materials on Summer Olympics, including books, magazine and newspaper articles, and pamphlets.

Olympic Minutes are 60-second television spots containing interesting facts on an Olympic contender or event. A good way for students to learn more about the Summer Olympics is to have them create Olympic Minutes of their own.

Have students use your Olympic resources to find important facts about contenders or events in past or future Summer Olympics. Tell them to organize these facts into Olympic Minute procedures. The procedures should present less than one reading minute of material on the Summer Olympics. Here's an example: TO OLYMPIC.MINUTE.1 PRINT [DID YOU KNOW THAT MUHAM-MAD ALI, ONCE]

PRINT [KNOWN AS CASSIUS CLAY, WON THE GOLD]

PRINT [MEDAL FOR BOXING IN ROME, ITALY,]

PRINT [DURING THE 1960 SUMMER OLYMPICS?]

PRINT [MUHAMMAD ALI LATER BE-CAME THE HEAVYWEIGHT]

PRINT [BOXING CHAMPION OF THE WORLD.]

END

After students have entered their facts, have them add illustrations, flashing borders, or animated sprites.

Call up Olympic Minutes between other Logo Olympic events or at the beginning and end of each day you conduct your Logo Olympics.

Students can also use the Olympic Minutes to create data base files on athletes and sports events. For example, they could type in the word WOMEN.GYMNASTICS and have Logo respond with the Olympic Minutes that provide information on that event. Here is a possible WOMEN.-GYMNASTICS program:

TO WOMEN. GYMNASTICS

OLYMPIC.MINUTE.22

OLYMPIC.MINUTE.31

END

TO OLYMPIC.MINUTE.22

PRINT [WOMEN COMPETE IN THE FOL-LOWING]

PRINT [GYMNASTICS EVENTS: VAULT, UNEVEN]

PRINT [BARS, BALANCE BEAM, FLOOR EXERCISE,]

PRINT [RHYTHMIC, AND THE ALL-AROUND EVENT]

PRINT [WHICH COMBINES ALL OF THESE SKILLS.]

END

TO OLYMPIC.MINUTE.31

PRINT [MARY LOU RETTON WAS THE FIRST]

PRINT [AMERICAN WOMAN TO WIN AN INDIVIDUAL]

PRINT [OLYMPIC GYMNASTICS MEDAL. SHE WON]

PRINT [THE WOMEN'S ALL-AROUND GOLD MEDAL AT]

PRINT [THE 1984 SUMMER OLYMPICS.] END

Subject: Math (Estimation, Time, and Measurement Skills)

Objective: Students maneuver the Logo turtle around racetracks and over hurdles.

Prerequisites: Students must be able to use FORWARD, BACK, RIGHT, and LEFT commands.

Preparation: Make one screen-size transparency of each racecourse illustrated on the opposite page. Tape Racecourse 1 to the computer screen. Boot Logo into your computer and move the turtle to the starting line for the beginning of the first race.

The Turtle Track events consist of maneuvering the Logo turtle around progressively more difficult racecourses. The object of each race is to complete the course, from start to finish, as quickly and as accurately as possible. To do this, students will have to use FORWARD, BACK, LEFT, and RIGHT commands. If the turtle steps off the track three times in the race, the student must start over.

Turtles, take your mark, get set, go!

Use a stopwatch to time students, starting from the moment they touch the keyboard. Make bronze, silver, and gold medals out of aluminum foil and construction paper, and award them to the three fastest competitors in each event.

Use Racecourse 1 for the following events: 100 meter race (a quarter of the track); 200 meter race (half the track); 400 meter race (once around); 800 meter race (twice around); and 400 meter relay (each member of a four-person team moves the turtle one-quarter of the track). Allow each student a practice run to get the "feel" of the course. Students should discover that using as few turtle commands as possible and staying as close as they can to the inside of the track will result in a more efficient run and better time.

Conduct separate events for the 200, 400, and 800 meter races and the 400 meter relay.

A relay is an event in which each member of a team completes part of the course. Competitors carry a baton around their portion of the racetrack and then pass the baton to the teammate who will run next. In the Turtle Relay, students must switch places at the computer when the turtle arrives. The intervals are marked with dotted and solid lines on the track.

The next Turtle Track event is the Turtle Hurdles. Hurdle events are a little harder, because students must determine a path to clear the hurdles, without "tripping" over them, and then touch the "ground" at least once before clearing the next hurdle. The more hurdles, the harder the event.

Students can compete in the 110 meter hurdles (three hurdles), the 200 meter hurdles (six hurdles), and the 400 meter hurdles (10 hurdles). Use Racecourse 2 for the 110 meter hurdles and the 200 meter hurdles, and Racecourse 3 for the 400 meter hurdles.

Allow students time to practice "jumping" the hurdles. Encourage students to write a hurdle procedure in which the turtle clears a hurdle, lands on the "ground," and races the appropriate distance to the next turtle hurdle.

Once again, conduct timed races, adding one second to a competitor's score for each hurdle his or her turtle touches.

The final Turtle Track event, the Maraturtlethon, provides practice at more intricate turtle movement. Tape Racecourse 4 to the screen and position the turtle at the starting line. Students try to stay on the course by manipulating the turtle through hairpin turns, a dense forest, and rocky roads.

Students light the torch by using Logo to create steps with the proper slope. In this example, a student reached the torch on the third try.

EVENT 3 Light the Torch

Subject: Math (Slope, Estimation) **Objective:** Students explore slope (the slant of a line) by programming the turtle to climb steps and light a torch.

Prerequisites: Students must be able to use FORWARD, BACK, RIGHT, and LEFT commands and to define procedures.

Preparation: Type in the *Light the Torch* program for your Logo version. (*See next page.*) The program listing labeled LCSI Logo is for Atari and Apple Logos; the MIT listing is for Commodore, Krell, and Terrapin Logos.

Have students use rulers to measure the height and depth of steps in the school. What makes some steps easier to climb than others? (*The* shorter the height from step to step, the easier they are to climb.) Have students use Logo to draw steps. Start with single turtle movement commands, such as FD 20 RT 90 FD 20 LT 90 FD 20. Then use the RE-PEAT command to make several steps, such as REPEAT 10 [FD 20 RT 90 FD 20 LT 90].

Now have students create a STEP procedure, such as:

TO STEP

FD 20 RT 90 FD 20 LT 90

END

To run the procedure, students type STEP.

Now challenge students to write a STEP procedure with variables that will allow them to create steps of any depth and breadth. Here's one possible example:

TO STEP :UP :OVER

FD :UP RT 90 FD :OVER LT 90

END

To run this procedure, students type

STEP followed by two numbers: the first for the distance up, and the second for the distance over.

Tell students to make steps from the lower-left to the upper-right corner of the screen.

Once students have had a chance to explore various inputs in the STEP procedure, have them play Light the Torch. Type SETUP to begin the game. Logo will draw a torch at a random location in the upper-right corner and then place the turtle at a random location in the lower-left corner. Students type STEP followed by two numbers: the first for the distance up, and the second for the distance over. The turtle creates steps based on the student's input values. If the steps reach the torch, the turtle lights it. If not, the turtle returns to the starting position and waits for new input numbers.
PROGRAM LISTING FOR LIGHT THE TORCH

Directions: Type in the listing for your Logo version and follow the program instructions discussed on page 143.

MIT Version (Commodore, Krell, Terrapin) LCSI Version (Apple, Atari) TO SETUP TO SETUP TORCH.STAND TORCH.STAND TURTLE.STAND TURTLE.STAND END END TO TORCH.STAND TO TORCH.STAND PU SETX (100 - RANDOM 50) PU SETX (100 - RANDON 50) SETY (100 - RANDOM 50) SETY (100 - RANDOM 50) PD SETH 90 STAND PD SETH 90 STAND END END TO STAND TO STAND REPEAT 2 (FD 30 RT 120) FD 30 BK 30 LT 60 FD 10 LT 90 REPEAT 2 (FD 30 RT 120) FD 30 BK 30 LT 60 FD 10 LT 90 FD 10 FD 10 MAKE "X XCOR MAKE "X XCOR MAKE "Y YCOR MAKE "Y YCOR CORNER CORNER LT 90 FD 20 LT 90 FD 10 LT 90 FD 10 PU LT 90 FD 20 LT 90 FD 10 LT 90 FD 10 PU END END TO CORNER TO CORNER REPEAT 8 (FD 3 RT 45) REPEAT 8 [FD 3 RT 45] END END TO TURTLE.STAND TO TURTLE. STAND PU SETX ((RANDON 30) - 120 PU SETX ((RANDOM 30) - 120) SETY (RANDON 30) - 60 SETY ((RANDOM 30) - 60) SETH O SETH O MAKE "TX XCOR MAKE "TX XCOR MAKE "TY YCOR MAKE "TY YCOR PD PD END END TO GOBACK TO CHECK :UP :OVER IF (:X - XCOR) < 10 [CHECK.Y :UP :OVER STOP] PU SETX :TX SETY :TY SETH O PD IF YCOR > (:Y + 10) (PRINT (TRY AGAIN) GOBACK STOP] END (STEP :UP :OVER) FND TO FIRE PU SETX :X SETY :Y SETH O TO CHECK.Y :UP :OVER FD 10 RT 90 FD 10 LT 90 FD 26 RT 60 PD REPEAT 7 (FLAME LT 20) IF XCOR > (:X + 10) (PRINT (TRY AGAIN) GOBACK STOP) IF YCOR > (:Y + 10) [PRINT [TRY AGAIN] GOBACK STOP] RT 75 PRINT (YOU GOT IT!) IF (:Y - YCOR) < 10 (FIRE STOP) (STEP :UP :OVER) END END TO GOBACK TO FLAME PU SETX :TX SETY :TY SETH O PD RT 5 FD 15 LT 10 FD 15 RT 10 BK 15 LT 10 BK 15 RT 5 END END TO STEP :UP :OVER TO FIRE PU SETX :X SETY :Y SETH O FD :UP RT 90 FD :OVER LT 90 FD 10 RT 90 FD 10 LT 90 FD 26 RT 60 PD CHECK :UP :OVER REPEAT 7 (FLAME LT 20) FND RT 75 PRINT LYOU GOT IT!] TO CHECK :UP :OVER END IF (:X - XCOR) < 10 CHECK, Y :UP :OVER STOP IF YCOR > (:Y + 10) PRINT [TRY AGAIN.] GOBACK STOP TO FLAME ELSE STEP :UP :OVER RT 5 FD 15 LT 10 FD 15 RT 10 BK 15 LT 10 BK 15 RT 5 END END TO STEP :UP :OVER TO CHECK.Y :UP :OVER FD :UP RT 90 IF XCOR > :X + 10 PRINT [TRY AGAIN.] GOBACK STOP IF YCOR > :Y + 10 PRINT (TRY AGAIN.) GOBACK STOP FD :OVER LT 90 CHECK :UP :OVER IF :Y - YCOR < 10 FIRE STOP ELSE STEP :UP :OVER END END

EVENT

144



EVENT 4 Penturtlethon

Subject: Math (Geometry, Problem Solving)

Objective: Student teams create five geometric shapes.

Prerequisites: Students must be able to define procedures for squares, triangles, rectangles, circles, and stars.

Preparation: Draw each of the five Logo designs at right on separate sheets of paper. Give each student a copy.

Explain to students that the modern pentathlon is an Olympic event that includes five sports: swimming, shooting, horseback riding, fencing, and running. (*Penta* stands for five.) The Penturtlethon contains five events, too. These events require the construction of five designs that students create, first out of paper,

and then on the screen with the Logo turtle.

Have student teams of two or three cut out different-size squares, rectangles, triangles, circles, and stars from construction paper or felt. They then use these shapes to construct each of the five Logo designs in the box below. Have teams describe in words how they make each design, step by step. Here's how a student team could describe how to make a star design.

To Make a Star Design:

First find five stars that are all the same size.

Then put one point of each star together on the same spot.

The stars should all be exactly the same distance apart.

That's all.

When student teams have finished creating the designs on paper, they are ready to transfer them to the Logo screen. Encourage them to write "building block" procedures to create squares, rectangles, stars, circles, triangles, and other shapes of any size. (See box for sample procedures.) Students then combine these procedures with other procedures to create the more intricate Logo designs.

Remind students that there are many possible solutions to creating the shapes with Logo, just as there are many ways to piece them together on paper. Note that each solution given for a design on the opposite page is only one of many possibilities.

When each team has completed the five projects, bring in a panel of judges — an art teacher, a math teacher, and a Logo teacher, for example — to judge team entries on a scale of one (lowest) to 10 (highest). Categories can include accuracy of overall design, quality of paper design and description, use of color, and quality of procedures.

Tom Lough, Steve Tipps, and Rebecca Poplin





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MOTHER'S DAY

MOTHER'S DAY Q U I C K T I P S

MAKE A BOOKMARK FOR MOM

With this BASIC program, construction paper, and strips of ribbon, your students can make attractive bookmarks to give their moms on Mother's Day

First type the program below into the computer. When a student runs the program, the computer tells the printer to print out the word MOM. The word MOM is actually made up of smaller words that spell out HAPPY MOTHER'S DAY. (See illustration.) Have each student make two printouts of the display.

This listing is for use on Apple II computers. To run the program on Radio Shack computers, change HOME to CLEAR 5000 in line 10; remove PR#1 and PR#0 in lines 20 and 110 respectively; and change PRINT in lines 20, 30, 40, 50, 60, 70, 80, 90, and 100 to LPRINT.

- 10 HOME:PRINT "TURN YOUR PRINTER ON AND PRESS RETURN OR ENTER." :INPUT P\$
- 20 PR#1:PRINT:PRINT"HAPP APPY": PRINT "HAPP APPY"
- 30 PRINT " AP YH PP":PRINT "AP PP"
- 40 PRINT "HAPP APPY":PRINT "HAP-P APPY"
- 50 PRINT:PRINT " MOTHER'S":PRINT " MOTHER'S"
- 60 PRINT " MO 'S":PRINT " MO 'S"
- 70 PRINT " MOTHER'S":PRINT " MOTH-ER'S"
- 80 PRINT:PRINT "DAYD DAY!":PRINT "DAYD DAY!"
- 90 PRINT " AY AY AY":PRINT " AY AY"
- 100 PRINT "DAYD DAY!":PRINT "DAYD DAY!"
- 110 PR#0:PRINT "DO YOU WANT TO MAKE ANOTHER PRINTOUT? (Y/N)." :INPUT Q\$
- 120 IF Q\$="Y" THEN 10 END

To complete the bookmarks, have each child cut out two 1-by-3-inch rectangles from construction paper.



Then give every child two $\frac{1}{2}$ -by-5inch strips of ribbon and have them glue the strips between the two rectangles, leaving four inches of each ribbon dangling from the bottom of the rectangles. Tell students to trim their printouts to fit on the rectangles and to glue one printout to each side.

Before students present the bookmarks to their moms, have them decorate the printouts with flowers and hearts.

GENERATE MOTHER'S DAY POEMS

This BASIC program helps students write poems about mom for Mother's Day. It also drills kids on the parts of speech.

When a student runs the program,

the computer first asks for two adjectives that describe the child's mother. After entering the adjectives, the student is told to type in three verbs ending in *-ing* that are representative of his or her mother. Next, the computer asks for a four-word description of the poet's mom. To complete the poem, the student must insert a noun that reminds him or her of mom. Once the poem is finished, the computer tells the user to turn the printer on and then proceeds to print out the poem.

This listing is for use on Apple II computers. To run the program on Radio Shack computers, change HOME to CLEAR 5000 in line 10; remove PR#1 and PR#0 in lines 70 and 100 respectively; and change PRINT to LPRINT in lines 70, 80, 90, and 100. REM MOM

- 10 HOME
- 20 PRINT:PRINT "TYPE IN TWO ADJEC-TIVES THAT DESCRIBE YOUR MOTH-ER AND PRESS RETURN OR ENTER." :INPUT A\$
- 30 PRINT:PRINT "TYPE IN THREE VERBS ENDING IN 'ING' THAT DESCRIBE YOUR MOM AND PRESS RETURN OR ENTER.":INPUT V\$
- 40 PRINT:PRINT "TYPE IN A FOUR-WORD PHRASE THAT DESCRIBES YOUR MOTHER AND PRESS RETURN OR EN-TER.":INPUT P\$
- 50 PRINT:PRINT "INSERT A NOUN THAT DESCRIBES YOUR MOM AND PRESS RETURN OR ENTER.":INPUT N\$
- 60 PRINT:PRINT "TURN YOUR PRINTER ON AND PRESS RETURN OR ENTER." :INPUT R\$
- 70 PR#1:PRINT:"MOTHER"
- 80 PRINT:PRINT A\$:PRINT:PRINT V\$
- 90 PRINT: PRINT P\$: PRINT: PRINT N\$
- 100 PRINT:PRINT:PRINT "HAPPY MOTH-ER'S DAY!":PR#0

Tell kids to glue their poems onto the inside of homemade Mother's Day cards.

Jean Tennis

MAKE A COMPUTER PENCIL HOLDER WORKSHEET

MOTHER'S DAY

SECOND SUNDAY IN MAY

NAME:

DIRECTIONS: The pattern below makes a nifty pencil holder in the shape of a computer. Follow the steps to put it together. Then give it to Mom on Mother's Day.

1. Look at the three blanks on the pattern. Write the name of the computer part that goes in each blank.

2. Cut out the pattern along the solid lines.

3. Fold dotted lines in the directions indicated.

4. Fold down the lettered tabs.

5. Match tabs with the same letters. Glue each set of matching tabs together.

6. Put tape along corners and any other areas that look like they

need to be stronger.

7. Give the pencil holder to your mom with a card that says "Happy Mother's Day!"



MICRO NINE AUTO RACE WORKSHEET

MEMORIAL DAY

LAST MONDAY IN MAY

NAME:

Memorial Dav n weekend, race car drivers will compete in the Indianapolis 500 auto race. They will drive their cars 500 miles at speeds up to 200 miles per hour.

More than 350,000 people will attend the race. If you aren't one of them. don't feel left out. We've created an auto race just for you.

We call our race the MICRO NINE, because it takes place on a computer screen, and because there are nine cars in it. To get ready for the race, all you need to do is type in the program listing on this page.

So, ladies and gentlemen, start your computers, type in the program listing, get ready, and RUN!

WHAT TO DO

Put your computer in BA-SIC. Type in the MICRO NINE program listing. Type RUN and press RETURN or ENTER.

The race cars will zoom up the screen. When the race stops, the car you see on the screen is the winner. The winner will change from race to race.

MICRO NINE PROGRAM LISTING

This program works for most types of computers. If you have a TRS-80 Model I/III or a Radio Shack Color Com-

puter, change line 40 to 40 NUMBER = RND(9) and leave out lines 190, 200, 220, and 230.10 NUMBER = 020 LAP = 030 FOR LAP = 1 TO 1040 NUMBER =INT(9*RND(1)) + 150 PRINT "000 000" 60 PRINT "000 000" 70 PRINT "000******000" 80 PRINT " ******** 90 PRINT " ** 100 PRINT-" ** # ";NUMBER;" **" 110 PRINT " ** 120 PRINT " ********* ******* 130 PRINT " 140 PRINT "000******000" 150 PRINT "OOO !!!!! 000" 160 PRINT "OOO !!! 000" 170 PRINT " 1" 180 PRINT 190 PRINT 200 PRINT 210 NEXT LAP 220 PRINT 230 PRINT 240 PRINT "THE WINNER IS ... # ":NUMBER:"!" 250 END

MICRO NINE CHALLENGES



How many of these programming challenges can vou do? If you do them all, take the Micro Nine Superchallenge.

• Use a clock or a stopwatch to time the race. How long does it take from start to finish?

• The race runs for 10 laps. Change the number of laps to 50. Now how long does the race take?

• Run the race 10 times. Write down the number of the winner of each race:

Race 1:
Race 2:
Race 3:
Race 4:
Race 5:
Race 6:
Race 7:
Race 8:
Race 9:
Race 10:
Which racer won the most
races?
• Add 10 more cars.

MICRO NINE SUPERCHALLENGE

May is also the time for the Kentucky Derby horse race. Write a BASIC program that races horses on the screen.

COPY

ELECTRONIC FORTUNE TELLER WORKSHEET

END OF SCHOOL

MAY OR JUNE

NAME:

Summer's almost here. Do you know what's in store for you? Consult our *Electronic Fortune Teller* program to find out!

WHAT TO DO

1. Put your computer in BASIC.

2. Type in the *Electronic Fortune Teller* program listing. (If you are using an Atari computer, Color Computer, or TRS-80 Model III, remember to make the changes listed at the end of the program.)

3. Type RUN and press RETURN or ENTER.

ELECTRONIC FORTUNE TELLER PROGRAM LISTING

10	PRINT "

20	PRINT " MADAME BEEP
	'S *"
30	PRINT " · CRYSTAL BALL CO
	MPUTER *"
40	PRINT " **************

50	PRINT : PRINT "PRESS <return></return>
	FOR YOUR SUMMER FORTUNE."
60	INPUT ZS
70	PRINT : PRINT " I'M GAZING IN
	TO MY CRYSTAL BALL"
80	FOR D = 1 TO 5000: NEXT D
90	PRINT : PRINT " I SEE "
100	FOR D = 1 TO 4000: NEXT D
110	PRINT
120	P = INT (3 * RND (1)) + 1
130	ON P GOSUB 160,230,290
140	PRINT : PRINT " PLEASE COME
140	PRINT : PRINT " PLEASE COME

	AGAIN SOON"
150	END
160	PRINT "A ROON!IT'S A
	BEDROOM IT'S A"
170	PRINT "VERY MESSY BEDROOM
	SOMEONE IS CLEAN-"
180	PRINT "ING THE ROOM I SEE
	THAT IT'S"
190	FOR D = 1 TO 10000: NEXT D
200	PRINT " YOU! YOU WILL SPEND
	THE SUMMER"
210	PRINT "CLEANING YOUR ROOM!"
220	RETURN
230	PRINT " A BASEBALL FIELD!
	YOU ARE AT BAT."
240	PRINT "THE BALL IS PITCHED
	.IT'S A"
250	FOR $D = 1$ TO 6000: NEXT D
260	PRINT : PRINT " HOME RUN!
	I PREDICT THAT YOU WILL"
270	PRINT "HIT A HOME RUN THIS SU
	MMER."
280	RETURN
290	PRINT "A BIG STAGE!IT
	'S A CONCERT. I"
300	PRINT "CAN'T MAKE OUT THE STA
	RWAIT!"
310	PRINT " IT'S IT'S "
320	FOR D = 1 TO 10000: NEXT D
330	PRINT "YOU! YOU'LL BE A BIG S
	TAR THIS SUMMER!"
340	RETURN

Note: If you are using an Atari computer, add this line: 1 DIM Z\$(1)

If you are using a Color Computer or a TRS-80 Model III, change line 120 to 120 RANDOM:P = RND(3)

FORTUNE TELLER SUPERCHALLENGE

Make your own predictions for this summer, both good and bad. Then add them to the program. (Hint: Change the 3 in line 120 to the total number of predictions. Add a subroutine for each new prediction.)

May all your good predic – tions come true!

MY SUMMER PREDICTIONS

DIRECTIONS: Write your own predictions below. Add them to the program.

3			

PROGRAM CONVERSIONS

HOW TO CONVERT PROGRAM LISTINGS TO OTHER MACHINES

Some of the program listings in this book are specific to one computer brand. The following program conversions tell you how to convert these listings for use on other computer brands. For more details on how to use commands, refer to your user's manual.

EMERGENCY! (page 6, Apple)

Atari Series

1. Change line 20 to: 20 PRINT CHR\$(125):CLR

2. Add these lines:

25 DIM FD\$(10), PD\$(10), AM\$(10), DO\$(10), MD\$(10)

26 DIM NE\$(10),FI\$(10),Z\$(1),A\$(2),P\$(10)

3. Change HOME to PRINT CHR\$(125) in lines 300, 420, 530, 650, 770, 900, 1020, 1150, and 1250.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 2030 INPUT A\$: IF A\$<>"1" AND A\$<>"2" AND A\$<>"3" THEN 2030

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 300, 420, 530, 650, 770, 900,

1020, 1150, and 1250.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 5000

2. Change HOME to CLS in lines 300, 420, 530, 650, 770, 900, 1020, 1150, and 1250.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 150, 170, 190, 210, 230, 250, 280, 290, 410, 520, 640, 760, 890, 1010, 1140, 1240, and 2020.

WHAT'S FOR BREAKFAST? (page 12, Apple)

Atari Series

Editor's Note: The *What's For Breakfast?* program relies on the use of the subscripted string variable FI\$(F) to display the 12 breakfast foods and keep track of the three foods that the user has chosen. Because this type of variable functions differently in Atari BASIC, Atari conversions are too complicated to include.

Commodore 64

1. Change HOME to PRINT CHR\$(147) in lines 580, 690, 830, 970, and 1510.

2. Substitute the following lines for corresponding lines in the Apple program listing.

20 PRINT CHR\$(147):CLR:F = 12

1020 CLOSE 3:PRINT:PRINT "BON APPETIT, ";N\$;"....":END

20080 INPUT Z\$:IF Z\$<>"Q" THEN OPEN 3,4 3. Add this line:

675 IF Q\$="1" THEN OPEN 3,3

4. Change PRINT to PRINT#3, in lines 690 to 980 and lines 2000 to 13030. (Note: Don't forget the comma after #3. No space after PRINT.)

TRS-80 Model III

1. Change HOME to CLS in lines 580, 690, 830, 970, and 1510.

2. Substitute the following lines for corresponding lines in the Apple program listing.

20 CLS: CLEAR 5000: F = 12

- 1020 CMD "Z", "OFF": PRINT "BON APPETIT, "; N\$; "....": END
- 20080 INPUT Z\$:IF Z\$<>"Q" THEN CMD "Z", "ON"

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 220, 300, 330, 370, 410, 650, 830, 970, 20050, and 20070.

COMPUTER FIRE DRILL (page 32, Apple)

Atari Series

1. Change line 20 to: 20 PRINT CHR\$(125):CLR:DIM A\$(2),Z\$(2)

2. Change HOME to PRINT CHR\$(125) in lines 810, 940, and 2040.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 2030 IF A\$<>"1" AND A\$<>"2" THEN 2020

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 810, 940, and 2040.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 1000

2. Change HOME to CLS in lines 810, 940, and 2040.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 930 and 2010.

RESCUE MUFFIN (page 35, Apple)

Atari Series

1. Change line 20 to: 20 PRINT

CHR\$(125):CLR:DIM A\$(2),Z\$(1)

2. Change HOME to PRINT CHR(125) in lines 520, 670, and 1040.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 1030 IF A\$<>"1" AND A\$<>"2" THEN 1020

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT

2. Change HOME to PRINT CHR\$(147) in CHR\$(147):CLR

lines 520, 670, and 1040.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 1000

2. Change HOME to CLS in lines 520, 670, and 1040.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 660 and 1010.

COMPUTERIZED VOTING BOOTH

(page 58, Apple)

Atari 800, 800XL

Editor's Note: The *Computerized Voting Booth* program relies on the use of the subscripted string variable CN\$(N) to record and display the candidate's names. Because this type of variable functions differently in Atari BASIC, Atari conversions are too complicated to include.

Commodore 64

1. Change HOME to PRINT CHR\$(147) in lines 200, 270, 370, 660, 750, 830, and 910.

2. Change line 20 to: 20 PRINT CHR\$(147):CLR

TRS-80 Model III

1. Change HOME to CLS in lines 200, 270, 370, 660, 750, 830, and 910.

2. Substitute the following lines for corresponding lines in the Apple program listing.

20 CLS:CLEAR 32000

30 DIM G(50), BG(50), CND(50), C(50)

40 DIM GC(50), BC(50), G1(50), G2(50), G3(50), G4(50) 890 PRINT "TYPE 'R' TO REVIEW THE RE-SULTS OR 'E' TO END THE PROGRAM." 900 PRINT "THEN PRESS ENTER."

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 260, 310, 420, 470, 740, and 820.

4. Add this line: 925 IF Z\$<>"E" THEN 910

Note: The standard TRS-80 Model III with 48K of memory allows for only 50 voters (lines 30 and 40 in the program listing). If your machine has additional memory space, the program can accommodate additional voters.

ELECTRONIC MAILBOX (page 62, Apple)

Atari Series

Editor's Note: The *Electronic Mailbox* program relies on the use of subscripted string variables, including W\$(X), M\$(X), and S\$(X), to keep track of and display the valentines. Because this type of variable functions differently in Atari BA-SIC, Atari conversions are too complicated to include.

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 150, 200, 260, and 370.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 5000

2. Change HOME to CLS in lines 150, 200, 260, and 370.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 250 and 360.

COMPUTER BLOOD BANK (page 93, Apple)

Atari Series

1. Change line 20 to: 20 PRINT CHR\$(125):CLR:DIM R\$(30),I\$(2),RB\$(3),D\$(30), DB\$(3),RH\$(2),DH\$(3),CH\$(3)

2. Change HOME to PRINT CHR\$(125) in lines 70, 190, 220, 340, 390, 460, and 600.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 720 IF CH\$<>"3" THEN 3120

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 70, 190, 220, 340, 390, 460, and 600.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 5000

2. Change HOME to CLS in lines 70, 190, 220, 340, 390, 460, and 600.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 60, 170, 250, 680, 1050, and 2030.

4. Change line 510 to: 510 RANDOM: X = RND(100)

BLACK AMERICAN HISTORY QUIZ (page 98, Apple)

Atari Series

1. Change line 20 to: 20 PRINT CHR\$(125): CLR:P=4:DIMZ\$(1),A\$(25), C\$(50),G\$(25)

2. Change HOME to PRINT CHR\$(125) in

lines 170, 280, and 320.

3. Remove quotation marks from DATA statements in lines 1000 to 1300. For example: 1000 DATA HARRIET TUB-MAN. Eliminate the comma in lines 1070, 1170, and 1190.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 410 INPUT Z\$:IF Z\$<>"Y" AND Z\$<>"N" THEN 410

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147): CLR:P=4

2. Change HOME to PRINT CHR\$(147) in lines 170, 280, and 320.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 5000:P=4

2. Change HOME to CLS in lines 170, 280, and 320.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 110, 260, 300, 360, and 410.

DENTAL CHECK-UP (page 101, Apple)

Atari Series

1. Substitute the following lines for corresponding lines in the Apple program listing.

20 PRINT CHR\$(125):CLR:DIM N\$(40),Z\$(1), C\$(2)

860 GRAPHICS 3:SETCOLOR 4,12,4:FOR D=1 TO 1000:NEXT D:GRAPHICS 0:PRINT CHR\$(125)

1440 SOUND 3,100,6,8:FOR D=1 TO 100: NEXT D:SOUND 3,0,0,0

2. Change HOME to PRINT CHR\$(125) in lines 200, 1350, 1490, and 10040.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 960 IF C \leq =SC+1 THEN SC=SC+1

Commodore 64

1. Substitute the following lines for corresponding lines in the Apple program listing.

20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 200, 1350, 1490, and 10040.

3. Substitute these lines for corresponding lines in the Apple program listing.

860 POKE 53281,0:FOR D = 1 TO 1000:NEXT D:POKE 53281,7:PRINT CHR\$(147)

1440 POKE 54296,8:POKE 54273,47:POKE 54272, 107:POKE 54276,33:FOR D = 1 TO 100:NEXT D:POKE 54276,0

VIC-20

1. Make the changes listed in steps 1 and 2 for the Commodore 64.

2. Substitute the following lines for corresponding lines in the Apple program listing.

860 POKE 36879,8:FOR D = 1 TO 1000:NEXT D:POKE 36879,27:PRINT CHR\$(147)

1440 POKE 36878,8:POKE 36876,155:FOR D = 1 TO 100:POKE 36878,0

TRS-80 Model III

1. Change line 20 to: 20 CLS:CLEAR 1000

2. Change HOME to CLS in lines 200, 1350, 1490, and 10040.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 90, 190, 850, 1330, 1480, 1670, 10020.

4. Delete lines 860 and 1440.

Color Computer

1. Make the changes listed in steps

1, 2, and 3 for the TRS-80 Model III.

2. Substitute the following lines for corresponding lines in the Apple program listing.

860 SCREEN 1,1:FOR D=1 TO 1000:NEXT D:CLS

1440 PLAY "A"

BICYCLE SAFETY (page 136, Apple)

Atari Series

1. Change line 20 to: 20 PRINT CHR\$(125): CLR:DIM A\$(2),Z\$(1)

2. Change HOME to PRINT CHR\$(125) in lines 1050, 2080, 2195, 2280, 2370, 2450, 2590, 2690, 2790, 2850, and 2980.

Note: Do not put spaces between greater than, less than, and equal signs. For example: 250 IF A\$<>"1" THEN GOSUB 2300

Commodore 64, VIC-20

1. Change line 20 to: 20 PRINT CHR\$(147):CLR

2. Change HOME to PRINT CHR\$(147) in lines 1050, 2080, 2195, 2280, 2370, 2450, 2590, 2690, 2790, 2850, and 2980.

TRS-80 Model III, Color Computer

1. Change line 20 to: 20 CLS:CLEAR 1000

2. Change HOME to CLS in lines 1050, 2080, 2195, 2280, 2370, 2450, 2590, 2690, 2790, 2850, and 2980.

3. Change "PRESS RETURN" to "PRESS ENTER" in lines 1020, 2070, 2190, 2270, 2360, 2450, 2480, 2680, 2780, 2840, and 2970.

WORKSHEET ANSWERS

Following are answers to the reproducible worksheets in this book.

CORNY CORNSTALK!

(page 21)

There are many ways to do the exercises on this sheet. Here is a sample program to make an entire cornfield. TO CORNFIELD HT RT 90 FD 277 LT 90 CORNSTALK 14 SETH 0 BK 95 RT 90 FD 60 LT 90 CORNSTALK 14

SETH 0 BK 95 LT 90 FD 120 RT 90 CORNSTALK 14 END TO CORNSTALK :S RLEAF :S IF :S > 10 RCORN LLEAF :S IF :S > 10 LCORN FD :S IF :S \leq 6 TASSEL STOP CORNSTALK :S-1 END

Note: Apple Logo users add brackets around RCORN, LCORN, and TASSEL STOP.

```
TO RLEAF :S
REPEAT 2 [RT 30 FD :S]
RT 60 FD :S
BK :S LT 60
REPEAT 2 [BK :S LT 30]
END
```

```
TO LLEAF :S
REPEAT 2 [LT 30 FD :S]
LT 60 FD :S
BK :S RT 60
REPEAT 2 [BK :S RT 30]
END
```

TO RCORN RT 90 REPEAT 2 [FD 4 LT 45 FD 12 LT 45 FD 4 LT 90] SETH 0 END

TO LCORN LT 90 REPEAT 2 [FD 4 RT 45 FD 12 RT 45 FD 4 RT 90] SETH 0 END TO TASSEL LT 45 REPEAT 6 [FD 10 BK 10 RT 20]

JOHNNY'S APPLE TREE

(page 22)

Here is the completed TREE procedure:

TO TREE GROUND TRUNK BRANCHES END

CARVE A PUMPKIN

(page 49)

Here is a sample program to turn the pumpkin into a jack-o'-lantern.

10	HOME					
20	PRINT "		****			
30	PRINT "	##**				
40	PRINT "	000 ## 000"				
50	PRINT "	000 0	##0	000"		
60	PRINT "	00		00'	•	
70	PRINT "	0		()"	
80	PRINT " O				0"	
90	PRINT "O				0"	
100	PRINT "O				0"	
110	PRINT "O				0"	
120	PRINT "O				0	
130	PRINT "O				0	
140	PRINT "O				0"	
150	PRINT "	00			00"	
160	PRINT "	000		000	o	
170	PRINT "	00000	0000000	0000"		
180	FOR D =	1 TO 3000				
190	NEXT D					
200	HOME					
210	PRINT "		##"			
220	PRINT "		**"			
230	PRINT "	000) ## 00	0"		
240	PRINT "	000	0##0	000*		
250	PRINT "	* * * *		* * *		
260	PRINT "	0		,		
270	PRINT "	0 ***		••	0	
280	PRINT "O	***			0	
290	PRINT "O				0	
300	PRINT "O		•		0	
310	PRINT "O				0	
320	PRINT "O	U			0	
330	PRINT "O	U		U	0	
340	PRINT "	00	0 0	0.00	00.	
350	PRINT "	000		000	J	
360	PRINT "	0000	000000	0000		
370	END					

PARTS OF A COMPUTER WORKSHEET 1 (page 50)

1. Monitor or CRT; 2. Disk drive; 3. Printer; 4. Cassette recorder; 5. Keyboard or CPU.

PARTS OF A COMPUTER WORKSHEET 2 (page 51)



PLOTTING SQUARES WORKSHEET 1 (page 52)



PLOTTING SQUARES WORKSHEET 2 (page 53)

A. 3,3; B. 4,6; C. 13,10; D. 9,2; E. 10,5; F. 13,3.

HALLOWEEN GRID (page 54)

Q: What did the robot dress up as on Halloween? A: Little Boo Beep!

END

FIND THE COMPUTERS (page 73)



THANSKGIVING MENU READER (page 74)

1. Turkey, white meat, no gravy; 2. Roasted ham, no mustard; 3. Turkey, dark meat, no gravy; 4. Boiled ham, mustard; 5. Turkey, dark meat, gravy;

SOFTWARE WORKSHEET 1

(page 84) 1. Cassette; 2. Disk; 3. Cartridge; 4. Card.

SOFTWARE WORKSHEET 2 (page 85)



CHRISTMAS FLOWCHART (page 86) START GET SUPPLIES: GLUE, GLITTER, SCISSORS, PENCIL, CLOTHESPIN, OAKTAG PAPER DRAW OUTLINE OF A STAR ON THE OAKTAG CUT OUT STAR GLUE GLITTER SPRINKLES TO FRONT OF STAR DOES STAR HAVE NO ENOUGH GLITTER YES GLUE THE BACK OF THE STAR TO A CLOTHESPIN CLIP STAR TO A CHRISTMAS TREE BRANCH DO YOU WANT TO MAKE ANOTHER ORNAMNENT? YES END WINTER PUZZLE (page 89) Here are two drawings that can be made with the puzzle shapes:

WINTER MICRO PUZZLE (page 90)

The winter greeting is "Bundle up."



LUCKY FLOWCHART (page 129)

This is one way to structure the flowchart. Other answers are possible.



SHEEP COUNTER (page 130)

To make the program count 100 sheep, change line 10 to: 10 FOR SHEEP=1 TO 100.

To make the program count sheep backward, change line 10 to: 10 FOR SHEEP = 100 TO 1 STEP -1.

To count sheep by fives, change line 10 to: 10 FOR SHEEP = 1 TO 100 STEP 5

PASSOVER SYMBOLS (page 133)

This program will create the *matzah* picture on the Logo screen. Other solutions to the exercise are possible.

TO MATZAH HT BREAD SETY 20 ROW SETX 0 SETY 40 ROW SETX 0 SETY 60 ROW SETX 0 SETY 80 ROW END

TO BREAD REPEAT 2 [FD 100 RT 90 FD 139 RT 90] END

TO ROW SETH 90 REPEAT 6 [PU FD 20 PD HOLE] PU END

TO HOLE REPEAT 10 [FD 1 RT 36] END

INDEX

Auto Race Worksheet, 149 Better Breakfast Month What's for Breakfast?, 12 Beulah's Brew, 38 Bicycle Safety: A Program Listing, 136 Black American History Quiz, 98 Black History Month Black American History Quiz, 98 Carve a Pumpkin Worksheet, 49 Christmas Christmas Flowchart Worksheet, 86 Christmas and Hanukkah Quick Tips, 87 A Computer Carol, 81 Software Worksheets 1 and 2, 84 Word Processing Activities for Hanukkah and Christmas, 76 Christmas and Hanukkah Quick Tips, 87 Christmas Flowchart Worksheet, 86 Columbus Dav Columbus Day Flowchart Game, 36 Columbus Day Flowchart Game, 36 Computer Blood Bank Program, 94 Computer Books for Children, 65 A Computer Carol, 81 A Computer Fire Drill Program, 32 Computer Graphics Program, 118 **Computer Learning Month** Test Your Students' Computer I.Q., 24 Computer Operator's License, 27 October Quick Tips, 55 Computer Operator's License, 27 Computer Pencil Holder Worksheet, 148 Computerized Valentines, 110 Conduct Your Own Election, 58 Corny Cornstalk Worksheet, 21 Dental Check-Up, 101 Dental Health Month Dental Check-Up, 101 Easter Easter Quick Tips, 134 Easter Quick Tips, 134 Election Dav Conduct Your Own Election, 58 Electronic Mailbox Program, 62 Emergency, 6 **Emergency Care Month** Emergency, 6 End of March Sheep Counter Worksheet, 130 End of School Fortune Teller Worksheet, 150 Fall Begins

Corny Cornstalk Worksheet, 21 February Folklore, 104 February Quick Tips, 114 Find the Computers Worksheet, 73 Fire Prevention Week A Computer Fire Drill Program, 32 Rescue Muffin, 35 First Day of Winter Winter Micro Puzzle, 90 Winter Puzzle Worksheet, 89 Follow a Neighborhood Map, 16 Fortune Teller Worksheet, 150 Groundhog Day February Folklore, 104 February Quick Tips, 114 Halloween Beulah's Brew, 38 Carve a Pumpkin Worksheet, 49 Halloween Grid Worksheet, 54 Halloween Homophones, 45 Logo Haunted House, 40 October Quick Tips, 55 Parts of a Computer Worksheets 1 and 2, 50 Play the Lo-Ghost Game!, 42 Plotting Squares Worksheets 1 and 2, 52 The Witch and the Computer, 46 Halloween Grid Worksheet, 54 Halloween Homophones, 45 Hanukkah Christmas and Hanukkah Quick Tips, 87 Word Processing Activities for Hanukkah and Christmas, 76 Instant Invitations Worksheet, 112 Johnny Appleseed's Birthday Johnny's Apple Tree Worksheet, 22 Johnny's Apple Tree Worksheet, 22 Knock Knock Joke Worksheet, 132 Labor Day Robots: How They Work For Us, 18 Letter From a Star Worksheet, 64 Lincoln's Birthday February Folklore, 104 February Quick Tips, 114 Logo Haunted House, 40 Logo Olympics, 140 Make a Lucky Flowchart Worksheet, 129 Martin Luther King, Jr.'s Birthday Write a Biography of Martin Luther King, Jr., 95 Memorial Day Auto Race Worksheet, 149 Months of the Year Data Base, 92 Mother's Day

INDEX

Mother's Day Quick Tips, 147 Computer Pencil Holder Worksheet, 148 Mother's Day Quick Tips, 147 Music in Our Schools Month Projects Using Music Software, 126 National Bicycle Safety Week Bicycle Safety: A Program Listing, 136 National Blood Donor Month Computer Blood Bank Program, 93 National Children's Book Week Computer Books for Children, 65 National Children's Book Week Quick Tips, 67 National Children's Book Week Quick Tips, 67 National Fitness and Sports Month Logo Olympics, 140 National Humor Month Knock Knock Joke Worksheet, 132 National Letter Writing Week Electronic Mailbox Program, 62 Instant Invitations Worksheet, 64 National Neighborhood Day Follow a Neighborhood Map, 16 National Newspaper Week Publish a Classroom Newspaper, 28 New Year Months of the Year Data Base, 92 October Quick Tips, 55 Parts of a Computer Worksheets 1 and 2, 50 Passover Passover Worksheet, 133 Passover Worksheet, 133 Play the Lo-Ghost Game, 42 Plotting Squares Worksheets 1 and 2, 52 Program Conversions, 151 Program Listings Bicycle Safety, 136 Black American History Quiz, 98 Computer Blood Bank, 94 Computer Fire Drill, 32 Computerized Voting Booth, 58 Dental Check-Up. 101 Easy Draw, 118 Electronic Mailbox, 62 Emergency, 6 Light the Torch, 140 Rescue Muffin, 35 Town Map, 16 What's For Breakfast?, 12 Projects Using Music Software, 126 Publish a Classroom Newspaper, 28 Rescue Muffin, 35 Robots: How They Work For Us, 18 St. Patrick's Day

Make a Lucky Flowchart Worksheet, 129 Sheep Counter Worksheet, 130 Software Worksheets 1 and 2, 84 Test Your Students' Computer I.Q., 24 Thanksgiving Find the Computers Worksheet, 73 Thanksgiving Menu Reader Worksheet, 74 Thanksgiving Quick Tips, 71 Word Processing Task Cards for Thanksgiving, 68 Thanksgiving Menu Reader Worksheet, 74 Thanksgiving Quick Tips, 71 Valentine's Day **Computerized Valentines** February Quick Tips, 114 February Folklore, 104 Instant Invitations Worksheet, 112 Washington's Birthday February Folklore, 104 February Quick Tips, 114 What's For Breakfast?, 12 Winter Micro Puzzle, 90 Winter Puzzle Worksheet, 89 The Witch and the Computer, 46 Word Processing Activities for Hanukkah and Christmas, 76 Word Processing Task Cards for Thanksgiving, 68 Worksheet Answers, 156 Worksheets Auto Race, 149 Carve a Pumpkin, 49 Christmas Flowchart, 86 Computer Pencil Holder, 148 Corny Cornstalk, 21 Find the Computers, 73 Fortune Teller, 150 Halloween Grid, 54 Instant Invitations, 112 Johnny's Apple Tree, 22 Knock Knock Joke, 132 Letter From a Star, 64 Make a Lucky Flowchart, 129 Parts of a Computer (1 and 2), 50 Passover, 133 Plotting Squares (1 and 2), 52 Software (1 and 2), 84 Thanksgiving Menu Reader, 74 Winter Micro Puzzle, 90 Winter Puzzle, 89 World Series October Quick Tips, 55 Write a Biography of Martin Luther King, Jr., 95 Youth Art Month Computer Graphics Program, 118

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On page 61, the final lines of "Computerized Voting Booth" are missing, but a very similar program can be found in the October 1984 issue of Teaching and Computers magazine. Lines 520-560 from the Commodore 64 version below probably represent the intended ending.



20

TEACHING AND COMPUTERS . OCTOBER 1984

HOW TO CONVERT T & C PROGRAMS TO OTHER MACHINES

ELECTION '84,

(Commodore 64)

Machine	Lines	Conversion		200	Change line to INPUT	
Apple	1, 30, 80,	Change PRINT CHR\$(147)			M: $CND(V) = M$: IF M< >1 AND M- >2 THEN 190.	
	470, 530		PET- VIC-20	70,410, 470	Change line to PRINT "PRESS ANY KEY THEN	
Atari	1, 30, 80, 250, 410, 470, 530	Change PRINT CHR\$(147) to PRINT CHR\$(125).			PRESS RETURN TO BEGIN VOTING." (PET only.)	
	1	Add 1 DIM CODE\$(1), 2\$(1), X\$(1).		10	Change line to 10 DIM G(100), BG (100), CND(100), (This	
	10	Change line to DIM G			it holds 100 votes.)	
		(500), BG (500), CND(500). (This changes the program so it holds 500 votes.) Change line to INPUT N(G(V) = N: IF N +8 OR N+ 1 THEN 100.	VIC-20 users line.	, rewrite PRINT	statement to 22 characters per	
			TRS-80 Models I	1, 30, 80,	Change PRINT CHR\$(147) to CLS.	
			III. 4	470, 530		
				10	Change line to	
	150	Change line to INPUT NN: BG(V) = NN: IF NN: -<2 AND NN: -<1 THEN 130.			DIM G(500). BG (500). CND(500). (This changes the program so it holds 500 votes.)	