mecc

early addition

instructional computing courseware
for the **apple**® **II** computer

a product from the series
mastering math

mecc

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INTRODUCTION

Early Addition is designed for first and second grade students and focuses on whole number addition objectives commonly taught in first and second grade. Early Addition presents drills that reinforce and reward correct recall of math facts and calculation of problems with game-like graphic sequences. Both vertical and horizontal problem formats are used. The programs are carefully sequenced according to level of difficulty. The package keeps records on individual student performance, which are accessible through a Teacher Option.

Students can exit a program at any time by pressing the ESCAPE key (ESC) twice.

Early Addition is the first package in MECC's Mastering Math Series. Other packages are available for drill in whole number operations, as shown in the table below.

Three supplementary packages, Mastering Math Diagnostic System (No. A-149), Mastering Math Management System (No. A-150), and Mastering Math Worksheet Generator (No. A-151), are available for use with the entire series.

MECC'S MASTERING MATH SERIES

Package Title	Grade Level	Oper-ation	Types of Problems
1. Early Addition (No. A-788)	1-2	+	Addition facts and missing addends
2. Circus Math (No. A-109)	2-3	+	Addition problems with no regrouping
3. Addition Logician (No. A-125)	3	+	Addition problems with regrouping
4. Space Subtraction (No. A-145)	1-3	-	Subtraction facts and problems with no regrouping
5. Subtraction Puzzles (No. A-146)	3	-	Subtraction problems with regrouping
6. Multiplication Puzzles (No. A-147)	3-4	x	Multiplication facts, missing factors, no regrouping, and regrouping
7. Quotient Quest (No. A-148)	4	÷	Division facts, no remainders, and remainders

BACKGROUND INFORMATION

Early Addition provides drill and practice on the whole number addition objectives shown in the chart below. Problems matching these objectives are grouped together into six programs in varying frequency and according to level of difficulty. Early Addition is based on a mastery concept. Each objective group has a mastery percentage level. If a student meets this mastery level, the student is ready to move on to the objective group found in the next program; if not, the student needs to repeat the program.

Records of student performance are kept so the teacher can know whether the student has achieved mastery or needs additional help. (The teacher may view student records by using the Teacher Option. See page 5.)

WHOLE NUMBERS - ADDITION ITEM FORMS

Objective Number	Description	Sample Problem(s)	
WA1	Fact; sum ≤ 10	$\begin{array}{r} 4 \\ +\ 3 \\ \hline \end{array}$	$5 + 5 = \underline{\quad}$
WA2	Fill in missing addend; sum ≤ 10; facts		$3 + \underline{\quad} = 7$
WA3	Zero plus a single-digit number	$0 + 7 = \underline{\quad}$	$\begin{array}{r} 1 \\ +\ 0 \\ \hline \end{array}$
WA4	Fill in missing addend; one of the addends is zero	$\underline{\quad} + 4 = 4$	$0 + \underline{\quad} = 7$
WA5	Fact; sum between 11 and 18	$\begin{array}{r} 9 \\ +\ 8 \\ \hline \end{array}$	$9 + 4 = \underline{\quad}$
WA6	Fill in missing addend; sum between 11 and 18; facts		$4 + \underline{\quad} = 11$
WA7	Zero and a 2-digit addend	$\begin{array}{r} 0 \\ +76 \\ \hline \end{array}$	$16 + 0 = \underline{\quad}$
WA8	Three addends; first step sum < 10	$\begin{array}{r} 6 \\ 1 \\ +\ 5 \\ \hline \end{array}$	

2

BACKGROUND INFORMATION (continued)

Objective Groups

Early Addition has three Level 1 and three Level 2 programs. Each Level 1 program contains objectives roughly corresponding to those covered in first grade. These are sequenced in order of difficulty from SURPRISE PACKAGE through BALLOON SHOOT. Each Level 2 program contains objectives roughly corresponding to those covered in the first half of second grade. These are carefully sequenced from CREATE A CREATURE through FROG RACE.

Level 1 Programs	Level 2 Programs
1. SURPRISE PACKAGE	4. CREATE A CREATURE
2 BUILD A PLANE	5. FIRE FIGHTERS
3. BALLOON SHOOT	6. FROG RACE

Each objective within a program is assigned a frequency percentage which indicates how often it will appear in the program. These are shown in the charts on the following page. For example, a student working on SURPRISE PACKAGE receives drill on both Whole Number Addition Objectives (WA1) and (WA3), with about 95 percent of the problems being WA1 and the remaining 5 percent WA3.

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* The original Arithmetic Drill and Practice program had seven levels corresponding to grades 1 through 7.

The chart below contains the following data:

1. objective group number;
2. the number of problems presented by a program;
3. the mastery level for the group of objectives in that program;
4. a list of the objectives in the program and the percentage of frequency with which each occurs;
5. a brief overall description of the content of the group of objectives in the program.

LEVEL 1 PROGRAMS

1. SURPRISE PACKAGE
Objective Group 1
20 problems   90% mastery

Obj.	%	Obj.	%
WA1	95	WA3	5

Fact, sum ≤ 10

2. BUILD AN AIRPLANE
Objective Group 2
20 problems   90% mastery

Obj.	%	Obj.	%	Obj.	%
WA1	40	WA2	50	WA3	5
WA4	5				

Facts, missing addends

3. BALLOON SHOOT
Objective Group 3
20 problems   90% mastery

Obj.	%	Obj.	%	Obj.	%
WA1	20	WA2	40	WA3	5
WA4	5	WA8	30		

Fact, missing addends, adding two multiples of 10

LEVEL 2 PROGRAMS

4. CREATE A CREATURE
Objective Group 1
24 problems   90% mastery

Obj.	%	Obj.	%
WA5	80	WA6	20

Fact, sum 11-18

5. FIRE FIGHTERS
Objective Group 2
25 problems   90% mastery

Obj.	%	Obj.	%	Obj.	%
WA8	60	WA5	10	WA6	30

Sums greater than 10

6. FROG RACE
Objective Group 3
20 problems   90% mastery

Obj.	%	Obj.	%	Obj.	%
WA1	10	WA2	10	WA3	10
WA4	10	WA5	10	WA6	10
WA7	30	WA8	10		

Timed review of problems from first five programs, and 0 plus 2-digit addend

Problem Generation

All problems are generated using random numbers rather than being selected from a standard set of problems stored in the program. This ensures that each student will receive a unique lesson regardless of how many times problems are generated for the same program.

If a student completes the allotted number of problems in a program and is in the middle of a graphic sequence, the program will continue to generate problems until the sequence is complete. These extra problems are ignored by the program's record keeping.

BACKGROUND INFORMATION (continued)

Sound On/Off

Sound is used in these programs to make the programs more appealing and motivational to the student. Sound is not used to instruct the student. Since sound can be distracting in some classroom situations, an option to turn the sound off is included. Students can be directed to turn the sound off by selecting Option 8 on the main menu. Once the computer is turned off or the diskette is reloaded, the sound will automatically be turned back on.

Teacher Options

You can use the Teacher Options by holding down the CONTROL key and pressing the A key. When you press CTRL-A, a Teacher Option menu appears as shown in Figure 1:

```
            TEACHER  OPTIONS


      1. Turn graphics off
      2. Set frog jump time
      3. Names and scores
      4. Clear names and scores
      5. Set up the printer
      6. Return to menu
   Graphics now on

   Which option? ▓
```
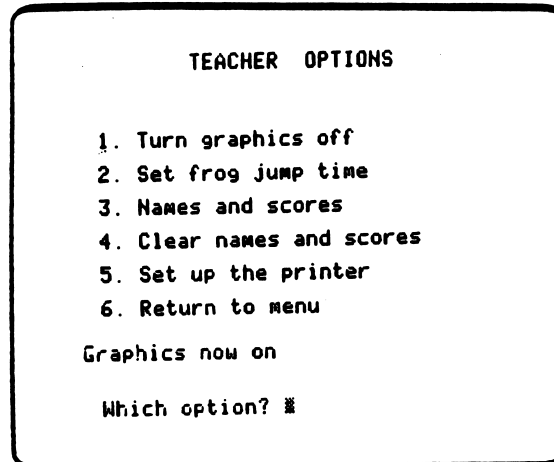
Figure 1

Option 1: Turn Graphics Off allows you to use the drills without graphic reinforcement. This is an option which might be used with older students who are using the programs for remediation.

Option 2: Set Frog Jump Time allows you to change the amount of time allowed for student response. FROG JUMP reviews objectives covered by the five preceding programs and is the only timed drill. Your diskette is currently set to allow the student four seconds to respond to a problem.

BACKGROUND INFORMATION (continued)

Option 3: Names and Scores allows you to view the records of individual students. After choosing this option, a frame like the ones in Figures 2 and 3 will appear.

```
                          P         C  M
                          R         O  A
                          O  L  G  G  R  S
                          G  E  R  I  R  T
                          R  V  O  V  E  E
                          A  E  U  E  C  R
NAME                      M  L  P  N  T  Y
-------------------------------------------
COMSTOCK, HUGH            5  2  2  25 25 YES
COMSTOCK, HUGH            4  2  1  24 23 YES
COMSTOCK, HUGH           3  1  3  20 20 YES
COMSTOCK, HUGH            2  1  2  20 20 YES
COMSTOCK, HUGH           1  1  1  20 20 YES
PETERSON, ANN            3  1  3  20 14 NO

        Press SPACE BAR to continue
```

Figure 2

```
                          P         C  M
                          R         O  A
                          O  L  G  G  R  S
                          G  E  R  I  R  T
                          R  V  O  V  E  E
                          A  E  U  E  C  R
NAME                      M  L  P  N  T  Y
-------------------------------------------
PETERSON, ANN            2  1  2  20 20 YES
PETERSON, ANN            1  1  1  20 20 YES




        Press SPACE BAR to continue
```

Figure 3

This report indicates that in whole number addition, Ann Peterson has mastered Level 1, Group 1 and Group 2, but has failed to master Group 3 (BALLOON SHOOT). Hugh Comstock has progressed through Level 2, Group 2, and his next session on the computer should be at Level 2, Group 3 (FROG RACE). The records are in reverse order of entry, so you can view the most recent records on the first frame.

This report can be printed if a printer is available. There is room on the diskette for 100 student records, which allows about half your class (15 students) to do all six programs and have their records retained on the disk. Once the 100-record limit is reached, the earliest entered records are deleted as new ones are entered. When you access this option, a message tells you how much record space is available.

Option 4: Clear Names and Scores allows you to clear the student records when a class has finished using the programs.

Option 5: Set Up the Printer allows you to set up a printer to print student records. See Appendix B for instructions on use of this printer option.

Option 6: Returns you to the main menu.

USE IN AN INSTRUCTIONAL SETTING

Preparation

Students need to be assigned Early Addition programs which are appropriate to their skill level. Early Addition does not teach addition, but simply presents drills on whole number addition. Classroom instruction in the addition objectives covered by the program is necessary before students are drilled on these objectives. The Background Information section contains information necessary to match your students with an appropriate drill.

Since these programs are drills, the students probably need to use the computer individually. This may require some prescheduling.

Using the Programs

Students should use only those drills you have selected for them based on their classroom preparation. Students need to know the facts or know how to do the calculations required in order to achieve mastery in the objective group covered by the program they are using (see Background Information).

If a student uses a program and does not achieve the mastery level, the final frame suggests they try the drill again. However, if a student is having difficulty with a particular type of calculation, repeating the drill will probably not help.

If a student does achieve mastery, the message suggests they try the next program, which covers the next objective group.

The Student Record will help you discover where your students are having difficulty. You can view the students' records by pressing CTRL-A when on the main menu frame. This gives you the Teacher Option frame. One option allows you to view your students' records (see Background Information). If a student has not achieved mastery, you may want to give that child some special help. The diskette will hold up to 100 student records, after which the oldest record will be dropped.

The programs are organized according to level of difficulty, ranging from whole number addition objectives covered in first grade through objectives for the middle of second grade: 1) SURPRISE PACKAGE, 2) BUILD AN AIRPLANE, 3) BALLOON SHOOT, 4) CREATE A CREATURE, 5) FIRE FIGHTERS, and 6) FROG RACE.

FROG RACE presents a review drill over all the objectives covered in the first five programs. It is the only timed drill. Some students do not perform well when pressured by a timed drill. A Teacher Option, accessed by pressing CTRL-A when on the main menu frame, allows you to set the amount of time a student is allowed for response. You might want to adjust this time for individual students.

FROG RACE could be used as a pre-test, in which case you should extend the time limit for response and perhaps turn off the graphics. If students achieve mastery of FROG RACE, they may be too advanced to benefit from the previous five programs.

DESCRIPTION

SURPRISE PACKAGE drills on whole number addition facts with sums of 10 or less and on addition of zero and another single-digit number. Correct answers are reinforced with a series of graphics depicting the unwrapping of a package. When completely unwrapped, an animated creature appears from inside the box.

Curriculum Area: Arithmetic

Subject Area: Addition

Topic: Whole Number Addition

Type: Drill and Practice

Grade Range: 1-2

Reading Level: Non-readers

Classroom Use: Individual

LEARNING OBJECTIVES

After using this courseware, the student should begin to:

● recall whole number addition math facts having a sum of 10 or less;

● correctly add zero to a single-digit number.

LEVEL 1
SURPRISE PACKAGE
Objective Group 1

20 problems		90% mastery	
Obj .	%	Obj.	%
WA1	95	WA3	5
Fact, Sum $\leq$ 10			

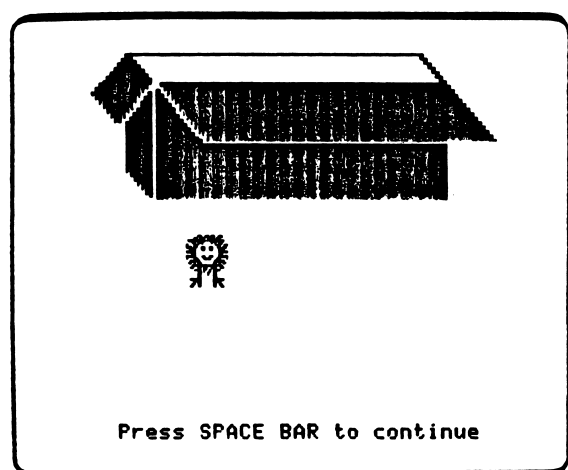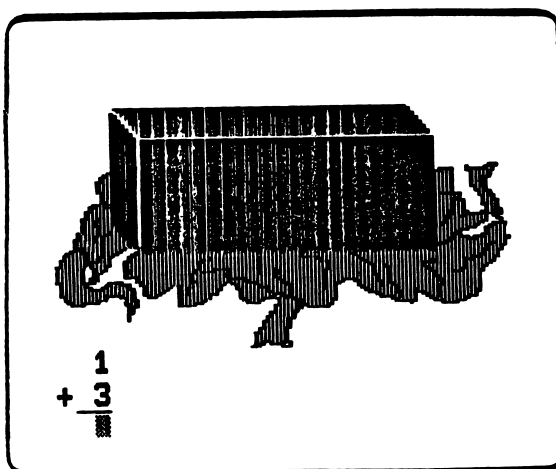## PROGRAM PREVIEW

SURPRISE PACKAGE is the first in a series of whole number addition drills. Students are presented problems and, by answering them correctly, make progress in opening a package.

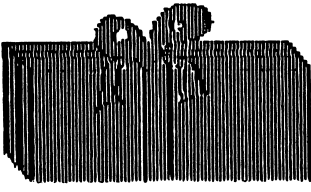Suprise Package

Press SPACE BAR to continue

1 + 4 = ▓
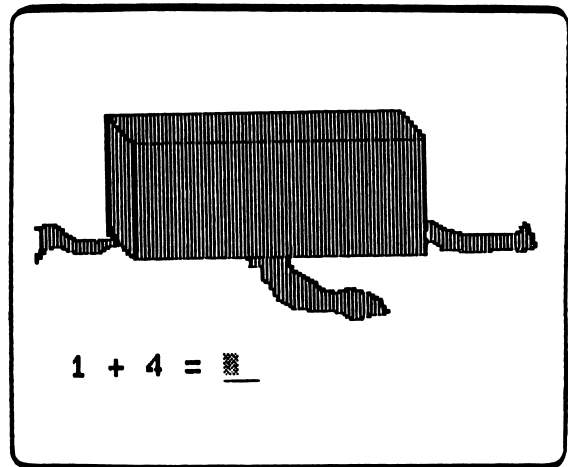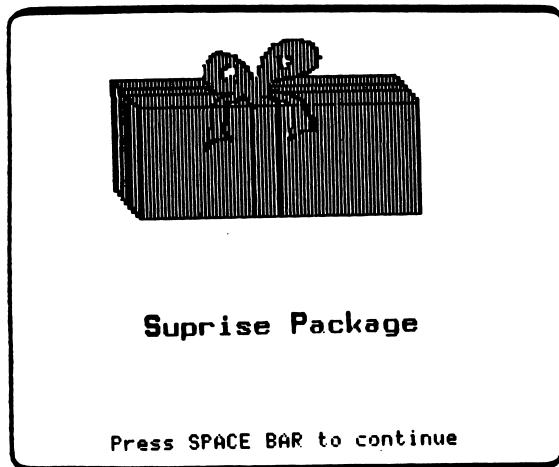
All problems in SURPRISE PACKAGE are basic addition facts which sum less than or equal to 10. Both horizontal and vertical formats are used. When four problems are correctly answered, an animated figure pops out of the unwrapped box.
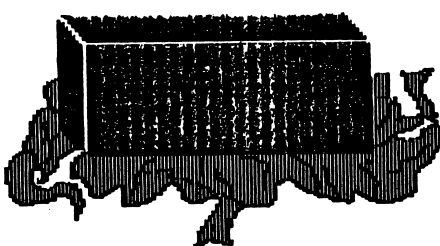
```
   1
 + 3
 ───
   ▓
```

Press SPACE BAR to continue

PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly, but no additional wrapping is removed for a correct answer on the second try. If they answer incorrectly on the second try, the incorrect answer is crossed out and the correct answer is entered by the computer.

8 + 2 = 13
Try again

Press SPACE BAR to continue

2
+ 2   The correct answer is 4
―――
4

Press SPACE BAR to continue

Students receive a scoring frame at the end of a lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level, they are encouraged to repeat the program.

PATTY PRENDERGAST

You did 20 problems.
You got 19 problems right.

TERRIFIC!!

Press SPACE BAR to continue

PATTY PRENDERGAST

You did 20 problems.
You got 17 problems right.

PLEASE TRY PACKAGE AGAIN.

Press SPACE BAR to continue

DESCRIPTION

BUILD AN AIRPLANE drills on whole number addition objectives covered in SURPRISE PACKAGE and presents problems with missing addends. Graphic reinforcement is provided by the successive building of colorful airplanes. Once all parts of the airplane are assembled, the plane flies off the screen.

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	1-2
Reading Level:	Non-readers
Classroom Use:	Individual

LEARNING OBJECTIVES

After using this courseware, the student should be able to:

- fill in missing addends for problems with sums of 10 or less;

- fill in missing addends when one of the addends is zero.

LEVEL 1
BUILD AN AIRPLANE
Objective Group 2

20 problems   90% mastery

Obj.	%	Obj.	%	Obj.	%
WA1	40	WA2	50	WA3	5
WA4	5				
Fact, missing addends					

PROGRAM PREVIEW

BUILD AN AIRPLANE is the second in a series of whole number addition drills. As students answer problems correctly, a plane is constructed. When five problems have been answered correctly, the plane flies off the screen.

Build an Airplane

Press SPACE BAR to continue

1▓ + 3 = 4

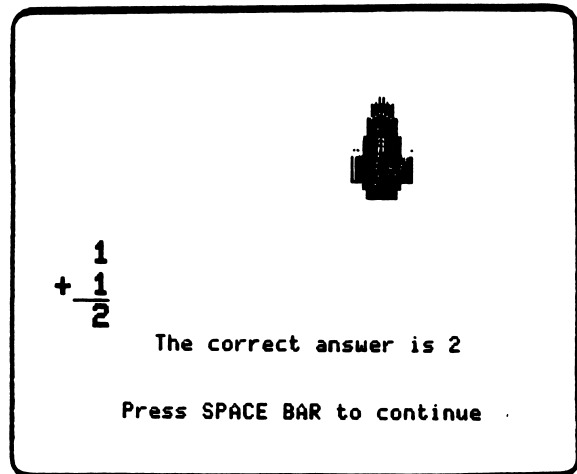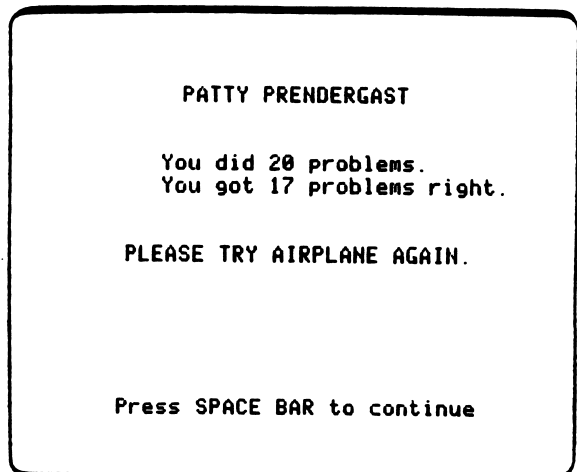Problems of the types illustrated below are included in BUILD AN AIRPLANE.

4 + 8 = 12▓

1 + 3_ = 4

12

PROGRAM PREVIEW (continued)

If answered incorrectly, students are given a second opportunity to answer the problem. If they answer on the second try, no new parts are added to the airplane. If they answer incorrectly on the second try, the incorrect answer is crossed out with an X and the correct answer is entered by the computer.

$$\cancel{0} + 2 = 3$$

$$\begin{array}{r} 1 \\ +\ 1 \\ \hline 2 \end{array}$$

The correct answer is 2

Press SPACE BAR to continue

Students receive a scoring frame at the end of a lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level they are encouraged to repeat the program.

PATTY PRENDERGAST

You did 20 problems.
You got 19 problems right.

TERRIFIC!!

Press SPACE BAR to continue

PATTY PRENDERGAST

You did 20 problems.
You got 17 problems right.

PLEASE TRY AIRPLANE AGAIN.

Press SPACE BAR to continue
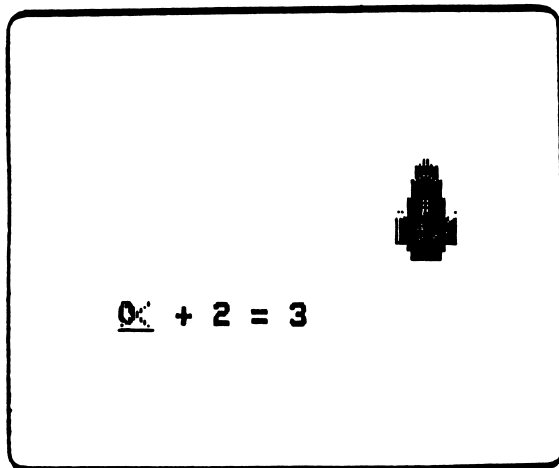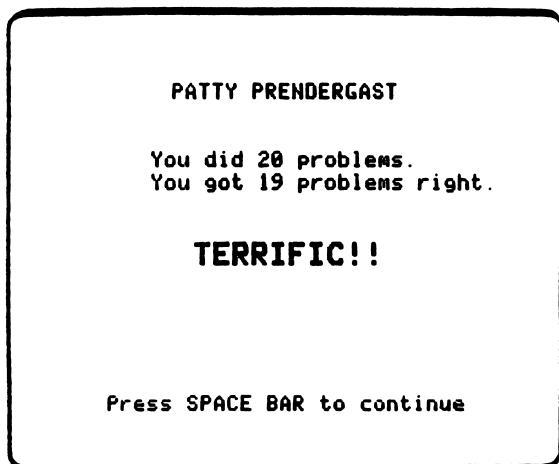
DESCRIPTION

BALLOON SHOOT drills on the whole number addition objectives covered in BUILD AN AIRPLANE. It also presents problems with three addends in both horizontal and vertical format. Graphic reinforcement for five correct answers allows students to shoot darts at three floating balloons.

Curriculum Area: Arithmetic

Subject Area: Addition

Topic: Whole Number Addition

Type: Drill and Practice

Grade Range: 1-2

Reading Level: Non-readers

Classroom Use: Individual

LEARNING OBJECTIVES

After using this courseware, the student should be able to:

● add three addends where the first two sum less than 10.

LEVEL 1
BALLOON SHOOT
Objective Group 3

20 problems			90% mastery		
Obj.	%	Obj.	%	Obj.	%
WA1	20	WA2	50	WA3	5
WA4	5	WA8	30		
Fact, missing addends, adding two multiples of 10					

14

PROGRAM PREVIEW

BALLOON SHOOT is the third in a series of whole number addition drills. Students are presented problems and break balloons by releasing darts for every five correct answers.
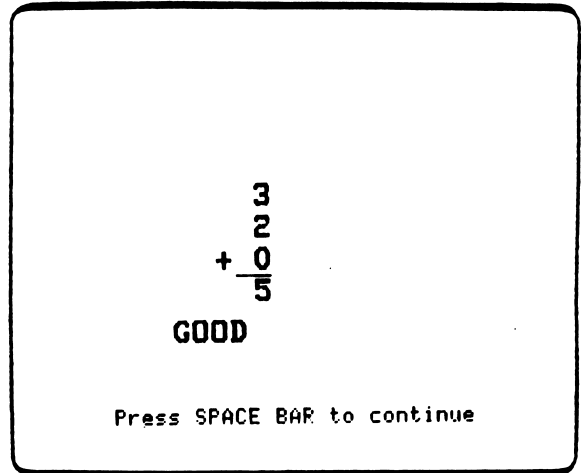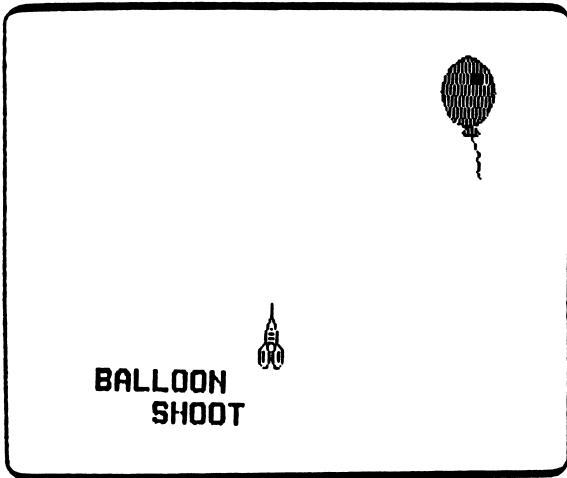
Problems in BALLOON SHOOT are of the types shown below.
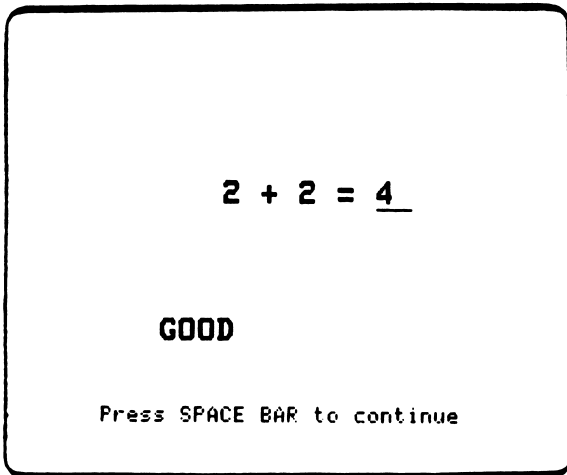
15

PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly. If they answer incorrectly on the second try, the incorrect answer is crossed out with an X, and the correct answer is entered by the computer.

6 + X =9

$$1$$
$$0$$
$$+\ 9$$
$$\overline{10}$$

The correct answer is 10

Press SPACE BAR to continue

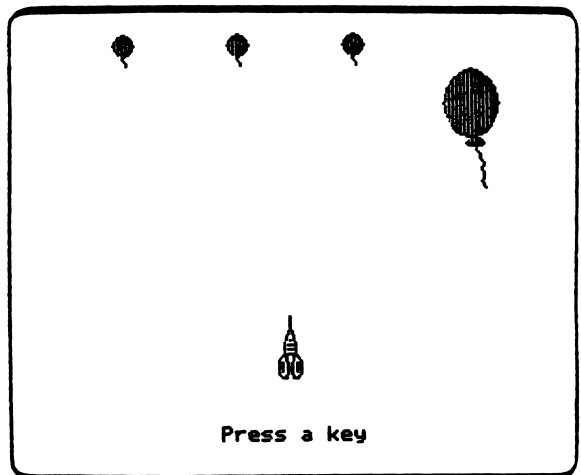Students receive a scoring frame at the end of a lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level, they are encouraged to repeat the program.

PATTY PRENDERGAST

You did 20 problems.
You got 20 problems right.

TERRIFIC!!

Press SPACE BAR to continue

PATTY PRENDERGAST

You did 20 problems.
You got 17 problems right

PLEASE TRY BALLOONS AGAIN

Press SPACE BAR to continue
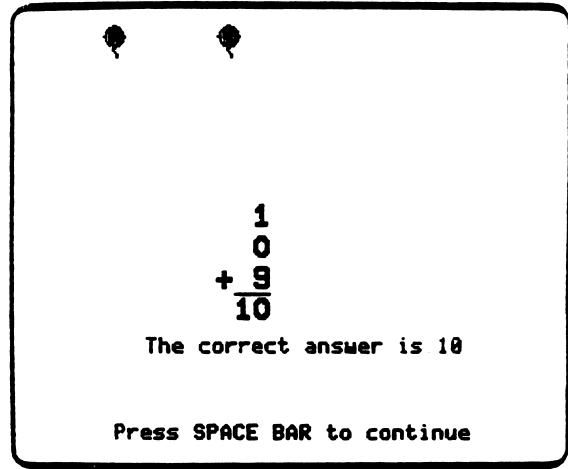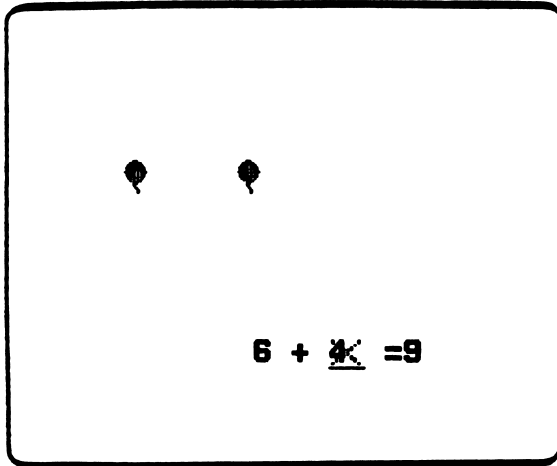
DESCRIPTION

CREATE A CREATURE drills on whole number addition facts with sums between 11 and 18 and on filling in the missing addend for sums between 11 and 18. Graphic reinforcement for correct responses allows the student to build a series of creatures, varying their individual body parts.

Curriculum Area: Arithmetic

Subject Area: Addition

Topic: Whole Number Addition

Type: Drill and Practice

Grade Range: 1-2

Reading Level: Non-readers

Classroom Use: Individual

LEARNING OBJECTIVES

After using this courseware, the student should be able to:

● add single-digit addends which sum between 11 and 18;

● fill in missing addends which sum between 11 and 18.

LEVEL 2
CREATE A CREATURE
Objective Group 1

24 problems   90% mastery

Obj.	%	Obj.	
WA5	80	WA6	20
Fact, sum 11-18			

PROGRAM PREVIEW

CREATE A CREATURE is the fourth in a series of whole number addition drills. For every two problems answered correctly, students get to select a body part to create their own creature. Students build two creatures as they correctly answer 24 problems.

CREATE
A
CREATURE

Press SPACE BAR to start!

$$\underline{8} + 8 = 16$$

GREAT

Press SPACE BAR to continue

1   2   3

Which body do you want?

Press SPACE BAR to continue

18

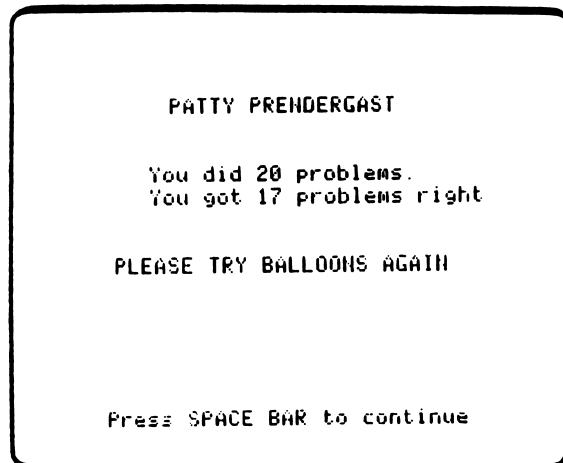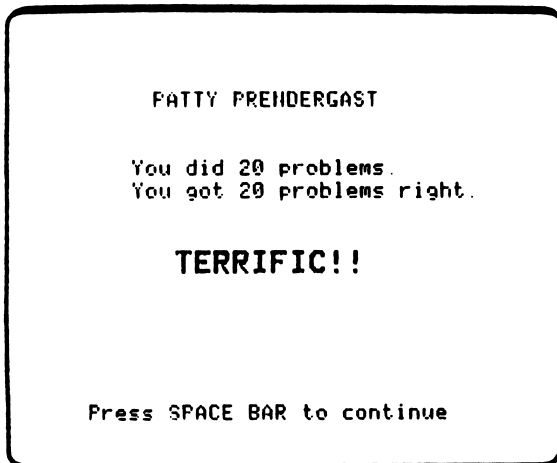## PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly. If they answer correctly on the second try, no additional creature parts are added. If they answer incorrectly on the second try, the incorrect answer is crossed out with an X, and the correct answer is entered by the computer.

```
        9 + 7 = 15



        Try again


   Press SPACE BAR to continue
```

```
        4 + 9 = 13



      The correct answer is 4


   Press SPACE BAR to continue
```

Students receive a scoring frame at the end of a lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level, they are encouraged to repeat the program.

```
         PATTY PRENDERGAST

      You did 24 problems.
      You got 23 problems right.

          VERY GOOD!



     Press SPACE BAR to continue
```

```
         PATTY PRENDERGAST

      You did 24 problems.
      You got 21 problems right.

      PLEASE TRY CREATURE AGAIN.



     Press SPACE BAR to continue
```

DESCRIPTION

FIRE FIGHTERS drills on whole number addition objectives covered in CREATE A CREATURE and presents problems containing three addends in vertical format with sums greater than 10.

Graphic reinforcement for correct answers allows the student first to accumulate fire fighters on an engine and then take steps to put out the fire.

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	1-2
Reading Level:	Non-readers
Classroom Use:	Individual

LEARNING OBJECTIVES

After using this courseware, the student should be able to:

●   add three single-digit addends with sums greater than ten.

LEVEL 2
FIRE FIGHTERS
Objective Group 2

25 problems				90% mastery	
Obj.	%	Obj.	%	Obj.	%
WA8	60	WA5	10	WA6	30
Sums greater than 10					

PROGRAM PREVIEW

FIRE FIGHTERS is the fifth in a series of whole number addition drills. Students are presented problems and add fire fighters to their fire truck with each correctly answered problem. When five fire fighters are on the truck, the truck drives to the fire. Then each correct answer causes a fire fighter to line up on the fire hose. Finally, water sprays from the hose, dowsing the fire.

1 + 11 = 12

Press SPACE BAR to continue
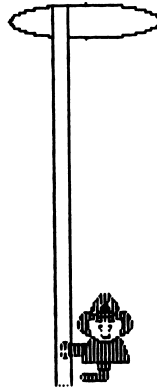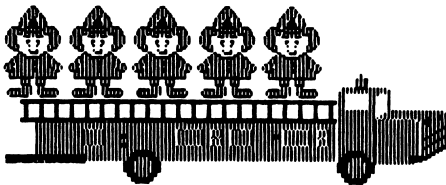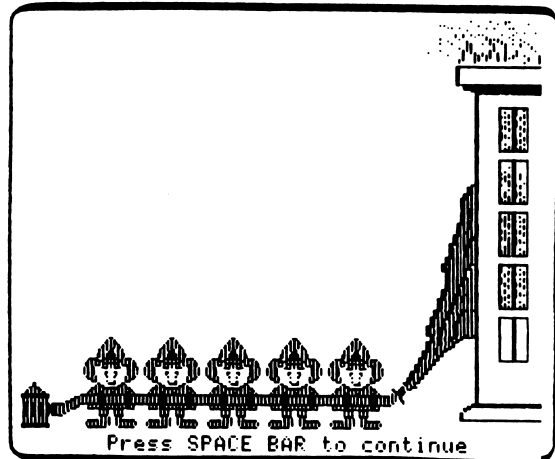
Press SPACE BAR to continue

Press SPACE BAR to continue

Press SPACE BAR to continue

PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly. If they answer incorrectly on the second try, the incorrect answer is crossed out with an X and the correct answer is entered by the computer. No graphics are added to the sequence.

```
       3
       5
    +  9
      ̶1̶6̶

    Try again


Press SPACE BAR to continue
```

```
       1
       3
    +  9
      13
    The correct answer is 13


Press SPACE BAR to continue
```

Students receive a scoring frame at the end of a lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level, they are encouraged to repeat the program.

```
        PATTY PRENDERGAST

     You did 25 problems.
     You got 25 problems right.


         NICE JOB!!




    Press SPACE BAR to continue
```

```
        PATTY PRENDERGAST

     You did 25 problems.
     You got 22 problems right.


       PLEASE TRY FIRE AGAIN.




    Press SPACE BAR to continue
```

22

DESCRIPTION

FROG RACE reviews all the objectives covered in the preceding programs in a timed drill format. It also presents problems adding 0 to a two-digit number. Graphic reinforcement has the student race the computer frog by correctly answering problems as quickly as possible. The length of time allowed to answer can be set using a Teacher Option (see page 5).

> Curriculum Area: Arithmetic
>
> Subject Area: Addition
>
> Topic: Whole Number Addition
>
> Type: Drill and Practice
>
> Grade Range: 1-2
>
> Reading Level: 1 (Fry)
>
> Classroom Use: Individual

LEARNING OBJECTIVES

After using this courseware, the student should be able to:

- correctly answer problems for the objectives covered on all other programs within time limits determined by the teacher;

- add zero to a two-digit number.

LEVEL 2
FROG Race
Objective Group 3

20 problems		90% mastery			
Obj.	%	Obj.	%	Obj.	%
WA1	10	WA2	10	WA3	10
WA4	10	WA5	10	WA6	10
WA7	30	WA8	10		

Timed review of problems from first five programs, and 0 plus 2-digit addend

PROGRAM PREVIEW

FROG RACE is the review drill for this collection of programs. It presents problems from all five of the preceding drills in a timed format. If they answer correctly within the time allotted, the student's frog will most likely win the race. If they answer incorrectly, or if the response is longer than the time allotted, the computer's frog may win the race.
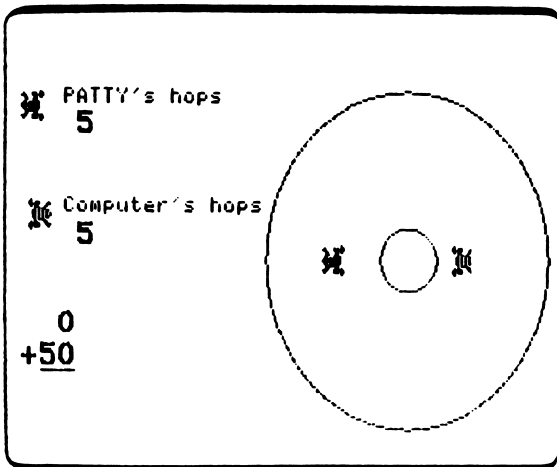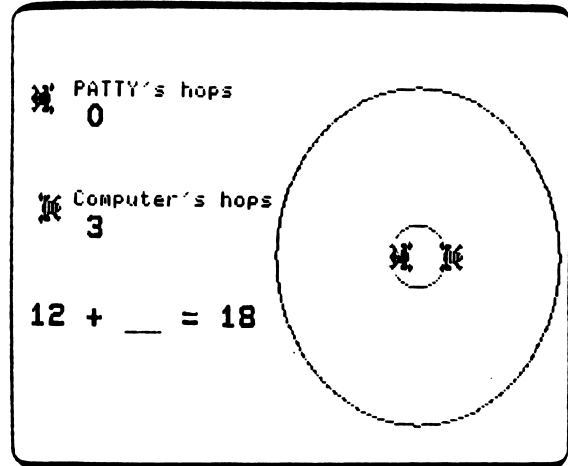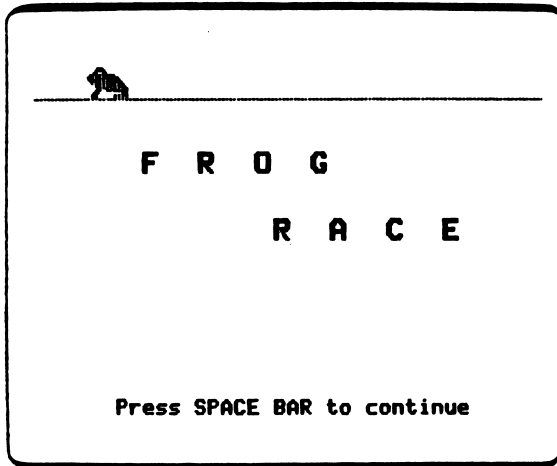
F   R   O   G

R   A   C   E

Press SPACE BAR to continue

PATTY's hops
0

Computer's hops
3

12 + __ = 18

PATTY's hops
5

Computer's hops
5

0
+50

PATTY's frog won!

Press SPACE BAR to continue

24

PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly. If they answer incorrectly on the second try, the incorrect answer is crossed out with an X, and the correct answer is entered by the computer.

```
 MOLLY's hops
   6

 Computer's hops
   4

 3 + X = 8
```

```
 PATTY's hops
   0

 Computer's hops
   1

 0 + 87 = 87

        This is the correct answer.

        Press SPACE BAR to continue
```

Students receive a scoring frame at the end of the lesson. They are congratulated if they scored at or above the mastery level. If they scored below the mastery level, they are encouraged to repeat the program.

```
        PATTY PRENDERGAST

   You did 20 problems.
   You got 20 problems right.

        NICE JOB!!




   Press SPACE BAR to continue
```

```
        PATTY PRENDERGAST

   You did 20 problems.
   You got 17 problems right.

        PLEASE TRY FROG AGAIN.




   Press SPACE BAR to continue
```

PROGRAM PREVIEW (continued)

The teacher can set the time limit for answering each problem for the class or for each individual student by pressing CTRL-A and accessing the menu for Teacher Options.

```
            COMPUTER FROG  TIME


        In this option you can set the
    time it takes for the computer's frog
    to jump.  This is entered in seconds.


    Current time---> 4 SECONDS

    New time? (1-10) █
```

APPENDICES

CREDITS

Early Addition was produced by a MECC development team which included Kent Kehrberg, Karen Jostad, Craig Copley, Charles Erickson, Fred Steinmann, and Peter Fuglestad. Karen Jostad was Project Coordinator.

Early Addition problem generation, sequencing, and scoring algorithms are taken from the MECC timeshare program Arithmetic Drill and Practice. The timeshare program was based on an earlier timeshare program called Compute. The Compute program was developed by the Minneapolis Public Schools under a grant from the Minnesota Council on Quality Education.

The MECC Arithmetic Drill and Practice project for the timeshare system was coordinated by Linda Borry, MECC Instructional Coordinator. Three teachers from the Minneapolis Public Schools who developed the Compute materials were Lyle Abeln, Ron Fish, and Betty Ann Long.

TO THE READER:

MECC has made every effort to ensure the instructional and technical quality of this courseware package. Your comments—as user or reviewer—are valued and will be considered for inclusion in any future version of the product. Please address comments to:

MECC Courseware Development
3490 Lexington Avenue North
St. Paul, Minnesota 55126

USING A PRINTER WITH THIS COURSEWARE

This courseware requires or recommends the use of a printer connected to your computer. Your MECC program diskette contains an option for setting up your printer to work with this courseware.

You may be asked whether a printed copy of the output is desired. If the response is "YES," the MECC printer routine diverts the output to the printer. This standard printer routine is designed to recognize and work with Apple serial, Apple parallel, or Apple communications cards.

If your printer is connected to the Apple with one of the above cards, it should not be necessary to do anything further. The printer routine automatically searches slot 1 and 2 in the computer and determines the kind of printer interface card and the slot location. However, if your printer is connected to the Apple by an interface card other than those listed above, or your printer requires special configuration commands, it will be necessary to follow the procedure given below.

Alternate Printer Set-Up Procedure

If you determine that the above routine does not automatically set up your printer, there are two possibilities: An option called Printer Support will either be visible or hidden in the main menu. If the latter, press CONTROL A when the main menu appears on the computer screen.

You will see a Teacher Options frame similar to the example in Figure 1, or a Printer Support frame (Figure 2). If the Teacher Options menu appears, select the Printer Support option.

```
        TEACHERS OPTIONS


    1. Turn graphics off
    2. Set frog jump time
    3. Names and scores
    4. Clear names and scores
    5. Printer Support
    6. Return to menu

  Graphics now on

    Which option? ▮
```

Figure 1

```
           Printer Support


  You may:

    1. Check current printer settings

    2. Change printer settings

    3. Return printer settings to their
       original state (slot search)

    4. Test printer settings

    5. Return to main menu


  What is your choice? ▮
```
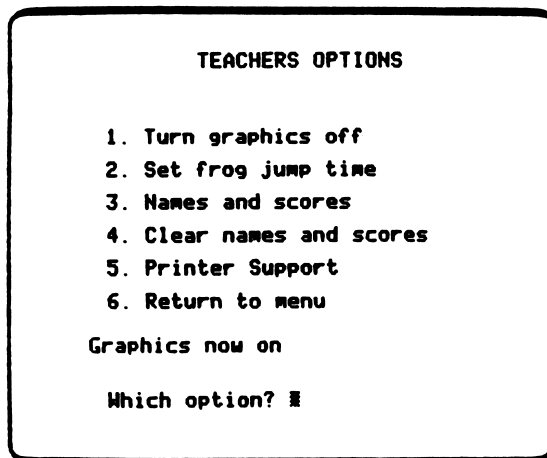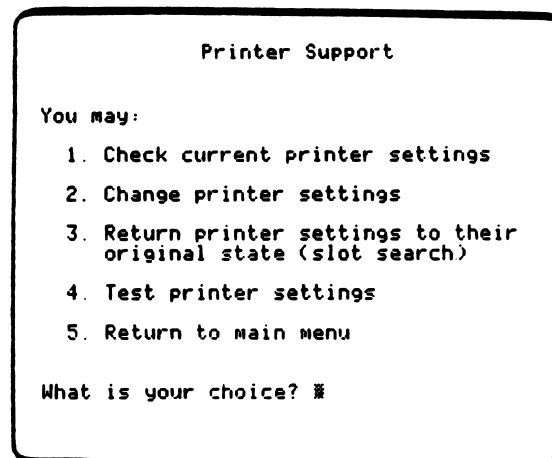
Figure 2

Printer Support Option 1 shows the current printer settings. The default printer settings are as shown in Figure 3, or if they have been changed, you will see a frame similar to Figure 4.

```
 _____
/                                \
|         Printer Support         |
|                                 |
|                                 |
|                                 |
|  This diskette is currently set to the |
|  default setting, which is to search   |
|  slots 1 and 2 for a recognizable card |
|  each time the diskette is started up. |
|                                 |
|                                 |
|      Press SPACE BAR to continue       |
_____/
```

Figure 3

```
 _____
/                                \
|         Printer Support         |
|  The current printer settings are: |
|     Slot: 1                      |
|     Commands:                    |
|        PRINT "█!"                |
|     Type of printer:             |
|        APPLE DMP                 |
|                                 |
|                                 |
|      Press SPACE BAR to continue       |
_____/
```

Figure 4

Printer Support Option 2 allows you to change printer settings. When you choose this option you will see the frame in Figure 5. You must identify the type of printer interface card you are using.

If you are using a communications card, select the printer speed and identify the slot the card is located in   (Figure 6).

```
 _____
/                                \
|         Printer Support         |
|                                 |
|  1. Apple communications board  |
|     (an obsolete card that is not |
|     compatible with the Apple //e) |
|                                 |
|  2. Any other type of printer   |
|     interface card (e.g., parallel |
|     or serial, Centronics type, etc.) |
|                                 |
|  Which type of printer interface will |
|  you be using? ▓                |
_____/
```

Figure 5

```
 _____
/                                \
|         Printer Support         |
|                                 |
|  1. High speed (usually 3A cps) |
|  2. Low speed (usually 10 cps)  |
|                                 |
|  Which printing speed do you want |
|  to use? 1                      |
|                                 |
|  Which slot is the communications |
|  card in? 2▓                    |
_____/
```

Figure 6

If you are using any other type of printer interface card, you will need to identify the slot in which the card is located and any special commands used by the printer (Figure 7).

```
            Printer Support


The printer interface card may be in any
slot 1 - 7.  (Most commonly 1 or 2.)


Which slot is your interface card in? 1


Does your printer require any special
commands? YES
```

Figure 7

Caution: Incorrectly identifying the slot number or the type of printer interface card will result in the system becoming inoperable. If this occurs, you must restart the computer.

If necessary, enter special configuration commands. These commands should be in your manufacturer's printer or interface card manual. For control characters and special characters you may enter the CHR$(n) value (Figure 8).

The use of a CHR$(n) will be translated into its corresponding character. For example, a CHR$(27) will be converted on screen to an inverse bracket. (Figures 8 and 9).

```
            Printer Support

Please type in the special commands for
your printer.  Type an extra 'RETURN'
when you have finished.


    PRINT "CHR$(27)!
```

Figure 8

```
            Printer Support

Please type in the special commands for
your printer.  Type an extra 'RETURN'
when you have finished.


    PRINT "[!"




Are the above commands correct? YES
```

Figure 9

When you have completed the change of printer settings, you will be asked to name the printer you are interfacing (Figure 10). Press RETURN to bypass the question.
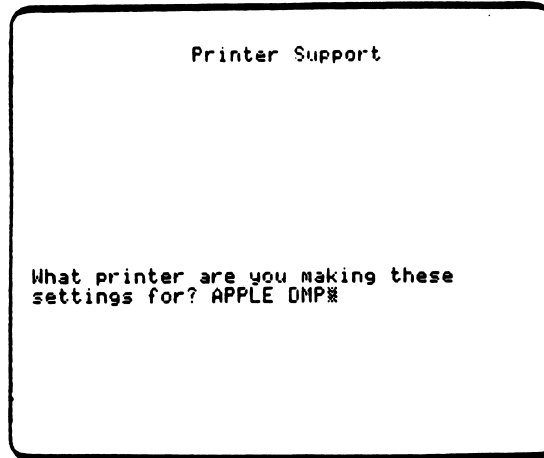
```
┌─────────────────────────────────┐
│          Printer Support        │
│                                 │
│                                 │
│                                 │
│                                 │
│                                 │
│  What printer are you making these │
│  settings for? APPLE DMP▓       │
│                                 │
│                                 │
│                                 │
└─────────────────────────────────┘
```

Figure 10

Printer Support, Option 3 allows you to return printer settings to the default setting. This option tells the program to search Slots 1 and 2 for a printer interface card and that no special commands are necessary.

Printer Support, Option 4 allows you to test the printer, to make sure it is correctly set up. The following text should be printed:

```
Printer Test

  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~

  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~

  !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~
```

If the printer test does not appear as shown above, check your printer or interface card manual for special configuration commands.

NOTE:

1.   Once the printer options have been set (Option 2), the standard slot searching routine will not be executed. Instead, the Apple will divert output to the slot specified.

2.   The commands are saved on the diskette and thus are permanent until the printer support program is used again to change the printer commands.

MECC SERVICES

MECC is an organization established in 1973 to assist Minnesota schools in implementing educational computing. MECC provides a variety of services to education, including 1) development and distribution of instructional computing courseware; 2) in-service training for educators and development of materials for conducting training; and 3) educational computing assistance through newsletters and equipment purchase contracts. MECC's knowledge and expertise in the educational computing field comes from more than fifteen years of working with and providing leadership for thousands of educators on a daily basis.

- ***MECC Educational Computing Catalog***
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  Published regularly throughout the school year, MECC's newsletter focuses on MECC activities, services, and products. To obtain, write or call indicating your interest in the *MECC Network* newsletter.

  For information on all the above items, use the MECC General Information telephone number: 612/481-3500.

- **Help Line**
  If you have any problems using MECC software:
  1) make note of the *name* and *version number* of the product;
  2) note the *brand* and *model* of the equipment involved, as well as the type of *printer card* used if the problem concerns a printer;
  3) write or call the Help Line to describe the problem (612/481-3660).

MECC
3490 Lexington Avenue North
St. Paul, MN 55126
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