TEXAS INSTRUMENTS
HOME COMPUTER

SOLID STATE CARTRIDGE

A self-paced addition "tutor" to help your child
develop strong math skills for today's and tomorrow's challenges.
Suitable for children from kindergarten to grade eight.

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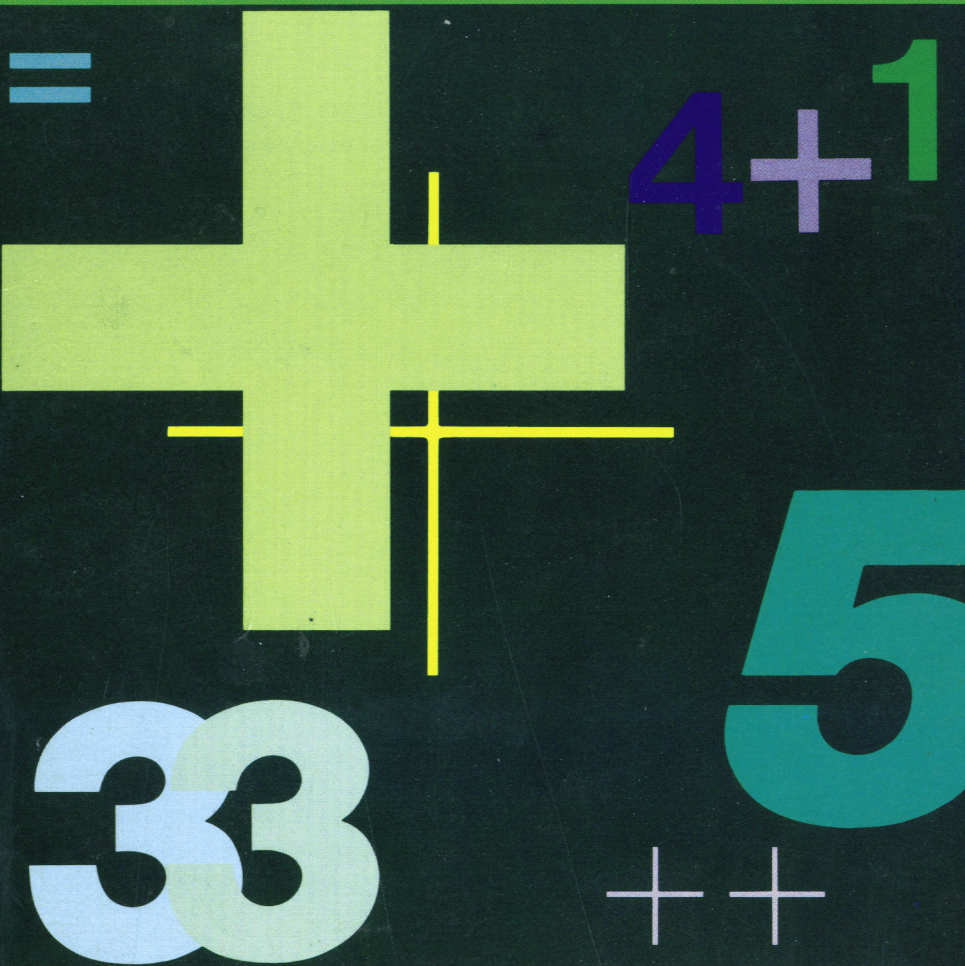
Quick Reference Guide

To take full advantage of the features and benefits of this cartridge, please read this manual completely. Important keystroke sequences are summarized here for your quick reference.

ENTER   Proceeds to next problem or continues problem after an incorrect answer has been given. Proceeds to the next step of a problem in the "Let Me Help You" feature. Also used to enter Beginning Level and Name.

SPACE BAR   Tells the computer you want to use the regrouping (carrying) option.

E   Tells the computer you want to quit ("exit") the work session or leave a particular level.
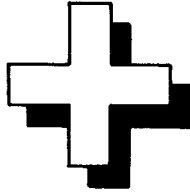
MILLIKEN MATH SEQUENCES:
Addition

This Solid State Cartridge is designed to be used with the Texas Instruments Home Computer. One in a series of twelve cartridges, it can help your child develop the strong math skills needed in today's and tomorrow's world. Suitable for children from kindergarten through grade eight.

TEXAS INSTRUMENTS **HOME COMPUTER**

A NOTE TO PARENTS

Children need strong math skills to solve today's and tomorrow's problems. The Milliken Math Sequences, along with the TI Home Computer, can help your child meet these challenges. The series allows children to work at their own pace and on the skill level at which they need practice. Children find that learning with the computer is fun, challenging, and motivating. The computer never tires of repetition or loses patience — it's like having a private math tutor!

The Milliken Math Sequences, developed for Texas Instruments by Milliken Publishing Company, consists of twelve Solid State Cartridges. Each cartridge concentrates on a different skill area in mathematics, such as addition, subtraction, decimals, or fractions. By providing different levels of difficulty, the series is suitable for children from the kindergarten age through grade eight.

The Addition cartridge is divided into 60 levels of difficulty, covering material generally taught in kindergarten through grade four. The program provides practice in adding whole numbers (numbers with no fractional part). Children begin adding one-digit numbers and advance level by level until they add four-digit numbers. Problems are presented both vertically and horizontally. At more difficult levels (levels 26-60), children practice "regrouping" ("carrying") numbers from one column to another.

The Addition cartridge offers several special features that increase its motivational and reinforcement value:

■ Colorful, rewarding graphics and sound effects that appear in response to correct answers.

■ An unintimidating, try-again approach to incorrect answers.

■ A progress report posted at the bottom of the screen.

■ Periodic reviews to maintain skill mastery.

■ A "help" feature that displays the problem step by step until the final answer is found.

■ Advancement to the next level if problems are answered correctly, or automatic return to a lower level if your child needs more practice.

■ A special regrouping feature to help students understand the concept of carrying from one column to another.

■ Report screens personalized with your child's name at the end of each level's activities.

■ An "Exit" screen with a complete report on your child's score at the end of the work session.

TEXAS INSTRUMENTS **HOME COMPUTER**

YOUR CHILD AND THE COMPUTER

The Texas Instruments Home Computer is a rugged, durable device designed for easy use and care. Give the computer the same good care and respect you would give a television set, record player, radio, or any piece of electronic equipment:

1. Keep snacks and beverages away from the console.
2. Don't hammer on the keyboard or place heavy objects on it.
3. Don't touch the cartridge contacts. These are recessed in the cartridge to help prevent accidental soiling and/or damage.

The letters and numbers on the keyboard are arranged in the same order found on standard typewriter keyboards. If your child is not familiar with a typewriter or has not used your Home Computer before, take a few minutes to acquaint him or her with the keyboard. Point out the row of number keys at the top and the rows of letter keys below. Show your child how to insert the cartridge and select the activities. This brief "tour" of the computer will help reinforce correct procedures and instill confidence as your child starts out in a new world of computers.

Today, computers are involved in almost every aspect of life. Working with this cartridge can help your child become familiar with computers and their operation. Since computer-enhanced instruction is more common in the classroom every year, this knowledge can give your child an important advantage.

USING THE SOLID STATE CARTRIDGE

An automatic reset feature is built into the computer. When a cartridge is inserted into the console, the computer returns to the master title screen. All data or program material you have entered will be erased.

Note: Be sure the cartridge is free of static electricity before inserting it into the computer (see page 14).

TEXAS INSTRUMENTS
HOME COMPUTER
READY-PRESS ANY KEY TO BEGIN

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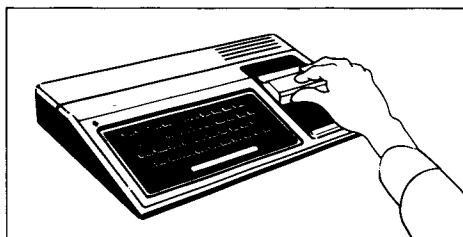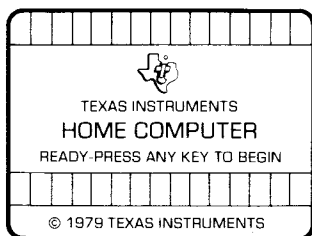
1. Turn the computer ON, and wait for the master title screen to appear. Then slide the cartridge into the slot on the console.
2. Press any key to make the master selection list appear. To select the cartridge, press the key corresponding to the number beside MILLIKEN on the list.

Note: To remove the cartridge, *first* return the computer to the master title screen by pressing **QUIT**. *Then* remove the cartridge from the slot. If you have any problem inserting the cartridge, or if it is accidentally removed from the slot while in use, please see "In Case of Difficulty" on page 15.

TEXAS INSTRUMENTS **HOME COMPUTER**

A SAMPLE ACTIVITY

For easy use, directions are displayed on the screen throughout all the levels. This sample activity, however, can help to illustrate the way the program works.

Let's Begin

When the Milliken title screen appears, press any key to begin. The screen then prompts you to enter the Beginning Level. Select any level from 1 to 60 by typing the number and then pressing **ENTER**. For this example, press **3** and **ENTER**. Next, the screen asks for Name. Type your child's name (up to ten letters long) and press **ENTER**.

Now an addition problem is displayed on the screen. A flashing question mark shows where the answer will go, and the directions on the screen tell you to "Enter the correct number." A progress report appears across the bottom of the screen, with the following meanings:

  PL   = Problem Level
  TC   = Total Correct
  TP   = Total Problems
  AVG = Average

As your child works through the problems, these figures are updated to report his or her progress. TC, TP, and AVG are automatically reset to zero at the beginning of each level.

Entering Answers

Let your child answer a few problems as you observe. He or she simply presses the correct number from the top row of keys. If the answer to be entered is more than one digit, the right-most digit must be entered first, as indicated by the flashing question mark. In other words, problems must be solved from right to left, just as they would be in the traditional pencil-and-paper method. This method reinforces the correct order of problem solution. (When selecting Beginning Level numbers, enter from left to right.)

How the Computer Responds

If the problem is answered correctly, an animated picture appears. Your child then presses **ENTER** to continue to the next problem. If the problem is answered incorrectly, the computer returns a screen message and encourages your child to press **ENTER** to try again. If a second incorrect answer is given, the screen border turns red and flashes. To continue, your child presses **ENTER** again, and the computer gives the answer, with a message to "Study the Answer." When your child presses **ENTER** again, the next problem appears.

Advancing or Moving Back

If your child answers five of the previous six problems correctly, a "Good News" report is displayed. He or she then advances to the next level. If three problems in a row are answered incorrectly, a "Bad News" report appears, and your child moves back one level.

Changing Levels

You can change levels any time the question mark is flashing. To leave this level, simply press the letter **E** for "exit." An "Exit" screen appears, which reports on your child's progress. Press **ENTER** to return to the title screen.

Let's try another level. Press any key to go to the "Levels 1-60" screen. This time, enter **26** (from left to right) as the Beginning Level. Then type your child's name again, and press **ENTER** to continue.

Regrouping

At Level 26 your child is given the choice of regrouping (carrying) visually on the screen or of regrouping mentally without displaying the process. To use the regrouping option, press the **SPACE BAR** when instructed on the screen. A small question mark appears above the column to which the value is being carried or regrouped. Type the number to be carried, add the digits in that column, and type the sum. The regrouping option is offered whenever appropriate in Levels 26 through 60 (no regrouping necessary in Levels 35, 36, and 41).

"Let Me Help You"

Now let's try the "Let Me Help You" feature. On the next problem, deliberately enter a wrong answer twice. When the border flashes red, press **ENTER** and the message "Let Me Help You" is displayed. Keep pressing **ENTER** as the computer completes the problem step by step, including regrouping, until the final answer is found. Thus, if your child has difficulty with a particular problem, the computer demonstrates the solution.

Continue to observe as your child works through the problems and gains familiarity with the program's operations.

SKILL LEVELS

This chart can help you find the appropriate starting level for your child. By looking at the sample problems and the skill description, select a level that is not too easy, but also not too difficult, for him or her. If in doubt, start at a lower level and work up from there. You may wish to select a REVIEW level first to see if your child has mastered the skill levels up to that point. A glossary is provided on page 14.

Level	Sample Problem	Skill Description
1	$2 + 1 = ?$	Adding two numbers with sums through 6.
2	$\begin{array}{r} 3 \\ + 2 \\ \hline ? \end{array}$	
3	REVIEW	
4	$3 + 4 = ?$	Adding two numbers with sums from 7 through 10.
5	$\begin{array}{r} 1 \\ + 6 \\ \hline ? \end{array}$	
6	$2 + 1 = ?$	Adding two numbers with sums from 0 through 10.
7	$\begin{array}{r} 3 \\ + 6 \\ \hline ? \end{array}$	
8	REVIEW	

TEXAS INSTRUMENTS **HOME COMPUTER**

Level	Sample Problem	Skill Description
9	$2 + 5 + 1 = ?$	Adding three numbers with sums through 10.
10	$\begin{array}{r} 1 \\ 4 \\ +\,2 \\ \hline ? \end{array}$	
11	$5 + 6 = ?$	Adding two numbers with sums from 10 through 13.
12	$\begin{array}{r} 7 \\ +\,3 \\ \hline ?? \end{array}$	
13	REVIEW	
14	$9 + 5 = ?$	Adding two numbers with sums from 14 through 18.
15	$\begin{array}{r} 7 \\ +\,8 \\ \hline ?? \end{array}$	
16	$9 + 6 = ?$	Adding two numbers with sums from 10 through 18.
17	$\begin{array}{r} 7 \\ +\,8 \\ \hline ?? \end{array}$	
18	REVIEW	
19	$10 + 2 = ?$	Adding two numbers with sums from 10 through 18. One addend $= 10$.
20	$\begin{array}{r} 10 \\ +\ \ 6 \\ \hline ?? \end{array}$	

Addition

Level	Sample Problem	Skill Description
21	$3 + 7 + 2 = ?$	Adding numbers with sums to 19. All addends less than 10.
22	8 2 + 5 ??	
23	$13 + 6 = ?$	Adding numbers with sums from 10 through 19. One addend is two digits; one addend is one digit. No regrouping.
24	12 + 6 ??	
25	34 + 25 ??	Adding numbers with sums from 29 through 99. Two-digit addends. No regrouping.
26	17 + 8 ??	Adding numbers with sums from 19 through 28. One addend is from 10 through 19; one addend is one digit. Regrouping.
27	58 + 9 ??	Adding numbers with sums from 20 through 98. One addend is two digits; one addend is one digit. Regrouping.
28	48 + 26 ??	Adding numbers with sums from 30 through 99. Both addends are two digits. Regrouping.
29-31	37 + 29 ??	REVIEW: Adding numbers with sums from 20 through 99. Both addends have two digits. Some regrouping.

TEXAS INSTRUMENTS **HOME COMPUTER**

Level	Sample Problem	Skill Description
32-34	47 + 9 ??	Adding numbers with sums from 20 through 99. One addend is two digits; one addend is one or two digits. Some regrouping.
35-36	6 7 + 4 ??	Adding three numbers; all addends are one digit.
37-38	24 36 + 17 ??	Adding numbers with sums from 40 through 99. All addends are two digits. Regrouping.
39-40	24 36 + 5 ??	Adding numbers with sums from 20 through 99. One- or two-digit addends. Regrouping.
41	251 + 27 ???	Adding two numbers with sums from 200 through 999. Two- and three-digit addends. No regrouping.
42-45	348 + 239 ???	Adding numbers with sums to 999. Two- and three-digit addends. Regroup ones to tens.
46-47	471 + 283 ???	Adding numbers with sums to 999. Two- and three-digit addends. Regrouping tens to hundreds.

Level	Sample Problem	Skill Description
48-50	478 + 256 ???	Adding two three-digit numbers with sums to 999. Regrouping twice.
51-52	348 257 + 163 ???	Adding three three-digit numbers with sums to 999. Regrouping twice.
53-54	478 + 205 ???	REVIEW: Adding three-digit numbers with sums to 999. Regrouping once or twice.
55-58	2768 + 3529 ????	Adding four-digit numbers with sums to 9999. Some regrouping.
59-60	4785 216 + 39 ????	REVIEW: Adding numbers with sums to 9999. Two-, three-, and four-digit addends. Regrouping.

GLOSSARY

addend: a number to be added to another; for example, ADDEND + ADDEND = SUM.

digit: any of the numerals 0 to 9; for example, the number "986" has three digits.

regrouping: a process in addition by which numbers are formed into a new grouping, depending on their place values (units, tens, hundreds, etc.). This process has traditionally been called "carrying."

sum: total or result of adding numbers (addends) together; for example, SUM = ADDEND + ADDEND.

CARING FOR THE CARTRIDGE

These cartridges are durable devices, but they should be handled with the same care you would give any other piece of electronic equipment. Keep the cartridge clean and dry, and don't touch the recessed contacts.

CAUTION:
The contents of a Solid State Cartridge can be damaged by static electricity discharges.

Static electricity build-ups are more likely to occur when the natural humidity of the air is low (during winter or in areas with dry climates). To avoid damaging the cartridge, just touch any metal object (a doorknob, a desklamp, etc.) before handling the cartridge.

If static electricity is a problem where you live, you may want to buy a special carpet treatment that reduces static build-up. These commercial preparations are usually available from local hardware and office supply stores.

IN CASE OF DIFFICULTY

If the cartridge activities do not appear to be operating properly, return to the master title screen by pressing **QUIT**. Withdraw the cartridge, align it with the cartridge opening, and reinsert it carefully. Then press any key to make the master selection screen appear. (*Note:* In some instances, it may be necessary to turn the computer off, wait several seconds, and then turn it on again.)

If the cartridge is accidentally removed from the slot while the cartridge contents are being used, the computer may behave erratically. To restore the computer to normal operation, turn the computer console off, and wait a few seconds. Then, reinsert the cartridge, and turn the computer on again.

If you have any difficulty with your computer or cartridge, please contact the dealer from whom you purchased the unit and/or cartridge for service directions.

Additional information concerning use and service can be found in your *User's Reference Guide.*

Texas Instruments invented the integrated circuit,
the microprocessor, and the microcomputer.
Being first is our tradition.

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