



# TEXAS INSTRUMENTS HOME COMPUTER

DLM ARCADEMIC\* SKILL BUILDERS IN MATH

## MINUS MISSION

EDUCATION

### SOLID STATE CARTRIDGE

This can be played using the optional Wired Remote Controllers.

An arcade game format provides fun and challenge while increasing math skills in subtraction of numbers from 0 to 9. Suitable for children from kindergarten through sixth grade.

\*Trademark of Developmental Learning Materials



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# Quick Reference Guide

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Note that the key combinations required to use special functions depend on the type of computer console you have. Important keystroke combinations are summarized here for quick reference.

<i>TI-99/4</i>	<i>TI-99/4A</i>	
<b>SHIFT A</b> <b>(AID)</b>	<b>FCTN 7</b> <b>(AID)</b>	Returns to the GAME CONTROL OPTIONS screen. (Available on the RECORD YOUR SCORE screen and on the PRESS ANY KEY TO PLAY screen.)
<b>SHIFT W</b> <b>(BEGIN)</b>	<b>FCTN 5</b> <b>(BEGIN)</b>	Returns to the DLM title screen. (Available on the RECORD YOUR SCORE screen and on the PRESS ANY KEY TO PLAY screen.)
<b>S (←) or G</b>	<b>S (←) or G</b>	Moves the robot to the left.
<b>D (→) or J</b>	<b>D (→) or J</b>	Moves the robot to the right.
<b>E (↑) or H</b>	<b>E (↑) or H</b>	Increases the number displayed on the robot.
<b>X (↓) or N</b>	<b>X (↓) or N</b>	Decreases the number displayed on the robot.
<b>Q, Y, and</b> <b>SPACE BAR</b>	<b>Q, Y, and</b> <b>SPACE BAR</b>	Fires the robot's laser guns.
<b>T</b>	<b>T</b>	Terminates the game and returns to the RECORD YOUR SCORE screen.
<b>SHIFT Q</b> <b>(QUIT)</b>	<b>FCTN =</b> <b>(QUIT)</b>	Returns to the master title screen.

*Note:* The optional Wired Remote Controllers (joysticks) may also be used to control movement on the screen. (See page 10 for instructions for using joysticks with Minus Mission.)

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## *Minus Mission*



This Solid State Cartridge is designed to be used with the Texas Instruments Home Computer. Its arcade game format provides fun and challenge while increasing your child's skills in subtraction of numbers from 0 to 9.

Programmed by: Susan Powell

Book developed and written by: Staff members of Texas Instruments Creative Communications.

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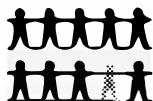
Program and data base contents

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See important warranty information at back of book.

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**DLM<sup>®</sup>**



DEVELOPMENTAL LEARNING MATERIALS

**AN OPEN LETTER  
FROM DEVELOPMENTAL LEARNING MATERIALS**

CONGRATULATIONS on purchasing an *ARCADEMIC™ SKILL BUILDERS IN MATH* program—software that provides fun while practicing basic math skills for players of all ages. This innovative game combines fast action, colorful graphics, and an arcade game format with learning that creates persistence and involvement found in arcade game players.

This game is based on a theory of combining proven educational techniques with a highly motivating format that challenges the player to learn. The game control options allow the control of the speed at which the game is played, the numbers that appear in the problems, the length of each game, and the mode—whether controlled by joysticks or keyboard—in which the game can be played. These options maximize the fun and learning by providing:



- **SUCCESS IN LEARNING**—rather than preventing errors, success in these games is reflected by *improvement*. Starting players where they “aren’t” (usually producing high rates of errors) and then moving back or ahead to provide success maximizes learning as well as creates challenge. Poor performance is not viewed by players as failure but as a challenge to improve.
- **INDIVIDUAL NEEDS**—selecting the appropriate numbers for the problems in this format will help players “want” to learn. They will find needed repetitious drill as fun and stimulating as other types of learning.
- **HIGH RATE OF LEARNING**—players must employ the best strategy under exciting circumstances to make rapid responses while being given immediate feedback to meet the challenge of the game.
- **EVIDENCE OF IMPROVEMENT**—players have an unlimited ceiling on performance, immediate feedback on performance that continues to challenge, and a framework for success.

We know you will see the difference with this software! Players will be fascinated with the game while working toward the overall objective: to increase correct responses (hits) and decrease incorrect ones (misses) to basic arithmetic problems.

Your *ARCADEMIC SKILL BUILDERS IN MATH* program makes learning fun, exciting, independent, and successful. Your players will like learning!

### Developmental Learning Materials

### A NOTE TO PARENTS

Developmental Learning Materials and Jerry Chaffin and Bill Maxwell of the University of Kansas have developed six programs to help your child learn the four basic math operations of addition, subtraction, multiplication, and division. Four programs emphasize each of the math operations, and two programs develop discrimination between math operations by presenting problems in both addition and subtraction or in multiplication and division. In all six programs, an arcade game format uses colorful graphics and lively action to create an exciting, involving atmosphere for learning.

Minus Mission, one of the six Solid State Cartridges, can help your child increase speed and accuracy in subtraction of numbers from 0 to 9.

Minus Mission is learning combined with fun. By playing the game, your child learns and improves essential subtraction skills.

The arcade game format of Minus Mission is a fast-paced, subterranean version of attackers versus defender. Creeping blobs of green slime that contain subtraction problems are the attackers. The defender is a robot, controlled by your child, which fires laser guns to "equalize" the slime blobs with the correct answer. The challenge of different levels of skill and problem difficulty encourages your child to improve his or her speed and accuracy. The colorful graphics and "electronic" sound effects of Minus Mission enhance the action and add to the excitement.

As the game is played, the total of "hits" (correct answers) and "misses" (incorrect answers) is displayed at the top of the screen. At the end of the game a RECORD YOUR SCORE screen appears, giving the totals for that game and the lowest and highest game totals for the session. But whatever the score, your child is gaining valuable practice in solving simple subtraction problems each time she or he plays Minus Mission.



### **YOUR CHILD AND THE COMPUTER**

The Texas Instruments Home Computer is a rugged, durable device designed for easy use and care. Teach your child to give the computer the same good care and respect he or she would give a television set, record player, 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.

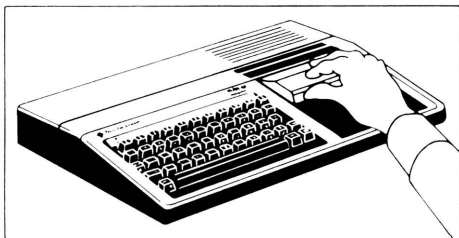
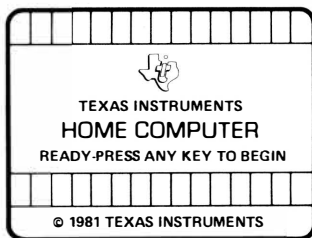
The letters and numbers on the keyboard are arranged in the same order found on standard typewriter keyboards. If your child is not familiar with a typewriter or has not used your Home Computer before, take a few minutes to acquaint him or her with the keyboard. Point out the row of number keys at the top and the rows of letter keys below. Show your child how to insert the cartridge and select the activities. If your child is using Wired Remote Controllers, or joysticks, show him or her how to connect the joysticks to the console and practice using the joysticks in an activity. 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).



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 the appropriate language. This manual was written for the English version, but the game follows the same rules regardless of the language selected.

*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.





### **PLAYING MINUS MISSION**

When the game begins, a large mass of green slime containing five different subtraction problems is displayed at the top of the screen. Each subtraction problem breaks away from the main mass in a blob of slime that falls toward the robot at the bottom of the screen. As each blob falls closer to the robot, it makes a low-pitched sound.

The object of Minus Mission is to “equalize” the slime blobs before they reach the robot and destroy it. To do this, your child positions the robot beneath a slime blob, displays the answer to that blob’s problem on the robot, and fires the robot’s laser guns. When the answer on the robot is correct, the robot’s laser guns equalize the slime blob and a hit is scored.

Equalizing a blob of slime causes it to explode in a starburst of red and blue. Each time a slime blob is equalized, a new problem appears in its place at the edge of the slime mass. The new problem breaks off into a blob that continues the attack.

#### **When Your Child Misses a Problem**

When the number displayed on the robot is not the correct answer to a slime blob’s problem, firing the robot’s guns at that blob scores a miss. When a blob is fired upon and missed, it advances out of turn. Any blob of slime can destroy the robot if it is not equalized before it reaches the robot’s range at the bottom of the screen. A destroyed robot melts into a red and blue mound. If the slime blobs melt three robots before the game’s time limit has expired, the game is over.

### Options Available in Minus Mission

When your child selects Minus Mission, the DLM title and copyright screens appear, followed by an instruction screen which says **PRESS ANY KEY TO PLAY**. When this instruction screen appears, your child has two choices. One choice is to begin a preset game. Pressing any key on the computer keyboard begins a game at a skill level of 7 with addition problems using numbers from 0 to 9. This preset game lasts for two minutes and is played on the keyboard.

A second choice is to alter these preset options to fit your child's individual learning needs or preferences by pressing **AID**. For example, your child may want to play the game for a longer period of time or to use the Wired Remote Controllers (joysticks) rather than the keyboard. (For details on changing program options, see "How to Select Options.")

*Note:* The preset game is intended to challenge your child to discover existing skills and knowledge. Some children may want to continue to play using the options designated in the preset game, and other children may want to adjust the game options. Help your child determine what options are appropriate by watching him or her play the first game.

### Game Options in Minus Mission

**Skill Level (1-9):** the speed at which the game is run. The slowest speed is 1, and the fastest is 9.

**Problem Range (3, 6, 9):** the numbers used in the subtraction problems. For problems using numbers from 0 to 3, press **3**. Press **6** for problems using numbers from 0 to 6, and press **9** for numbers from 0 to 9.

**Run Time (1-5):** the length of time of the game. Games can run from 1 to 5 minutes.

**Joystick Control (Y/N):** the use of the keyboard or of the optional joysticks (Wired Remote Controllers) to play the game. Press **Y** for Yes if your child wishes to use joysticks. (See page 10 for the way in which game play is altered when joysticks are used.) To play using the keyboard, no change is necessary because the preset game uses the keyboard and **N** is already recorded on the screen.

*Note:* The **ALPHA LOCK** must be in the OFF position (up) when joysticks are used.



### How to Select Game Options

When the instruction screen appears with the statement **PRESS ANY KEY TO PLAY**, you may change the preset game options by pressing **AID**. A screen which lists each of the options by number appears.

MINUS MISSION  
GAME CONTROL OPTIONS

1	SKILL LEVEL	1-9	7
2	PROBLEM RANGE	3, 6, 9	9
3	RUN TIME (MIN)	1-5	2
4	JOYSTICK CONTROL	Y/N	N
5	EXIT GAME CONTROL		

PRESS NUMBER OF OPTION  
YOU WISH TO CHANGE

Follow the steps below to select the game options you want.

1. Press the number of the Game Control Option you wish to change. The cursor then moves to the line for that Game Control Option and flashes alternately with the previously selected number or letter.
2. Type the number or letter of the variation you want for that option.
3. Change as many options as you want.
4. When you have completed your selections, press 5 to EXIT GAME CONTROL and to return to the instruction screen. Press any key to begin the game, which is now programmed according to your chosen options.

**Note:** Pressing **QUIT** resets the computer to the preset options for the game. For example, if you want to use joysticks, you must select the joystick option when you first begin to play.

### Controlling the Robot from the Keyboard

To move the robot to the left, press the **S** (←) or **G** key. Press the **D** (→) or **J** key to move the robot to the right. The robot's laser guns are fired by pressing the **Q** or **Y** key or the **SPACE BAR**.

To change an answer displayed on the robot, press the appropriate number key. Also, the number currently displayed on the robot may be increased by pressing the **E** (↑) or **H** key and decreased by pressing the **X** (↓) or **N** key.

### Controlling the Robot with the Joysticks

When the joysticks are used to play Minus Mission, there is one important difference in how the game is played. With the joystick option, the answer appearing on the robot is controlled by the computer.

First, determine which problem is correctly answered by the number appearing on the robot. Then position the robot under the blob of slime containing that problem by moving the joystick lever to the left or right. When the robot is in position, fire its laser guns by pressing the **FIRE** button on the joystick.

Sometimes the answer appearing on the robot correctly answers more than one slime blob's problem. In this situation, firing the robot's guns at the lowest slime blob containing the correct problem is the best strategy. Otherwise, the correct answer for the lowest slime blob may not appear again before the blob melts down the robot.

**Note:** The **ALPHA LOCK** must be in the OFF position (up) when joysticks are used.



### **Length of Time of the Game**

When the game has been played for the time period selected, the game ends and the RECORD YOUR SCORE screen appears. To begin another game, press any key or press **AID** to change game options. (*Note: If the slime blobs melt down three robots, the game also ends.*)

### **Score Keeping**

Minus Mission keeps score of hits and misses in two ways. As the game is played, hits and misses are tallied one by one in the score-keeping area in the slime mass at the top of the screen. At the conclusion of the game, the RECORD YOUR SCORE screen appears, showing total hits and misses for the game just completed, the lowest score, and highest score for each session.

### **Changing Play in the Middle of a Game**

To alter the options during the game press **T** to terminate the game. When the RECORD YOUR SCORE screen appears, press **AID** to change any options and to begin a new game.

### **Continuing Play at the End of a Game**

When the Record Your Score screen appears, press any key to begin playing again or press **AID** and choose any of the options available with Minus Mission. For example, you might choose to increase the speed at which the game is run or lengthen the time of play.

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## TEXAS INSTRUMENTS HOME COMPUTER

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### THESE DLM PROGRAMS ARE AVAILABLE FOR USE ON THE TI HOME COMPUTER

#### **Alien Additon**

For Addition Skills

Waves of alien invaders challenge a missile base far from Earth. The aliens can only be stopped by firing a mobile laser cannon which "equalizes" the enemy by firing correct answers to correspond to the addition problems on the invading alien spacecraft. Your quick reflexes and rapid addition skills are all that stand between the defenders of the missile base and the enemy invaders.

Alien Addition provides practice with addition problems with numbers from 0 to 9. "HITS" and "MISSES" are recorded at the bottom of the screen. Players can fight the alien forces using either keyboard or joystick control.

#### **Minus Mission**

For Subtraction Skills

A robot fights valiantly to defend its territory from the "creeping slime" above it. Blobs of slime carrying subtraction problems drop down upon the robot who can only destroy the blob if you provide it with the correct answer. You must help the robot fight back against this vile enemy.

Minus Mission provides practice with subtraction problems with numbers 0 to 9. "HITS" and "MISSES" are recorded in the "creeping slime" at the top of the screen. Players can help the robot in its battle with the slime by using either keyboard or joystick control.

#### **Alligator Mix**

For Addition and Subtraction Skills

Friendly, but finicky alligators lurk in this colorful swamp. They are hungry and they must be fed—but they only eat apples which bear the correct answers to the addition or subtraction problems which appear on their stomachs. You open the mouth of the alligator when an apple with the correct answer appears. Good luck! Feeding one alligator successfully lures other alligators to rise from the swamp ready for their own sets of apple problems.

Alligator Mix provides practice with both addition and subtraction problems with numbers from 0 to 9. "HITS" and "MISSES" are recorded in the swamp at the bottom of the screen. You control the opening and closing of the mouth of the alligator by either keyboard or joystick control.



### **Meteor Multiplication**

For Multiplication Skills

A violent “meteor shower” threatens a star station. The inhabitants of the star station defend themselves against each of the meteors which bear multiplication problems by firing a cannon loaded with the correct answer. The defenders need your help—both your quick action and your multiplication skills—to survive this dangerous threat from space.

Meteor Multiplication provides practice with multiplication problems with numbers 0 to 9. “HITS” and “MISSES” are recorded at the bottom of the galaxy. Players can fight on the side of the star station using either keyboard or joystick control.

### **Demolition Division**

For Division Skills

Four tanks, each carrying a division problem, advance menacingly toward the four barricades which defend each of your cannons. Your only ammunition against these enemies is the correct answer to the division problem which each tank carries. Quickly, move the answer next to the cannon which faces the foremost enemy. Fire. Now, move to the next cannon and fire once again with the correct-answer ammunition necessary to save it too. Fast action and rapid division may yet keep back the enemy.

Demolition Division provides practice in division of problems with answers from 0 to 9. “HITS” and “MISSES” are recorded at the bottom of the screen. You may fight the enemy tanks using either keyboard or joystick control.

### **Dragon Mix**

For Division and Multiplication Skills

The vigilant dragon stands guard, but the enemies of the city are everywhere. The dragon can defend the city only when you rapidly match the correct answers to the multiplication and division problems which the invaders carry. With your skill in multiplication and division and the dragon’s power, you can succeed. You fire. Victory! But be quick, or the enemy will advance to bomb the city.

Dragon Mix provides practice in multiplication of numbers from 0 to 9 and division of problems with answers from 0 to 9. “HITS” and “MISSES” are recorded at the bottom of the screen on the road leading to the city. You can help the dragon defend the city using either keyboard or joystick control.

### **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 desk lamp, 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*.

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## **THREE-MONTH LIMITED WARRANTY HOME COMPUTER SOFTWARE CARTRIDGE**

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Texas Instruments Incorporated extends this consumer warranty only to the original consumer purchaser.

### **WARRANTY COVERAGE**

This warranty covers the electronic and case components of the software cartridge. These components include all semiconductor chips and devices, plastics, boards, wiring and all other hardware contained in this cartridge ("the Hardware"). This limited warranty does not extend to the programs contained in the software cartridge and in the accompanying book materials ("the Programs").

The Hardware is warranted against malfunction due to defective materials or construction. **THIS WARRANTY IS VOID IF THE HARDWARE HAS BEEN DAMAGED BY ACCIDENT, UNREASONABLE USE, NEGLIGENCE, IMPROPER SERVICE OR OTHER CAUSES NOT ARISING OUT OF DEFECTS IN MATERIALS OR WORKMANSHIP.**

### **WARRANTY DURATION**

The Hardware is warranted for a period of three months from the date of the original purchase by the consumer.

### **WARRANTY DISCLAIMERS**

**ANY IMPLIED WARRANTIES ARISING OUT OF THIS SALE, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE ABOVE THREE-MONTH PERIOD. TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR LOSS OF USE OF THE HARDWARE OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES, OR DAMAGES INCURRED BY THE CONSUMER OR ANY OTHER USER.**

Some states do not allow the exclusion or limitation of implied warranties or consequential damages, so the above limitations or exclusions may not apply to you in those states.

### **LEGAL REMEDIES**

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

### **PERFORMANCE BY TI UNDER WARRANTY**

During the above three-month warranty period, defective Hardware will be replaced when it is returned postage prepaid to a Texas Instruments Service Facility listed below. The replacement Hardware will be warranted for three months from date of replacement. Other than the postage requirement, no charge will be made for replacement.

TI strongly recommends that you insure the Hardware for value prior to mailing.

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## **TEXAS INSTRUMENTS CONSUMER SERVICE FACILITIES**

### *U.S. Residents:*

Texas Instruments Service Facility  
P.O. Box 2500  
Lubbock, Texas 79408

### *Canadian Residents:*

Geophysical Services Incorporated  
41 Shelley Road  
Richmond Hill, Ontario, Canada L4C5G4

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information.

Texas Instruments Consumer Service  
831 South Douglas Street  
El Segundo, California 90245  
(213) 973-1803

Texas Instruments Consumer Service  
6700 Southwest 105th  
Kristin Square, Suite 110  
Beaverton, Oregon 97005  
(503) 643-6758

## **IMPORTANT NOTICE OF DISCLAIMER REGARDING THE PROGRAMS**

The following should be read and understood before purchasing and/or using the software cartridge.

TI does not warrant that the Programs will be free from error or will meet the specific requirements of the consumer. The consumer assumes complete responsibility for any decision made or actions taken based on information obtained using the Programs. Any statements made concerning the utility of the Programs are not to be construed as express or implied warranties.

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



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