Math #3

Advanced Word Problems

The Math Twister!   Grades 3-Adult

The Ellen Nelson Learning Library ™

Developing Bright Minds...Bright Futures

Math #3

Advanced Word Problems: The Math Twister!

This motivating game is designed to encourage continued practice in solving arithmetic word problems. The learner vies with the Math Twister who is out to destroy valuable historical inventions. By solving the word problems, the learner progresses through the maze toward the invention. If the learner beats the Twister, the invention is saved; if not, it is destroyed and history is changed. A calculator and help screens are available to assist in solving the arithmetic word problems.

Math #3 was developed for school-aged children, but its popularity among teachers who tested this program has led Ellen Nelson to present it to children and adults. Math #3 is correlated to the math curriculum and has been tested with school children from grades three through junior high and classroom teachers.

About the Author

Ellen M. Nelson is qualified to present to you her library of learning materials. As a successful mother and educator, she has raised two children; taught elementary, secondary and college students; served as a school principal; and directed curriculum for school districts.

As a publisher, Ellen has organized and manages her own publishing company and is directly responsible for the authorship of 63 educational software programs for publishers of science, math, language arts and social science textbooks. Ellen has developed a practical understanding of the learning needs of children and has translated those needs into quality instructional materials for her Learning Library.

About the Company

Decision Development Corporation is a publishing company specializing in the development and distribution of curriculum-based educational software and print products. Since 1982, DDC has developed software titles for major textbook publishers. With this experience and background, DDC is uniquely qualified to present to you The Ellen Nelson Learning Library™ of educational software titles spanning the curriculum areas of mathematics, science, language arts and social sciences.

You can rely on a DDC program to be:
- designed for children to learn concepts that are commonly taught in schools.
- correlated to textbooks used in schools.
- easy for adults to present and use with children.
- interesting and motivating to children.
- thoroughly tested by teachers and students before publication.
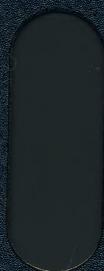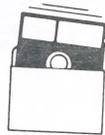
The Ellen Nelson Learning Library ™

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(415) 830-8896

MATH 3:
ADVANCED WORD PROBLEMS:
THE MATH TWISTER!
APPLE IIc, IIe, II+, IIgs

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	注 意	
	Insert Carefully Inserer avec soin	Insertar Sorgfältig Einsetzen
	挿入注意	
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The Ellen Nelson Learning Library™

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If you did not order backup disks at the time of purchase, you may order up to 2 backup copies per software title at $10 each. Please use the order form enclosed in the product package.

Replacement Policy
If after using the disk it becomes worn or damaged, **The Ellen Nelson Learning Library** will gladly replace it at $15 per disk. Please send the damaged disk, or proof of purchase, to the address below.

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Address _____

City _____ State _____ Zip _____

Phone _____

Product Purchased _____ Date Purchased _____
What computer do you own? _____
Where did you hear about The Ellen Nelson Learning Library?
_____

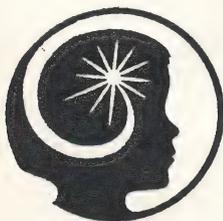# The Ellen Nelson Learning Library™

Developing Bright Minds...Bright Futures

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2680 Bishop Dr. Suite 122

San Ramon, CA   94583

INDIVIDUAL RECORD

Name: _____

Teacher: _____

Grade: _____

Software
Title: _____

DIRECTIONS: Write the subject or Menu title in each numbered space at the top of the chart. Write the date of each practice session. Then, keep track of your work by placing a tally mark (~~////~~ /) in the "right" or "wrong" column as you complete each problem. Follow the example.

PRACTICE DATE	1.		2.		3.		4.		5.	
	Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong	Right	Wrong
February 2	III	II			I	IIII	~~////~~			

SOFTWARE TITLE_____

CLASS RECORD

TEACHER:_____

GRADE:_____

YEAR:_____

DIRECTIONS: Write the subject or Menu title in each numbered space at the top of the chart. Then, enter the names, dates, and scores from the **Individual Record Form.**

STUDENT NAME	1.			2.			3.			4.			5.		
	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE	DATE/SCORE
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The Ellen Nelson Learning Library ™

DEVELOPING BRIGHT MINDS ..... BRIGHT FUTURES

MATH #3:

Advanced Word Problems:
THE MATH TWISTER

GRADES 3 - ADULT

A Reference Guide

MATH #3:
Advanced Word Problems:
THE MATH TWISTER

TABLE OF CONTENTS

A Message From The President,

You are a thoughtful person who cares about children and you can be proud that you have chosen a program from **The Ellen Nelson Learning Library.** The programs in this Library have been designed by experts in an instructionally-sound format to help you develop your learner's bright mind. The software has been tested by students and teachers.

Each title in **The Ellen Nelson Learning Library** is selected because it is part of the school curriculum at one or more grade levels. The **Reference Guide** contains a chart listing the skills which can be learned in the program. The Guide also contains a chart which correlates this program to some of the major mathematical textbooks. Thus, you can coordinate the software with the books used in your schools.

THE LEARNING LIBRARY PROGRAMS
- contain messages which guide your learner's progress.
- use a positive approach.
- use graphics to enhance understanding.
- required learner participation.

We know you will be pleased as you see your learner's skill and confidence improve. I have enclosed a brochure about other **Ellen Nelson Learning Library** products which are available at a local store or which can be purchased from **Decision Development Corporation.**

Sincerely,
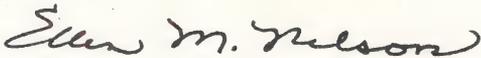
Ellen M. Nelson

Ellen M. Nelson
President and Chief Executive Officer,
Decision Development Corporation

INTRODUCING MATH #3:

Advanced Word Problems:
THE MATH TWISTER

   MATH # 3 is a game designed to motivate and encourage the learner to practice solving arithmetic word problems which use the four operations: addition, subtraction, multiplication, and division. The learner vies with Math Twister, who intends to sabotage valuable historical inventions. By solving word problems, the learner progresses through a maze toward the invention. If the learner gets to the end of the maze before Twister does, the invention is saved; if not, the invention is sabotaged. Assistance is available in the form of an on-screen calculator. **MATH #3** is designed for learners ages eight to adult.

   This **Reference Guide** includes a description of the software program, a plan for introducing the program to learners, skeletal record-keeping forms that can be adapted to class or home use, and information about the software and its relationship to the school curriculum.

PLAYING THE GAME

Goal

   To reach the exit door before Twister, thus saving the invention hidden behind it.

Rules

   If a problem is answered correctly, Twister is stopped temporarily.

   If a problem is answered incorrectly, Twister leaps forward.

   After a problem is answered, the learner may move.

   The learner must answer **four** problems correctly to save the invention.

How To Play

- The learner chooses a companion, either Becky or Rapper, to move through the maze. The directional arrow keys or the I, J, L, M keys are used to move.
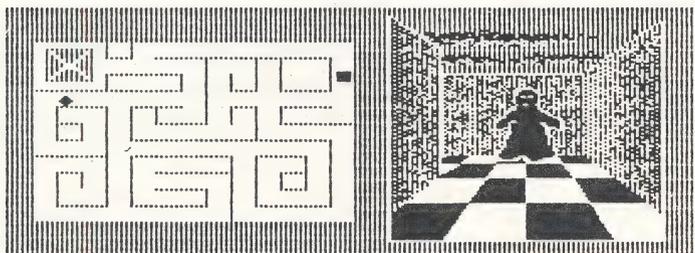
J ←   I
      ↑
      O
      ↓
      M   → L
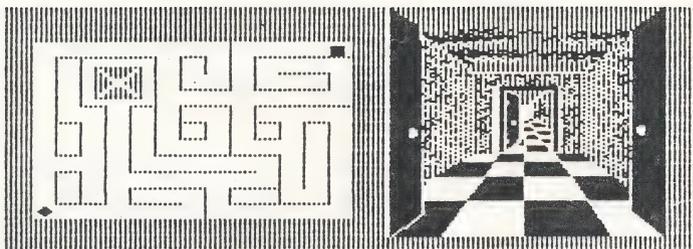
Use these keys to move Rapper
and you through the maze.

- Obstacles appear and block the learner's path. The learner must read and solve a word problem to get rid of the obstacle and continue through the maze.
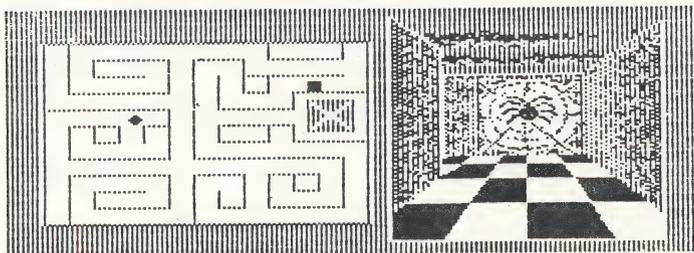
Oh no! Look what's ahead!
You can poof it away and not lose
time by solving this problem.

- The learner can type the answer with or without using the calculator which is available in the program. To use the calculator, the learner presses C and RETURN.

The airplane contains 29 pounds of
materials. It cost $348 to buy all
the materials to build the plane.
How much did each pound cost?

Type ■■ for calculator or
type your answer; press RETURN.

- Once the calculator is displayed on the screen, the learner selects and types a number sentence, entering the first number, the operation sign, the second number, and the equal sign. (e.g., to divide; type 10/5 =). The computer calculates and displays the answer. The learner may type E to erase an entry, or C to clear memory much like a regular calculator. When the learner presses ESC, the calculator stays on the screen but the cursor moves below so the learner can type the answer in the answer space and continue the game.

SCREEN 4
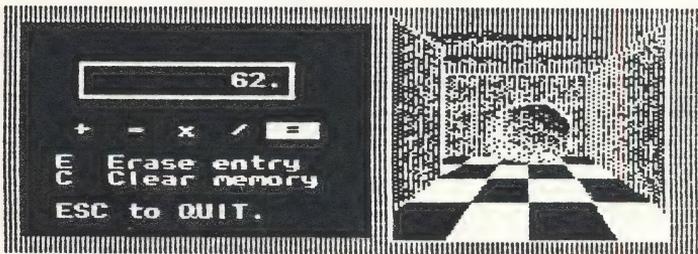
Students often travel far to study in
the royal library. If an old student
crossed 38 villages and a young
student crossed 24 villages, how many
total villages did the students pass
through to read the royal works?
Type ██ for calculator or
type your answer; press RETURN. 62

- The RETURN key brings the learner back to the maze and removes the calculator from the screen.

- If a problem is answered correctly, the obstacle explodes and Twister is stopped temporarily. If the problem is answered incorrectly, the correct answer is given and Twister moves ahead in the maze.

- The game is over when the learner answers either four problems correctly or three problems incorrectly. The maximum number of problems a learner can attempt to solve at any one time is six; the minimum number is three.

- If the learner exits the maze before Twister, the game is won and the invention is saved.
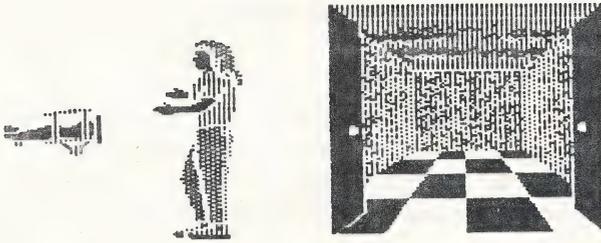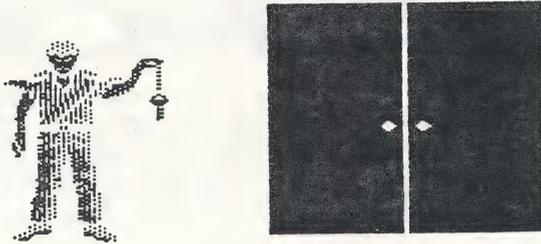
Congratulations! You and Becky
have beaten Twister through the maze.

The airplane is saved.

- If Twister reaches the doors first, the game is lost and Twister locks away the invention. The learner may then choose either to play the game again with a new set of problems or to quit the program.

SCREEN 6

Oh no! Twister has reached the
invention before you.

He has locked away the
paper from civilization.

Press SPACEBAR.◻

A PRESENTATION PLAN

Program Objectives

The objective of this program is to motivate learners to practice solving advanced word problems which require the addition, subtraction, multiplication, and division of whole numbers with up to five digits.

Materials Needed

MATH #3 software; an APPLE II, II Plus, IIe, or IIc, Commodore 64 or IBM PC or PCjr computer; one disk drive; monitor; copy of **Keys Used in MATH #3** from this Reference Guide; copy of **Individual Record.**

Background Information

Advanced Word Problems: The Math Twister, relies on an analytical process common to many mathematics textbooks. Its game format is designed to elicit high interest on the part of the learner while providing valuable practice experience.

The software may be used in several ways:

- a practice independent of any direction or instruction,
- a game to prepare students for textbook work in problem-solving,
- additional problem-solving practice in a different format, or
- enrichment work.

A schedule assigning learners to time at the computer can be prepared prior to introducing the software. In addition, the Record Forms are available.

Presentation

Write a word problem on the chalk board. Draw a simple maze under the problem and mark the learner's place in the maze. Ask the learner to read the problem and then decide which operation and which numbers to use. Write the number problem on the chalk board using that data. Once the correct answer has been found, explain what a maze is and let the learner practice moving throughthe maze on the chalk board.

Sample Board Work

CHALK BOARD

Problem	Work Space
Jamie owns 57 books. The library contains 45,689 books and 900 records. How many more books does the library have than Jamie?	45,689 − 57 45,632
	or: 45,689 − 57 = 45,632
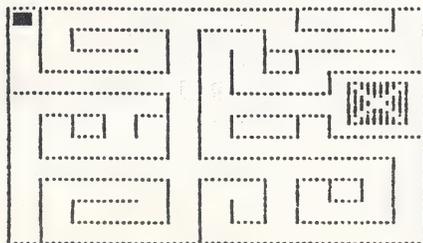
Explain that the program uses several computer keys. Distribute the copy of **Keys Used in MATH #3,** and review it with the learners. Post and explain the schedule or assignment of computer time. Distribute **Individual Record** forms and read through the directions with the learners. You may want them to use the numbered blanks to write in each invention they encounter.

Evaluation

Collect and review the **Individual Records.** If the learner loses to Twister or misses too many problems, assign the learner to several ten-minute sessions of computer practice using **MATH #1: THE MECHANICS OF WORD PROBLEMS** software.

PROGRAM DATA

The following is a synopsis of all the pertinent data used in the software.

Obstacles

There are a total of six obstacles: a cobra, a ghost, a fire, a boulder, a bat, and a spider. These obstacles appear randomly throughout the game.

Inventions

There are a total of 11 inventions behind the exit door: a sailing ship, a cart, a potter's wheel, a pulley, parchment, paper, a printing press, a curved lens, a cannon, an airplane, and a laser. These inventions appear one at a time until all 11 have been used. The problems relate directly to the era and civilization of the invention to be saved.

Mazes

Four different mazes are used randomly throughout the program. This ensures that the learner will not always go through the same maze.
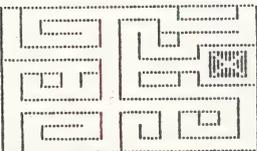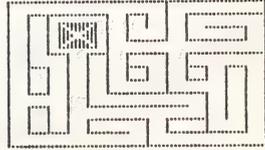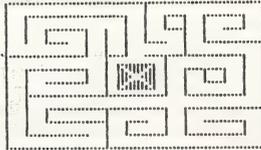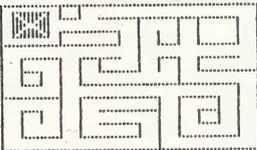
Here are the mazes of time...

SCOPE AND SEQUENCE

| SEQUENCE OF SKILLS	OBJECTIVES
Choose the operation.	Identify the correct operation for solving each word problem.
Solve problems with extraneous information.	Distinguish between important and superfluous information in word problems.
Write a number problem.	Translate a word problem into a number problem.
Add, subtract, multiply, and divide using one to five digit numbers.	Solve for the sum, the difference, the product, or the quotient of two or three numbers of up to five digits each.
Demonstrate visual discrimination.	Move an on-screen marker through the pathways of a maze to the exit door.

FORMS

Several forms have been prepared for you which you may reproduce as needed. These include **Keys Used in MATH #3,** and two forms separate from this Guide, but included in the package: an **Individual Record** and a **Class Record.** The **Individual Record** can be used by a learner to keep a tally of success in solving word problems and saving inventions. The **Class Record** is an aid which can be used to compile data about the learner's progress.

KEYS USED IN MATH #3

SPACEBAR — - to advance in the program

RETURN — - to record an answer
— - to delete

[key symbol] *
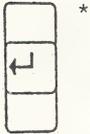
INST-DEL — - to delete

Number Keys — - to enter data for solving problems
— - to choose between two options

```
   I
J + L    or    [arrows]        - to move the marker through the maze
   M
```

C — - to use the calculator

Inside The Calculator

E — - to erase entry

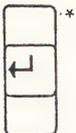C — - to clear memory

[key symbol] ** ESC — - to return to the program/save calculator

+ — - to select addition

— — - to select the operation of subtraction

× — - to select the operation of multiplication

/ — - to select the operation of division

[key symbol] * Return — - to return to the program/erase calculator

*IBM only.
**Commodore only.

USING THE COMPUTER

Hardware Specifications

Your software has been designed on one disk for one of the following computers:

APPLE II, II Plus, IIe, or IIc
Commodore 64/128
IBM PC or PCjr.

You will need a monitor (color or monochrome), one 5-1/4'' disk drive, a CPU and keyboard and 64K of Random Access Memory (RAM). IBM PC owners will need a graphics card.

Handling the Disk

Floppy disks are delicate and need to be handled with care.
- Handle disks by the protective covering only.
- Do not touch the exposed gray surface of the disks.
- Keep disks in their storage envelopes when not in use.
- Avoid exposing disks to magnetic objects such as TV sets or stereos.
- Avoid extremes in temperature.
- Keep away from direct sunlight.

Starting Up

- Hold the edge of the disk with the label facing upwards, thumb over the label.
- Carefully push the disk all the way into the disk drive.
- Close the disk drive door.
- Turn on the computer and the monitor. If trouble occurs, turn the computer off and on again.
- For Commodore: Turn on drive; Type LOAD ''DDC'',8,1 and press return. Then type RUN and press return.
- For IBM: Do not load DOS.

Quitting

* * *NEVER REMOVE THE DISK WHILE THE DISK DRIVE LIGHT IS ON* * *
- Open the drive door.
- Hold the edge of the disk and gently slide it out of the drive.
- Store the disk in its protective cover.
- Turn off the computer and the monitor.

TEXTBOOK CORRELATIONS

PUBLISHER	SKILL	SOFTWARE OBJECTIVE
Addison-Wesley, 1987 Mathematics Our World	Addition/Subtraction Multiplication Division Writing and solving equations	- solve for the sum of 1-5 digit numbers. - solve for the difference between 1-5 digit numbers. - solve for the product of 1-5 digit numbers. - solve for the quotient of 1-5 digit numbers. - translate a word problem into a number problem.
Holt Mathematics, 1987	Choosing the correct operation Writing number sentences Writing mini-problems Solving problems with extra information	- choose the correct operation. - translate a word problem into a number problem - translate a word problem into a number problem. - distinguish between important and superfluous information.
D. C. Heath Mathematics, 1987	Varied operations Addition Subtraction Multiplication Division Practice	- choose the correct operation. - solve for the sum of 1-5 digit numbers. - solve for the difference between 1-5 digit numbers. - solve for the product of 1-5 digit factors. - solve for the quotient for 1-5 digit numbers. - reach the exit door before Twister by solving four problems correctly.
McGraw-Hill Mathematics, 1987	Too much information Addition Subtraction Multiplication Division	- distinguish between important and superfluous information. - solve for the sum of 1-5 digit numbers. - solve for the difference between 1-5 digit numbers. - solve for the product of 1-5 digit factors. - solve for the quotient of 1-5 digit numbers.

Publisher	Topic	Objective
Scott Foresman & Company Mathematics, 1983	Choosing the correct operation	- choose the correct operation.
	Too much information	- distinguish between important and superfluous information.
	Addition	- solve for the sum of 1-5 digit numbers.
	Subtraction	- solve for the difference between 1-5 digit numbers.
	Multiplication	- solve for the product of 1-5 digit factors.
	Division	- solve for the quotient of 1-5 digit numbers.
Silver Burdett Co. 1983	Too much information	- distinguish between important and superfluous information.
HBJ Mathematics, 1987	Addition	- solve for the sum of 1-5 digit numbers.
	Subtraction	- solve for the difference between 1-5 digit numbers.
	Multiplication	- solve for the product of 1-5 digit factors.
	Writing and solving problems	- translate a word problem into a number problem.
	Too much information	- distinguish between important and superfluous information.
Macmillan Mathematics, 1987	Choosing the process	- choose the correct operation.
	Problem-solving	- solve for four different operations.

DECISION DEVELOPMENT CORPORATION

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