

Table of Contents

Elementary Math is designed to help you teach your child or student to add and subtract numbers between 0.1 and 1000. It even teaches the concepts of carry and borrow in the context of three-column vertical addition and subtraction. A cumulative grade for each difficulty level is stored for each user so you can evaluate the performance and improvement of your students.

These concepts are taught through a simplified approach using a traditional object -- the apple. One apple is treated as a unit in the lower difficulty levels of addition and subtraction. For multi-digit numbers, baskets of ten apples and boxes of 100 apples are used to represent tens and hundreds. We use slices of apples to represent the decimal numbers.

Menu Commands

- [File](#)
- [Difficulty Level](#)
- [Options](#)
- [Help](#)

General Topics

- [Entering Numbers](#)
- [Hint Button](#)
- [Next Problem Button](#)
- [Carrying](#)
- [Borrowing](#)
- [Grade Reports](#)
- [Voices](#)
- [Installing a PC Speaker Driver](#)
- [Other Software Products from MES](#)

File

Add Mode

Choose this item to practice addition. This is the default startup mode

Subtract Mode

Choose this item to practice subtraction.

Grade Report

Choose this item to view a grade report generated from each difficulty level. The grades are saved in a file so a cumulative grade can be generated for each user.

Change User Name

Choose this item to change the user name without having to exit Elementary Math. If the user name you desire does not yet exist then you can create it using this option.

Quit

Choose this item to quit Elementary Math. The current users grades will be updated.

Grade Report

Choose this item to generate a grade report for the current user. The grade report will contain the total problems attempted and total problems worked correctly for each difficulty level. Grades with and without decimals are tallied separately and can be displayed by checking the Using Decimals checkbox. Using these numbers Elementary Math will compute the percent of correct answers and a letter grade for each difficulty level based on a 10 point grade scale.

To reset the grades to zero for a particular user, stop and restart the program. When the user dialog box asks for the user name re-type the name of the user in the edit box then choose the OK button. You will be asked to confirm whether the grades for this user are to be re-set. Answer YES to reset the grades.

Difficulty Level

At all times the correct response may be determined by counting the total number of red apples or parts of apples on the far left of the screen.

Level 1

Level 1 adds or subtracts two single digit numbers whose sum is always less than 10. At all times the correct response may be determined by counting the total number of red apples on the far left of the screen.

Level 2

Level 2 adds or subtracts two single digit numbers whose sum is between 0 and 18. At all times the correct response may be determined by counting the total number of red apples on the far left of the screen.

Level 3

Level 3 adds or subtracts two double digit numbers whose sum is between 0 and 198. This operation is separated into two steps. In the first step you must add or subtract the two first order digits, as in levels 1 and 2. If the answer is 10 or greater you are prompted to carry a 1 to the second order column. Similarly, if a borrowing operation is needed you are prompted to borrow ten from the next column of higher order digits. In the second step you must take the sum or difference of the second order column, including the carry digit if it exists. At all times the correct response may be determined by counting the total number of red apples or groups of red apples on the far left of the screen.

Level 4

Level 4 adds or subtracts two double digit numbers whose sum or difference is between 0 and 1999. This operation is separated into three steps. In the first step you must add or subtract the two first order digits, as in levels 1 and 2. If the answer is 10 or greater then you are prompted to carry a 1 to the second order column. Similarly, if a borrowing operation is needed you are prompted to borrow ten from the next column of higher order digits. In the second step you must take the sum or difference of the second order column, including the carry digit if it exists. The third step repeats the previous steps on the third order column. At all times the correct response may be determined by counting the total number of red apples or groups of red apples on the far left of the screen.

Use Decimals

This option implements decimals in all levels and modes. However, the concept is exactly the same. You must sum or difference one column then carry to or borrow from the next higher order column. At all times the correct response may be determined by counting the total number of red fruit on the far left of the screen.

Options

Visual Rewards

Select this item to turn off the Visual Rewards. To turn the Visual Rewards back on select this item again. This option does not affect Voice operations but does turn off the sound effects when turned off.

Sound Effects

Select this item to turn off the sound effects that accompany the visual rewards. To turn the sound effects back on select this item again. This option does not affect Voice operations.

Voices

Select this item to turn off the voices. To turn the Voices back on select this item again.

Background Color(s)

This option allows you to choose the background colors from a standard Windows Color Dialog Box. You can redefine the colors on each portion of the window. Your background colors are saved when you exit the program. Make sure you don't choose the same color for the background and text. If you do, the numbers will not be visible.

Text Color

Use this option to change the color of the text using a standard Windows Color Dialog Box.

Help

The Help menu is where instructive information is contained.
The options are:

Help Contents

This option is the option your are now using. It may be invoked at any time by pressing the F1 function key.

Help on Help

This option invokes Window's instructions on how to use the HELP utility.

View Description of other Products from MES...

This option invokes the Windows Write Editor with a file containing descriptions of other educational software available from MES.

About Elementary Math...

This option displays a dialog box with miscellaneous information about Elementary Math.

Entering Numbers

You can enter numbers using either the mouse or the keyboard. In addition, you can change the method of entry at any time. If you have already picked up a number with the mouse be sure to hit the ESC (Escape) key before entering numbers using the keyboard.

Mouse Method

Method a)

- 1) Move the mouse cursor over the number you want to select then press the left mouse button. Do not release the button yet.
- 2) Drag the number to the flashing rectangle. If you want to choose another number without answering, press the ESC (Escape) key.
- 3) Release the left mouse button.

Method b)

- 1) Move the mouse cursor over the number you want to select.
- 2) Double-click the left mouse button.

Keyboard Method

Press the correct number on either the main keyboard or the keypad on enhanced keyboards

See Also [Carrying](#) and [Borrowing](#)

Hint Button

Click on this button at any time to get the next answer. If the voice mode is activated you will be informed of the next answer verbally. In either case the correct answer will be displayed in the Hint Area.

Next Problem Button

Click on this button at any time to abandon the current problem and go to the next problem. This increments the number of problems attempted and will affect your score.

Carrying (Add Mode)

When a single column sums to more than 9 (0.9 when using decimals) the 10 must be carried to the next higher order column. The remainder of the sum minus 10 is placed in the current column and the ten is carried to the next column as a 1. Elementary Math expects and requires the remainder to be placed first. If it isn't clear which to enter first, press the hint button.

Elementary Math was designed to reinforce a systematic, orderly approach to carrying. Placing the remainder first is the only systematic way to perform a carry.

Borrowing (Subtract Mode)

Elementary Math does not directly address negative numbers, therefore it is necessary to borrow from the higher order column(s) when trying to subtract a larger number from a smaller number. In all cases you will be prompted to perform a borrow.

Whenever a borrow is executed there exists a number in the lowest-order column that is equal to or greater than 10, or 1.0 when using decimals. It is necessary to place this two-digit number in a single column. Elementary Math expects and requires the highest order number to be entered first. That is, if the required answer is 12, the one is entered first and then the two is entered last.

Voices

To turn voices on or off see the [Options](#) item.

If you have a sound board Elementary Math for Windows will talk. This allows your student to have the problem presented in two ways, visual and verbal. These voices are played through the Windows WAV sound driver. If you own a sound board you should have the sound board driver installed in Windows. See your sound board and Windows documentation for detailed instructions.

If you do not have a sound board there is still a way for you to activate the voices through your PC's internal speaker. While the quality is not as good the result has enough clarity to be recognizable and useful. To do this you must install a PC speaker driver in Windows. Click the item below for more details.

Also See

[Installing a PC speaker Driver](#)

Installing a PC Speaker Driver

To play voices and sounds through your PC's internal speaker you need a special driver not shipped with Windows 3.1. There are several companies which produce these speaker drivers. One driver we have used is from Microsoft. This driver is free as long as it is used with a registered copy of Microsoft Windows and it is available from many locations. It is usually located in a file called pcspeak.zip which contains the driver as well as information on its legal use. *If the information in pcspeak.zip contradicts what is described here, the Microsoft documentation will prevail!*

Windows PC speaker drivers are produced by companies other than Microsoft and have been offered free through computer magazines such as COMPUTE (Jan. 1993). Going down to your local software store and inquiring about a Windows PC speaker driver will probably result in your locating a driver that will allow Elementary Math as well as other programs to play sounds through the PC speaker.

We recommend you purchase an 8-bit sound board. These can be purchased for little more than the price of this program!

Also See

[Voices](#)

Other Educational Products from MES

Elementary Math is the third of a series of educational software applications from Motes Educational Software (MES) for Microsoft Windows. MES also has a successful line of educational software for DOS that has won various awards from the educational software community. If you would like to receive more information about MES products please contact MES through one of the means listed below.

To view a brief description of the software available at this time choose the [Help|View Description of Other MES Software...](#) menu item.

You may write to MES at the following addresses:

| | |
|------------------|---|
| U.S. Mail: | Motes Educational Software P. O. Box 575 Siloam Springs AR, 72761 |
| Electronic Mail: | 73757,1111 on CompuServe |
| or on Internet: | 73757.1111@compuserve.com |

