

## Math Apples: Help Contents

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## **Math Apples: Overview**

The purpose of Math Apples is to help teach the decimal number system and elementary operations to Kindergarten through 3rd grade students. The visualization of abstract concepts is assisted by computer graphics representing both placeholding and regrouping. This program is intended to be an instructional tool, not a game. Think of it as a calculator which reveals the intermediate steps in a calculation.

If you like the concept of Math Apples, you should see our larger product, called The Flashcards System for Windows. In addition to apples, The Flashcards System includes number lines, tables, an interactive module for math drill, and a parent / teacher control module to define problem generation parameters. At 740,000+ bytes, The Flashcards System is too large to download from a bulletin board. We will gladly send a shareware version of The Flashcards System to you when you register Math Apples.

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## **Math Apples: Shareware Explained**

This program is distributed as shareware. It is made available to consumers from bulletin boards or by shareware distributors for a distribution fee. If, after having reviewed it, the consumer makes use of the program, he or she is obligated to register with the shareware publisher. There are many advantages to this method of software marketing.

From the consumer's point of view, they get to find out if the program is useful for their purposes, before committing to a purchase. When they do commit to purchase, the price is usually less expensive than comparable software distributed through traditional retail channels.

From the publisher's point of view, shareware minimizes the front end expenses of maintaining an inventory and advertising. It also cuts out the middle men in the traditional distribution channels.

How to register Math Apples

When you register, what you get

Whether you choose to register or not, you are free to distribute the shareware copy of this product to your friends. That's the way that shareware works.

**How to register:**

The registration fee for Math Apples is \$5.00 in US funds.

There are 2 ways to print a registration form. The first is by choosing the Help menu and then choosing the Shareware Registration option. The second is to choose the "Register Now" button from the Shareware Message when you exit Math Apples.

**When you register, what you get:**

The most recent update of the Math Apples program

No more "shareware" message

A diskette containing a shareware version of The Flashcards System for Windows

Notification of new educational software products, as they become available

Free telephone support

## Math Apples: Revealing the Answer

There are 3 possible methods by which the answer to a calculation may be revealed. These are represented by the 3 option circles under the "Reveal the Answer" button. There is always one and only one of these circles which is darkened. The option chosen controls the behavior of the "Reveal the Answer" button.

The "**Show All Steps to the End**" option will reveal the answer, step by step with about 2 seconds between steps, until the calculation is completed. While this is happening, all other controls on the screen are disabled.

The "**Show 1 Step at a Time**" option will reveal one step for each click on the "Reveal the Answer" button. Once the first step has been displayed, a new button is exposed, allowing you to back up a step at a time. Also, many other controls are disabled while a step by step reveal is taking place. However, at any time while stepping through, you may change the reveal option, to get to the end of the calculation, or click on the "Hide" button to stop the calculation.

The "**Show Answer; No Steps**" option will simply show the answer, with no intermediate steps.

Once the answer is fully revealed, changing the operands will change the answer as well. If you want to conceal the answer, prior to changing the operands, click on the "**Hide**" button.

There are musical sounds programmed to accompany each of the various steps in a calculation. You can enable or disable these sounds by Choosing "**Options**" from the main menu and then clicking on the word "**Sounds**". A check mark next to "Sounds" means that the sounds are currently enabled.

## Math Apples: Changing Numbers

We use the general term **operands** to refer to the numbers in a problem. In Math Apples there are always 2 operands. These numbers may be changed using the horizontal scroll bars in the middle of the control panel. The scroll bars may be manipulated either by the mouse, or from the keyboard.

There are 3 parts to the scroll bar, the arrow buttons on either end, the scroll button in the middle and the scrolling area within which the scroll button moves. There are also 3 different types of moves, a small move, a large move and a scrolling move. The small move always changes the value of the operand by 1. The large move changes the value by either 1 or 10. The following table shows the names, large move size, and the high values for each operand for each operation:

<u>Operation</u>	-----Operand 1-----			-----Operand 2-----		
	Name	Lg Move	Hi Value	Name	Lg Move	Hi Value
Addition	Addend	10	250	Addend	10	250
Subtraction	Minuend	10	250	Subtrahend	10	<= Minuend
Multiplication	Multiplicand	1	12	Multiplicand	1	8
Division	Dividend	10	80	Divisor	1	<= Dividend

Using the mouse, the 3 types of moves can be accomplished as follows. A small move can be accomplished by clicking one of the arrow buttons. A large move is done by clicking in the scrolling area between the scroll button and the arrow button. A scrolling move can be done by clicking on the scroll button and dragging it. Dragging means you hold down the mouse button and move the mouse pointer. Make sure when you are dragging that the mouse pointer stays in the scrolling area.

The keyboard may be used to manipulate the scroll bar as follows. First of all, the scroll bar must have "focus". Hit the "Tab" key repeatedly and you will see the focus change. When the scroll button is flashing, it has the focus. Once the scroll bar has focus, use the arrow keys to get a small move, the "Page Up" and "Page Down" keys for a large move, and the "Home" and "End" keys for the maximum scrolling move.

## Math Apples: New Problems / Operations

There are 4 operations available. They are:

Addition

Subtraction

Multiplication

Division

The new problem buttons in the Math Apples program serve a dual purpose. They are used to generate a new problem in the same operation or to change to a different operation. These buttons may be pressed either by the mouse or from the keyboard. Using the mouse, point to the button indicating the operation you want and click.

When a new problem is requested, the operands are randomly chosen. The range of available numbers is from zero to the maximum number specified

The keyboard may be used to press one of these buttons as follows. First of all, the desired button must have "focus". Hit the "Tab" key repeatedly and you will see the focus change. Try "Shift+Tab" to change in the opposite direction. Once the button you want has focus, hit the "Enter" button or the space bar to click it.



## **Math Apples: Addition**

Addition is represented in Math Apples by combining the values of each operand into the answer, and then regrouping (carrying) if the answer contains a value of 10 or more. Units are handled first, then tens, and finally hundreds.

The range of operands is from zero to 250.

## Math Apples: Subtraction

In subtraction, operand 1 is the minuend and operand 2 is the subtrahend. The subtrahend is "taken away" from the minuend. Subtraction is represented by crossing off from the minuend, the number of symbols in the subtrahend. If there are not enough symbols in the minuend to accommodate, regrouping (borrowing) needs to take place, by breaking up one of the next higher placeholding symbols. After the symbols are crossed off, any remaining symbols are brought down to define the answer. Units are handled first, then tens, and finally hundreds.

The range of values for the operands is from zero to 250. Math Apples will never allow a subtraction problem to be created where the answer would be less than zero. This means that the subtrahend may never be increased to be greater than the minuend and the minuend may never be decreased to be less than the subtrahend.

## Math Apples: Multiplication

Multiplication is represented as an array of apples. Operand 1 defines the number of columns and operand 2 defines the number of rows. The answer is the number of apples contained in the matrix. The first step in calculating the answer is to separate as many groups of 10 as possible. For each group of 10, a ten apple symbol is placed in the answer. After all the tens have been brought down, any units left are also brought down, thus completing the answer.

The range of values for operand 1 is from 0 to 12. The range of values for operand 2 is from 0 to 8. Therefore, the maximum multiplication problem is 12 times 8.

## Math Apples: Division

In division, operand 1 is the dividend and operand 2 is the divisor. The operation of division is represented by counting how many divisor-sized groups of apples can be separated from the dividend. This is done by circling each group and placing an abstract symbol into the answer. Many people have asked why we use abstract symbols, instead of apples, to represent the answer in division. The reason is that if we used apples, it would be very confusing to see a group of 3 apples in the dividend become a single apple in the answer. The symbol used (red surrounded by blue) is meant to represent a group of apples.

The range of values for the dividend is from 0 to 80. The range of values for the divisor is from 1 to 80. Math Apples will never allow a division problem to be created where the answer would be less than 1. This means that the divisor may never be increased to be greater than the dividend and the dividend may never be decreased to be less than the divisor.

Although Math Apples will never generate a division problem for which the answer includes a remainder, it is possible to manually specify such a problem. When this happens, a partial group symbol is used to illustrate the remainder portion of the answer.

## **Math Apples: Technical System Information**

Math Apples is written in Microsoft's Visual Basic for Windows 2.0 Professional Edition. It was developed on a 25 megahertz 486 SX under Windows version 3.1 using a VGA 640 by 480, 16 color display format.

The runtime version of Visual Basic (VBRUN200.DLL) is required for Math Apples to run on your machine. This file should be installed into the \WINDOWS\SYSTEM directory.

Math Apples is distributed, for downloading from bulletin boards, as APPLMATH.ZIP. This compressed file, when unzipped, contains the following files:

APPLMATH.EXE  
APPLMATH.HLP  
APPLMATH.INI  
README.WRI  
WINPLAY.DLL

The APPLMATH.\* files should be in the same directory. WINPLAY.DLL should be installed into the \WINDOWS\SYSTEM directory.

## **Math Apples: Technical Support**

If you have any questions, problems or suggestions about Math Apples, we want to help you. There are three ways to reach us:

**Phone:** The phone number is (206) 574-2689. If you leave a message and want us to return your call, please give us permission to call collect.

**Compuserve:** Our address for electronic mail is 73160,1645.

**Mail:** Our address for postal mail is:  
You and Me Products  
P.O. Box 61488  
Vancouver, WA, USA, 98666

