Flashcards System: Help Contents

The Contents lists Help topics available for the Flashcards system.

Context sensitive help is available from within the progams of the Flashcards system. All you need to do is to set the focus on the button, scroll bar or data field that you are interested in and then press the F1 key. This will bring up the appropriate help topic. Setting the focus means pressing the Tab key on the keyboard until the button, scroll bar or data field, that you are interested in, changes.

Flashcards System: Overview

The purpose of the Flashcards System is to help teach elementary mathematical concepts, facts and operations to Kindergarten through 3rd grade students. The visualization of abstract concepts is assisted by computer graphics representing both the nature of numbers and the nature of operations upon numbers.

This system was developed with the vision of parents and children working together on a home computer. It offers to the parent the ability to create a individualized learning program for each child.

Mathplay is the first of 3 programs which make up this system. It is a teaching tool designed to be used by the parent and child together. Within Mathplay the first graphical representation is the Number Line which presents numbers as expressions of size. The second representation is Apples which shows numbers within the decimal number system. The last representation is Tables which can be used to show the relationships between numbers and operations. Within each of these screens, there is the ability to manipulate the numbers and operations in order to gain a visual understanding of abstract concepts.

The Flashcards program provides a problem solving session for the student. The graphical screens from Mathplay are available to help analyze and solve the problem. Answers are entered either using the mouse or the keyboard. Written and audible (if the computer has a sound board) feedback, defined by the parent, lets the child know whether the answer was correct. As correct answers are entered, points are accumulated.

The Parent / Teacher Controls program gives the parent the tools needed to manage the child's experience. An audit feature allows the parent to review Flashcard sessions. Parameters may be changed to assure that the child is both challenged and successful. Personalized feedback for correct or incorrect answers is specified here.

Flashcards System: Shareware Explained

This system is distributed as shareware. It is made available to consumers 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 the Flashcards System
When you register, what you get

Whether you choose to register or not, you are free to distribute this product to your friends. That's the way that shareware works. When you do, if you are registered, just remove the file called PARAMS.GEN and the program will be shareware. Please see the topic on Technical System Specifications for a discussion of which files are needed.

How to register:

The registration fee for the Flashcard System is $25.00 in US funds plus $4.00 shipping and handling. You may print a registration form by choosing the Help menu in the Parent / Teacher Controls program and then choosing the Shareware Registration option.

When you register, what you get:

- The most recent update of this system, registered in your name
- No more front-end "shareware" message
- A printed user manual
- Notification of new educational software products, as they become available
- Free telephone support
- A selection of sound files for audio feedback

Flashcards System: Mathplay Program

Mathplay is intended as a teaching laboratory, to be used by parent and child together. It can be used to explore concepts, and to assist with school homework. There are 3 screens with different graphical representations of numerical concepts. The Number Line shows numbers as expressions of magnitude or size. Apples shows numbers in groupings and is designed to show the workings of the decimal number system. Finally, Tables shows another view of the same phenomena by showing the relationships between numbers in an operation and also providing a tool to "look up" the answers to problems involving basic math facts.

Within each of these screens, numbers may be manipulated by using the Horizontal Scroll Bars, to generate problems to illustrate specific points. The New Problem buttons allow for movement between the various operations and the random generation of new problems. The Reveal and Hide buttons may be manipulated to either show or conceal the answer, which changes dynamically as the numbers change. There is no place to enter answers in Mathplay. The Flashcards program is where the child solves problems.

Flashcards System: Number Line Screen

The number line screen is intended to show numbers as expressions of size. It is accessed by both the Mathplay and Flashcard programs. Within Mathplay, options exist to manipulate the operation and operands. As a Flashcard screen, the number lines only illustrate the particular problem at hand.

There are 3 different scalings that may exist. They are 0 to 10, 0 to 25 and 0 to 100. The decision of which to display is an automatic one based upon the highest number amongst the 2 operands and the answer. The New Problem buttons, in Mathplay, will always create a problem to fit in the current scaling configuration.

The representation of addition is designed to follow the rule that you always start with the larger operand and then count out the smaller. If you manipulate the operands, with the answer revealed, so that first one is larger and then the other, you can see that rule in action.

Subtraction is shown as the inverse of addition with the revealed answer showing the operands side by side, the second operand counting backwards. Notice that it is impossible to make the second operand larger than the first. The Flashcard System does not deal in negative numbers.

Multiplication is shown as successive additions. An interesting effect takes place here with repeated clicking on the Reveal button. The commutativity of multiplication is illustrated and the reality that 4 X 2 = 2 X 4 becomes very clear.

Division is shown as successive subtractions. If there is enough room, each of the answer number line segments is successively labeled to count out the answer. Remainders are ignored by the Flashcards System and automatically generated division problems will never have a remainder.

Flashcards System: Apples Screen

The apples screen is intended to show numbers in groupings and to illustrate the decimal system. It is accessed by both the Mathplay and Flashcard programs. Within Mathplay, options exist to manipulate the operation and operands. As a Flashcard screen, the apples only illustrate the particular problem at hand.

Three symbols are used to represent decimal numbers. Units are represented by a single red apple. Tens are represented by a blue circle containing 10 apples. Hundreds are represented by a black bushel of 10 blue and red circles. Each of these symbols is the same size, but they appear in different places, as an analogy to numbers in the decimal system.

There are 2 different formats used. The first format, for addition and subtraction, shows the 2 operands as separate entities, consisting of the three symbols. The concept of regrouping in addition and subtraction is presented visually. The second format, for multiplication and division, uses the red apple symbol to build rectangles, and then makes groups out of them to reveal the answer.

In order to allow the examination of intermediate steps in calculating the answer, there are 4 separate Reveal buttons in the apples screen. The single right arrow goes forward 1 step at a time. The single left arrow goes backward, 1 step at a time. The double right arrow displays all of the steps, one after another. And the triple right arrow just shows the answer, with no intermediate steps. If you have started a step-by-step reveal sequence, some of the screen options may not be available until after the steps are completed.

Apples is the only screen effected by the "Maximum Mathplay Operand" which may be changed within the Parent / Teacher Controls program.

Flashcards System: Tables Screen

The tables screen is intended to show the relationships between numbers and operations. It is accessed by both the Mathplay and Flashcard programs. It works just like the number line and apples screens, but is mostly there to learn basic math facts. It works well as a support to basic math fact problems in the Flashcards program. It allows the student to "look up" the answer and still get 1 point for a correct entry.

You might notice that the subtraction table omits any reference to negative answers. The Flashcards System does not deal with negative numbers. Also, there is no division table at all. We couldn't figure out how to build one that would be meaningful.

Flashcards System: Horizontal Scroll Bars

Horizontal scroll bars are used within the Mathplay program to change the value of either of the operands. These controls 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. In Mathplay, the small move always changes the value of the operand by 1. In the apples screen, the large move changes the value by 10, while in the number line and tables, the large move has the same effect as the small move.

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". Within Mathplay, 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.

Flashcards System: Mathplay New Problem Buttons

The new problem buttons in the Mathplay 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.

The keyboard may be used to press one of these buttons as follows. First of all, the desired button must have "focus". Within Mathplay 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.

Flashcards System: Reveal and Hide Buttons

The Reveal button is used in the Number Line, Apples, and Tables screens to display the answer. Once the answer is displayed, you can change the operands and watch as the answer changes at the same time. If, after having revealed the answer, you want to manually change the operands to create a new problem with the answer hidden, the Hide button will do that for you. If you use one of the New Problem buttons, the answer will be automatically hidden.

These buttons may be pressed either by the mouse or from the keyboard. Using the mouse, point to the button you want and click.

The keyboard may be used to press one of these buttons as follows. First of all, the desired button must have "focus". Within Mathplay 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.

In the Apples screen only, in order to allow the examination of intermediate steps in calculating the answer, there are 4 separate Reveal buttons. The single right arrow goes forward 1 step at a time. The single left arrow goes backward, 1 step at a time. The double right arrow displays all of the steps, one after another. And the triple right arrow just shows the answer, with no intermediate steps.

Flashcards System: Flashcards Program

The Flashcards program is intended to provide the child practice problems in addition, subtraction, multiplication, and division. The parent has the ability to individualize each Flashcards session by setting specific parameters that allow their child's learning to be both successful and challenging.

The child receives feedback, as defined by the parent, for both correct and incorrect answers. As correct answers are entered, points are accumulated. If a deadline is a good motivator, bonus points are available for correct answers entered within a specified time. For challenging problems, the child has access to the same graphical support screens included in the Mathplay program, where the answers may be revealed.

Related Topics:

- Answer Entry
- Support Screens
- Accumulating Points
- New Problem Button

Flashcards Program: Answer Entry

Answer entry in the Flashcards program can be done either with the mouse or the keyboard. If the mouse is used, just click on the numbers in the keypad on the screen until the answer appears in the answer box. If you enter the wrong digit, use the "Back" button to back it out or use the "Clear" button to empty the answer box. When you think that the answer is correct, click on the "Enter" button. If you entered the wrong answer, you will receive the "incorrect" feedback and the answer you entered will remain in the answer box. This is so you can review what it was that you entered. If you can't figure out the right answer, go to one of the available support screens, or click on the "New Problem" button.

If the keyboard is used, simply use the numeric keys to enter your answer and the "Enter" key when you are done. The "Backspace" key is the same as the "Back" button on the screen, but there is no key on the keyboard equivalent to the "Clear" button. If you entered the correct answer, the focus on the screen shifts to the "New Problem" button and you can click that button from the keyboard with the "Enter" key. If you want to invoke one of the support screens, use the "Tab" key to shift the focus to the button you want and click it using the "Enter" key. You can tell when a button has focus because there is a black line around it.

You might notice that sometimes the numbers entered go from left to right, and sometimes they go from right to left. In the Parent / Teacher Controls program, each operation has its own specification for this in the "Entry Direction" box. The reason for this is that if you are performing a complicated calculation, you probably want to enter the units first. If you are entering basic facts, you probably want to enter a two digit number left to right. On a right to left entry problem, if you figure the answer in your head, you might enter it as if you were entering left to right. In this situation, the program will reverse your answer to make it correct.

Flashcards Program: Support Screens

Depending upon the operation and the size of the operands and answer, some of the graphical support screens may be available from the flashcards program to help the student to analyze and solve the problem at hand. These screens are available only for the problem at hand and the operands may not be manipulated. If a support screen is available, the button with its icon and name will be clearly visible. If not available, the button will be "grayed" out. The availability of support screens is determined as follows:

The Number Lines are available if neither of the operands or the answer are greater than 100.

The Apples are available for addition and subtraction if none of the numbers are greater than 999. For multiplication, operand 1 must be no more than 12 and operand 2 must be no more than 8. For division, operand 1 must be no more than 80.

Tables are available for addition if neither of the operands are greater than 10. For subtraction, operand 1 must be no more than 20 and operand 2 must be no more than 10. For multiplication, neither operand can be greater than 12. Tables are not available for division.

If a support screen is invoked, bonus points are no longer available for that problem. If, within the support screen, the answer is revealed, there are no longer any points available for that problem. The multiplication table is a particularly valuable support in allowing the student to look up the answer and still get a point for it. With repetition, basic facts will eventually be memorized.

Flashcards Program: Accumulating Points

The accumulation of points for correct answers seems to be an effective motivator. For some children, using a timer to set the availability of bonus points works well to encourage memorization of basic facts. Here are the rules for determining the number of points available for a correct answer:

If the bonus points are specified for the operation and the timer is enabled, the bonus points are available until the timer reaches zero, after which the points available becomes 1.

If a support screen is invoked, any bonus points available go away and points available becomes 1.

If, within a support screen, the answer is revealed, points available becomes 0.

If an incorrect answer is entered, bonus points available go away and points available becomes 1.

Flashcards Program: New Problem Button

As soon as a correct answer is entered and feedback is completed, the New Problem button gets focus (there is a black line around it). Clicking it with the mouse or hitting "Enter" on the keyboard will activate it. As soon as it is pressed, a new problem is generated. Even if an automatic new problem has been specified within a time period, the New Problem button can shorten the waiting time.

If the student has been presented with a problem which they choose to ignore, the New Problem button provides them with the means to ignore it. If this is happening, the parent can tell by looking at the number of problems and the total number of correct and incorrect answers. If the number of answers doesn't add up to the number of problems, this may be happening. The Audit function of the Parent / Teacher Controls program will allow the parent to determine precisely which problems are causing this to happen.

Flashcards System: Parent / Teacher Controls Program

The Parent / Teacher Controls program provides the tools needed to manage the child's experience and to assure that she is both appropriately challenged and successful. The Student Menu allows the co-existence of multiple students on the system, each with their own unique parameters. The Audit Function gives the parent the ability to reconstruct, step by step, the student's Flashcards sessions in order to assess progress and find problem areas. The Feedback Menu leads to two windows, one for correct answers and one for incorrect answers, here the parent can enter specific feedback messages in both text and sound. The System Menu allows the specification of certain system-wide parameters.

Within the main screen of the Parent / Teacher Controls program, the parameters are set governing the Flashcards program's generation and presentation of problems. There are 2 features which may be turned on or off. They are the Automatic New Problem and the Enable Timer features. Underneath these, there are sections devoted to specifying the characteristics of the 4 operations: addition, subtraction, multiplication and division. Within each section, the parent or teacher may specify the following parameters:

Frequency

Operand and Answer Ranges

Regrouping

Bonus Points and Seconds

Problem Orientation and Entry Direction

Parent / Teacher Controls Program: Student Menu

The functions in the student menu allow for the maintenance of separate configurations for each student using the Flashcards System. When the Flashcards system is installed, there is a default student named Susie. If you don't have a Susie, but rather a Robert, you can bring up Susie's configuration, **save** it **as** Robert, **open** up Susie again, and then **delete** Susie. After you have done this, look at the Program Manager, in the Flashcards group and you will see a personalized icon for Robert, but no trace of Susie. Here are the individual functions of the Student Menu and what they do:

New: Start configuring a new student from scratch.

Open: Call up the configuration of an existing student.

Save: Save the current configuration to the current student.

Save As: Save the current configuration as a different or new student.

Delete: Remove the current student from the Flashcards System.

Exit: Leave the Parent / Teacher Controls program.

When you enter the Parent / Teacher Controls program, if you have more than 1 student, it will ask you which one you want to open. If you only have 1, it will open that one for you.

Parent / Teacher Controls Program: Audit Function

When a student is in the Flashcards program, every event is recorded into an audit file. There are as many as 3 audit files, each one associated with a specific date. Multiple sessions on the same date are recorded in the same file. If there are already 3 files, and a new one is being created, the oldest one is deleted. This keeps the system from building up a lot of unused data files. Within the DOS file system, these files use the extensions AU1, AU2, and AU3. AU1 is always the most current audit file.

The parent has the ability to reconstruct the events that took place on any of these 3 days by choosing the date to review from the Audit Menu. Once a date is chosen, the "Flashcard Session Audit" screen is displayed. There are 5 formats available which may be chosen by clicking on the circle next to the format description. If there are more events than can fit on 1 screen, the vertical scroll bars to the right allow the parent to look through all of the events. This reconstruction of events can be used to detect strengths and weaknesses in order to finely tune the configuration parameters for each student.

Parent / Teacher Controls Program: Feedback Menu

During the Flashcard session, whenever an answer is entered, a feedback line is chosen from a list at random and presented to the student. There are separate lists for correct answers and for incorrect answers. For computers equipped with the ability to produce sound from WAV files, there is auditory feedback associated with each of the feedback lines. There are a maximum of 10 lines of feedback for each of the 2 categories (correct and incorrect).

When the Feedback menu is chosen, you have the choice of maintaining either Correct or Incorrect feedback. After choosing which to maintain, the feedback screen is displayed, and you may add, modify, or clear lines as follows:

Add: Click on the "add" button, which is to the left of the first empty line. Enter the text for the feedback message in the text box above. If you want a custom sound file, enter its name, omitting the WAV extension. Click the "add" button again and the new line is added.

Modify: Click the button to the left of the feedback line you want to change. Edit the text and sound file name in the text boxes above. Click the button again and the line is modified.

Clear: Click the button to the left of the line you want to delete. Click the "Clear Line" button to the right and the line is gone.

Parent / Teacher Controls Program: Feedback .WAV Files

Windows uses WAV files to store sounds. If your computer is equipped with the means to record WAV files, you may record a separate sound to accompany each line of feedback text. If you don't specify a custom sound file the system will play the default sound files: CORRECT.WAV and INCORREC.WAV. When you enter the sound file name in the feedback screen, just enter the first part of the file name and not the extension. If the program is not able to find any of the sound files you specify in the Flashcards System directory, it will give you a warning as you exit the screen.

For students who are early readers, the ability of the parent to record sounds and coordinate them with feedback text could be very useful in that the student will be exposed to both the printed and spoken words repetitively.

Parent / Teacher Controls Program: System Menu

The System menu option is used to set a couple of system-wide parameters. These are the only configuration settings which are not specific to the current student. These settings are in effect for all students.

Enable Sound: If this check box has an X in it, feedback will include sounds. If it is blank, sounds are turned off. For systems which are not equipped with a sound board, sounds should be turned off.

Maximum Mathplay Operand: This is the maximum operand for problems which are automatically generated in the Apples screen only. Since the Apples screen has such a large potential range for the operands, especially for addition and subtraction, this control was included to allow the parent to limit problems for the younger children. The other 2 Mathplay screens are self-governing in that the Tables is only for basic math facts and the Number Line will generate a problem within the parameters of the current scaling (10, 25, or 100).

Parent / Teacher Controls Program: Automatic New Problem

If the "Automatic new problem" check box has an X in it, the Flashcards program will wait for the specified number of seconds after a correct answer is entered and then generate a new problem. For the more self-directed student, the check box can be cleared and the Flashcards program will wait for him to request a new problem by clicking on the New Problem button. If the automatic feature is selected, it does **not** keep the student from asking for a new problem.

Parent / Teacher Controls Program: Enable Timer

Depending upon the child, the bonus timer may or may not be an effective motivator. This switch allows the parent to experiment by turning it off completely or leaving it on. If it is off, the "Timer:" label in the Flashcards program becomes invisible and the maximum available points will be 1.

Parent / Teacher Controls Program: Frequency

Frequency is how often problems of one operation will be generated relative to problems of another operation. The actual number value is meaningless except as compared to the frequency value in other operations. If, for any operation, you specify a frequency of zero, no problems will be generated for that operation.

If you wanted an even distribution of addition, subtraction and multiplication, but no division, you could use these values for the frequency specification of each operation: addition = 5, subtraction = 5, multiplication = 5, and division = 0.

If you wanted half the problems to be addition and a quarter each of subtraction and multiplication, use addition = 10, subtraction = 5, multiplication = 5, and division = 0.

If you wanted all multiplication use: addition = 0, subtraction = 0, multiplication = 1, and division = 0.

Parent / Teacher Controls Program: Operand and Answer Ranges

There are six specifications here for each operation. They are Operand 1 high and low, Operand 2 high and low, and Answer high and low. The settings of these specifications plus the setting of the Regrouping specification are what determine the actual problems generated and allow for fine tuning. Here are some examples:

For the first exposure to addition use: Operand 1 high = 3, low = 1; Operand 2 high = 2, low = 0; Answer range doesn't matter here. Any problems generated here can be counted out on the fingers of one hand!

For addition facts, for single digit only, use: Operand 1 high = 9, low = 1; Operand 2 high = 9, low = 0; Answer high = 9, low = 1. The Answer high range will avoid generating double digit answers. When this level is mastered, you can start incrementing the Answer high range up, moving into double digits.

For double digit addition use: Operand 1 high = 80, low = 10; Operand 2 high = 80, low = 10; Answer high = 99, low = 0. You may want to start this with no regrouping and get into regrouping later. This level is where the vertical orientation becomes useful.

For multiplication (4 times table): Operand 1 high = 12, low = 1; Operand 2 high = 4, low = 4

Parent / Teacher Controls Program: Bonus Points and Seconds

If you are using the bonus points and timer as a motivator for a student, as skills are mastered, you can lower the amount of time in order to sharpen the skills even further. When a new challenge is introduced, the timer, and perhaps even the bonus points, need to be increased.

Parent / Teacher Controls Program: Problem Orientation and Entry Direction

While the child is studying basic math facts, the entry of answers is usually done left-to-right (15 is entered: 1 first and then 5). Once double digit and regrouping calculations are introduced it becomes more appropriate to enter answers right to left (units first, followed by tens and then hundreds). The parent or teacher need to decide at which point to make this transition.

It can be confusing to know what digit to enter first if, for example, a student is working on double digit arithmetic at the same time as basic multiplication. An effective visual clue can be the problem orientation (horizontal or vertical).

We recommend that problems presented in a horizontal orientation have answer entry left to right. Problems presented in a vertical orientation should have answers entered right to left.

It seems clear that basic facts should be horizontal / left to right and complicated calculations should be vertical / right to left. The question of when and how to make the transition is tricky. We leave that up to you and your child!

Parent / Teacher Controls Program: Regrouping

In addition and multiplication, regrouping happens when the sum or product of the numbers in a column is greater than 9. This used to be called "carrying". In subtraction, regrouping happens when you need to "borrow" from a higher level to resolve a column.

The regrouping parameter allows the parent to specify, for any of the operations except division, whether to inhibit regrouping (Never), allow regrouping (OK), or to force regrouping (Always). This parameter is used in conjunction with the operand and answer ranges to specify the nature of the problems the student is presented with in the Flashcards program.

Flashcards System: Technical Support

If you have any questions, problems or suggestions about The Flashcards System, we want to help you. There are three ways to reach us: by phone, through Compuserve's Electronic Mail, or by postal mail. 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. Our Compuserve address for electronic mail is 73140,1645. Our postal address is:

You and Me Products
P.O. Box 61488
Vancouver, WA, USA 98666

Commonly asked questions:

Flashcards Program: Delay after entering answer

If your computer doesn't have sound board capability, but sounds are enabled, it may be trying to produce a sound and causing a delay. You should make sure that the sound is disabled. This is done in the Parent / Teacher Control program in the System menu option. Make sure that the Enable Sound box is empty. If it has an X in it, click on the box to disable the sound.

If the delay only occurs after correct answers, decrease the number of seconds to wait before automatically generating a new problem. This is done in the main screen of the Parent / Teacher Controls screen, on the top line, at the right. The original setting for this parameter is 4 seconds. Try 2 or 3 seconds. 1 second is not usually long enough to read the feedback.

Mathplay Screens: Where to enter the answer?

There is no place to enter answers in the Mathplay screens. This is because Mathplay was designed to be a teaching tool, to be used by the parent and child together, to explore concepts. The place for answers to be entered is in the Flashcards program.

Flashcards System: Technical System Information

The Flashcards System 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 audio capability during development was from a SoundBlaster Pro.

As the system is being installed, the following files are installed in the \WINDOWS\SYSTEM directory:

VBRUN200.DLL	Visual Basic 2.0 runtime module
DDEML.DLL	Module to support Dynamic Data Exchange
SETUPKIT.DLL	Module used by the setup programs
VER.DLL	Module to detect latest versions of system software
GRID.VBX	Visual Basic extension to support grids on screen
MCI.VBX	Visual Basic extension to support sound
MSMASKED.VBX	Visual Basic extension to support masked input
THREED.VBX	Visual Basic extension to support 3 dimensional buttons

The setup program uses VER.DLL to detect whether or not your system already has any of these. If it does, it figures out which version is most current and defers to the most current one. The Flashcards System needs these files to run and they need to be in the \WINDOWS\SYSTEM directory.

You will find the following files in the \FLASHCRD directory after installation has taken place:

***.BMP**: There are 9 Windows bitmap files. The 3 tables and 6 number lines in various scaling formats and widths are included.

***.EXE**: There are 3 executable files.

PARAMS.GEN: This file contains the specifications from the System menu in the Parent / Teacher Controls progam. For registered copies, the name of the licensee is included along with a copy protection safeguard to assure that copies of registered versions will either become shareware, with a front-end message, or will always display the name of the original registered licensee. If you are a registered licensee and you would like to give this system to a friend as shareware, please just omit this file from the diskette you are giving away. **Don't try to modify the registered name!** It won't work.

FLASHCRD.HLP: This is the help file which you are reading right now. It contains a hierarchical topic structure and hooks for context sensitive help so that the user may key F1 from any place in the system and access the help topic appropriate for that context.

SUSIE.STU: The student file contains the specifications for each student. There is one STU file for each student, with the student's name as the first part of the file name. For a method to use SUSIE to set up your own child and then get rid of SUSIE, see the Student Menu topic in the Parent / Teacher Controls program.

***.WAV**: These are Windows sound files. There are 4 included. CORRECT.WAV is the default correct feedback and is actually just a renamed copy of Microsoft's tada.wav. INCORREC.WAV is the default incorrect feedback and is actually just a renamed copy of Microsoft's chord.wav. You can change these to another sound, if you want. Also included are ALRIGHT.WAV and UHOH.WAV. These are intended as illustrations of how to attach custom sound files to feedback lines.

After the system has been in operation for a while, you will notice the occurrence of audit files, which are records of flashcard sessions. The file name consists of the student

name followed by the extensions AU1, AU2, or AU3. When the Flashcards program is started for a student, it looks at the AU1 file for a date in the first line. If that is today's date, it opens that file to receive more records. If that is not today's date, it renames the AU2 file as AU3, wiping out the previous AU3, and renames the AU1 file as AU2, and opens AU1 as a new file, with today's date. This method provides you with an audit trail of sessions for 3 unique dates for each student, but avoids cluttering up your disk with ancient history.

The Flashcards system interacts with the Windows Program Manager by setting up icons for new students and deleting icons for deleted students. This is done through a Windows Dynamic Data Exchange (DDE) link. In order for this to work correctly, the Flashcards system must have its own Program Manager group and it must be called FLASHCRD.GRP. In addition, in order to successfully delete an icon, it must have the caption of "Flashcards for XXXXXXXX" where XXXXXXXX is the student's name in capital letters.