

Primary Learning

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Introduction

Primary Learning presents ten educational exercises for children aged 6 through 14.

Balloon Man features fun graphics and tests a child's spelling abilities in this Hangman-type game. The program has 1400 words (at all grade levels) built-in or enter your own. **Space Race** is a spelling competition for up to four players. Play two different games: Flasher and Scrambler. Spelling lists can be saved. **Higher Math** provides tutoring and practice in multiplication and division. Learn and practice times and division tables. In **Math Race**, up to four players take turns answering flash card math problems. Each player can race at his/her own skill level. **I Shot An Arrow** is a simulation of a flying arrow. The program introduces estimation and answer refinement skills.

Fractions teaches you what fractions are and about different types of fractions (equivalent, like, reciprocal, mixed, simple, ...). **Fraction Math** provides instruction and practice in adding, subtracting, multiplying, and dividing fractions. In **Lemonade Stand**, you sell lemonade, buying lemons, sugar, and cups. You make your business decisions based on weather and demand. **US Geography** offers numerous exercises in identifying state locations, state capitals, and other information about each of the 50 states. In **US Presidents**, you can take two quizzes or review information. In Who Is Missing? you learn the order in which the presidents served. In Name the President based on clues from the computer (including a portrait), you determine who the president is (type-in or multiple-choice answers).

Balloon Man

In this program, you play a non-violent version of the classic Hangman spelling game. In this version, you guess letters in a word. For each incorrect guess, a hot air balloon drops to the ground. The program is run by selecting **Balloon Man** from the main menu screen. You have three choices: **New Word**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

New Word:

Choosing this option will bring up a new word to guess. You can enter your own word by choosing the **Enter Own Word** option or allow the computer to choose a word by selecting the **Computer Chooses Word** option. If you choose to enter a word, a word entry form will appear. Type the letters, then click **OK**. Note the word can be no longer than 15 letters and can include letters, a hyphen (-), or an apostrophe ('). If you click **Cancel** on the entry form or the entered word is blank, the computer will choose a word. If the computer chooses a word, you can also select the **Grade Level** (K-6) of the selected word.

On the screen, the letters in the word to guess are shown as asterisks (*) at the top of the screen. Available letters to guess are shown below the word. Guess a letter (press the letter or click on it) in the word. If the guess is correct, that letter will be shown in its correct position(s) in the word to be spelled. If incorrect, one of the hot air balloons will drop to the ground. If you guess the word before all the balloons are grounded (seven guesses at most), a little tune plays and the grounded balloons return to the sky. Otherwise, you will be shown the word. In either case, click **Next Word** to try again. If the computer chose the word, it will choose another. If you input the word, you will be returned to the word entry screen. Note while guessing letters, clicking the **Stop** button will stop the game.

Help:

Clicking **Help** or pressing **<F1>** brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Space Race

This game is a spelling competition for up to four players. Two games can be played: **Flasher** and **Scrambler**. As words are spelled, your rocket ship soars to the moon. First to the moon wins! The program is run by selecting **Space Race** from the main menu screen. You have four choices: **New Game**, **Options**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

New Game:

In turn, each player is given a word (randomly selected) to spell. In **Flasher**, click **Flash Word** or press **<Enter>**. The word is shown and you spell it. In **Scrambler**, the word is shown in scrambled form - unscramble the word. In each game, type the spelling. If you spell the word correctly, your rocket sails toward the screen top. If incorrect, an 'uh-oh' is heard and you are given another chance. In **Scrambler**, a letter is given to you as a clue. You have three tries to spell each word (additional flashes in **Flasher** count as a try). After your third try, the correct spelling is given. The fewer tries you need to spell a word, the better - your rocket will go further. The game ends when one or more rockets reaches the moon. Once the game ends, the player(s) who reached the moon are listed. Clicking **OK** returns you to the **Space Race** game. You can stop the game at any time by clicking **Stop**, but no results are given

Options:

Several options must be selected prior to starting **Space Race**. First, you need a word list. Use of the editor on the **Options** screen is quite straightforward. To start a new list, click **New Word List**. Type in the words. You can use only upper case letters, a single quote (') for contractions, or a hyphen (-) for hyphenated words. The **<Tab>** and **<Return>** keys move you forward from word to word and the **<Shift>-<Tab>** key moves you in reverse. You can add new words or delete old ones. To delete a word simply blank it out. The program will close up any gaps left in the list. To add a word, type it in a blank space or type over an unwanted word. To open a previously saved list, click **Open Word List**. To save the displayed list, click **Save Word List**. A dialog box opens. Enter a name for your word list file, then click **OK**. To print your list, click **Print Word List**. Make sure your printer is on-line and ready.

In addition to getting a word list, you also choose the number of players (1 to 4), enter a name for each player, and choose the game to be played: **Flasher** or **Scrambler**. If playing **Flasher**, you also select a **Flash Speed** (**Fast** is about 0.05 seconds, while **Slow** is about 2 seconds). After establishing a word list and choosing other options, click **OK** to return to the **Space Race** program.

Help:

Clicking **Help** or pressing **<F1>** brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Higher Math

This program teaches you how to multiply and divide two numbers and gives you practice problems. The program is run by selecting **Higher Math** from the main menu screen. You have several choices: **Math Tutor**, **Review Math Facts**, **Practice Math Facts**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

Math Tutor:

In this program, multiplication and division problems are graphically displayed. Two options are available. You may choose either **Multiplication** or **Division** problems. And, you may choose **Small Numbers** (0-6) or **Large Numbers** (0-12). Options may be changed at any time in the program.

For each **Multiplication** problem, a number of shapes corresponding to the multiplicand (number to be multiplied) will be drawn and that number written at the bottom of the screen. Then, that number of shapes is repeated a number of times equal to the multiplier (the multiplying number) and, at the screen bottom, a times (X) sign, the multiplier, and an equals (=) sign appear. You are asked to enter the product of the two numbers.

With **Division** problems, a number of shapes corresponding to the dividend (the number to be divided) is drawn and that number written at the bottom of the screen. After a brief delay, those shapes are divided into a number of groups equal to the divisor (the number divided into the dividend), and at the screen bottom, a division (/) sign, the divisor, and an equals (=) sign appear. You are asked to enter the quotient, that is the answer to the problem.

For both problem types, if the entered numbers are correct, a tune will play. If incorrect, an 'uh-oh' is heard and you continue to answer until correct or until you click the **See Answer** button to have the answer given. After finishing the problem, clicking **Next Problem** generates a new problem. You stop solving problems by clicking **Stop** - this returns you to the **Higher Math** menu.

Review Math Facts:

With this program, you can view multiplication and division facts with any factor you choose. Two options are available. You may choose either **Multiplication** or **Division** problems. And, you may choose your **Factor Value**, any number from **0** to **12** (0 not available in **Division** problems). Options may be changed at any time in the program.

With **Multiplication** facts, the product of your selected factor (multiplier) with the numbers from 0 to 12 are listed. With **Division** facts, the quotients of several dividends and your divisor are listed. Click **Stop** to return to the **Higher Math** menu.

Practice Math Facts:

In this program, you practice multiplication and division facts with flash card problems. Two options are available. You may choose either **Multiplication** or **Division** problems. And, you may choose your **Factor Value**, any number from **0** to **12** (0 not available in **Division** problems), or choose **Random** for random factors. Options may be changed at any time in the program.

With **Multiplication** facts, you are given random problems using your factor as the multiplier. With **Division** facts, you are given random problems using your factor as the divisor. In either case, once the problem is presented, type your answer and press **<Enter>**. If correct, a tune plays and another problem is given. If incorrect, you have one more try before the correct answer is given to you. A colored bar indicates your percentage score and the numeric value is displayed. Click **Stop** to return to the **Higher Math** menu.

Help:

Clicking **Help** or pressing **<F1>** brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Math Race

One thing every kid likes is competition, whether it be against a computer (how do you explain the immense popularity of Nintendo?) or against a classmate (friendly only, of course!). In this program, from one to four kids can compete in basic flash card math skills. The nice thing about this game is that each player selects the level of problems she/he wishes to answer. Thus, an adult can compete (using very difficult division problems) against a first-grader (doing simple addition). The program is run by selecting **Math Race** from the main menu screen. You have four choices: **New Game**, **Options**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

New Game:

In the same order they entered their names (see **Options**), players are given randomly-generated problems to answer. To see a problem, the player clicks on **See Problem** or presses **<Enter>** when asked to. The problem is then displayed. At that point, the player types in the answer to the problem and presses **<Enter>** - remember you must press **<Enter>** in order to get the computer to check your answer. You can erase your answer by clicking **Erase**. If your answer is correct, your car will move across the screen a distance related to how much time (indicated by the gas gauge at the top of the screen) was left when you answered. If incorrect, you are given another chance. You can continue to answer until time runs out.

A maximum of 10 points can be earned for each problem - more points for faster answers. A total of 75 points must be gained to complete the race. The game ends when one or more cars finish the race. At that time, a tune is heard and the names of the players who finished are presented. Click **OK**. (Clicking **Stop** will also stop the game, but no results are given).

Options:

Each player solves problems at his/her own level of ability, hence some initial options should be set prior to playing the game. There are four choices for each player (four players maximum). Each child playing should type their name so the computer can keep track of whose turn it is. The child also indicates (by clicking the desired button) what type of problems they want to solve: addition, subtraction, multiplication, division or any type (randomly selected). The next question concerns how large you want the numbers in your problems to be; enter a number (using the scroll bar) from 5 (easy) to 500 (difficult, especially in division and multiplication). Lastly, you choose the clock speed, i.e. the time you want to answer the problem. Each problem is worth a maximum of 10 points. With each tick of the clock, one point is removed from your possible score. With a slow clock, there are about 1.5 seconds between ticks, with a medium clock, about 1 second, and with the fast clock, there is about 0.5 seconds between ticks. Click the **OK** button when all selections are as desired.

Help:

Clicking **Help** or pressing <F1> brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

I Shot An Arrow

This program is used to discover the basics of ballistics, or motion in the X-Y plane. The program has no right or wrong answers -- it simply provides an arena for trying different things and seeing the results. The program is run by selecting **I Shot An Arrow** from the main menu screen. You have three choices: **Take Shot**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

Take Shot:

The general idea of the program is to determine at what angle (measured from the horizontal, or X, axis) and speed an arrow should be launched (starting at $X=0$, $Y=0$) to hit a specific point. The arrow moves in the X-Y plane ($Y=0$ representing the ground) under the influence of gravity in the negative y-direction, i.e. the arrow will fall down. The X-Y plane and concept of an angle should be explained to the user, at a level the user can understand. With this general basis, several exercises can be tried.

Once the program begins, the X-Y grid is drawn and several options presented. On the screen is a crossmark that represents the point you want to hit. That mark's X and Y location are given on the right side of the screen. This mark is moved by simply dragging it (using the mouse) to the desired position. The arrow angle is changed using the scroll bar under **Angle**. Clicking the end arrows changes the angle by 0.1 degree, while clicking the bar area changes the angle by 1 degree. The angle value (ranging from 0 to 90 degrees) is shown above this scroll bar and a small grid in the lower left corner graphically indicates current arrow angle. The arrow speed (ranging from 0 to 300) is changed with scroll bar under **Speed**. Clicking the end arrows changes the speed by 1, while clicking the bar area changes the speed by 10. Once you have the mark where you want it and have the angle and speed at desired values, you take a shot by clicking **Take Shot**.

A plot of the arrow's trajectory is drawn and you are told whether or not you hit your desired mark. If you missed, you are told how close you came. At this point, you can change the arrow angle, speed, or even move your mark and take more shots. The subsequent shots are plotted on the screen. To clear the plot(s) at any time, click **Clear Grid**. The program is stopped at any time by clicking **Exit**.

There are many things that can be done with this program. Its main application is to teach the art of approximation and refinement of estimated answers. That is, if one angle/speed is tried and the desired point missed, how much and in what direction should the angle/speed be adjusted to get closer to the target point. Some possible exercises include:

1. Pick a point on the ground ($Y=0$). Guess what angle/speed will reach this point. Adjust the angle/speed based on how much and in which direction you missed.

2. Pick a point somewhere on the plane. Guess needed angle/speed and adjust when you see how much you miss on each shot.
3. For a fixed speed, map out a region of possible solutions by trying all kinds of angles. Are there points in the plane that cannot be reached by an arrow? Using this map of possible solutions, repeat exercises 1 and 2 using interpolation to determine a good first guess at an angle.
4. Find out what angle (with a fixed speed) gives you maximum distance along the X axis. What angle gives you maximum Y distance?
5. Are there points in the plane that can be reached by more than one angle/speed value? If so, discuss reasons for choosing one solution over another.

It is recognized that in order to use this program, the child must have some concept of angles (at least angles from 0 to 90 degrees) and how to read a cartesian plot. It seems that such material would be readily grasped by 4th graders and up--or even younger.

Help:

Clicking **Help** or pressing <F1> brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Fractions

In this program, you learn about all types of fractions. Review material or take a quiz. The program is run by selecting **Fractions** from the main menu screen. You have several choices: **Naming Fractions, Equivalent Fractions, Simplified Fractions, Like Fractions, Comparing Fractions, Reciprocal Fractions, Mixed Fractions, Improper Fractions, Help, or Exit.** Make your choice by clicking on the desired button.

For each exercise, you also choose the mode the program works in. Choose **Review** to get a tutorial on the selected topic. Choose **Practice** to get problems covering material on the selected topic. At any point in any of the exercises, click the **Next** button (a Check Mark) to move to the next screen, click the **Help** button (a Question Mark) to see on-line help, and click the **Stop** button (a Stop Sign) to return to the **Fractions** main menu screen.

Naming Fractions:

This exercise teaches you what a fraction is. In the **Review** mode, you see one of three things. A number of squares, some of which are white, a circle divided into equal parts, some white, or a square divided into equal parts, some white. You are then told how many equal parts there are and how many are white. The fraction of white parts is identified as the fraction numerator and the total number of parts identified as the denominator. You look at as many examples as you want by clicking **Next**. In the **Practice** mode, you are shown a pictorial fraction representation (squares, divided circle, or divided square with a number of white parts) You are asked to type in the numerator and denominator of the corresponding fraction of white parts. Type the requested numbers (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Try as many practice exercises as you want.

Equivalent Fractions:

Here, you learn what equivalent fractions are and how to check if two fractions are equivalent. In the **Review** mode, you are shown two equivalent fractions along with their pictorial representation (a divided circle). Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given one fraction and a fraction with a missing numerator. You are asked to type in the numerator so that the resulting fraction is equivalent to the one given. Type the requested number(s) (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the equivalent fraction is found, pictorial representations of the two fractions are presented. Try as many practice exercises as you want.

Simplified Fractions:

With this topic, you learn what simplified fractions are. In the **Review** mode, you are shown two equivalent fractions with one in simplified form, along with their pictorial representation (again, a divided circle). Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given one fraction and a fraction with a missing numerator and denominator. You are asked to type in the numerator and denominator so that the resulting fraction is the simplified form of the one given. Type the requested numbers (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the simplified fraction is found, pictorial representations of the two fractions are presented. Try as many practice exercises as you want.

Like Fractions:

Here, you learn what like fractions are and about lowest common denominators (LCD). In the **Review** mode, you are shown two fractions and the steps involved in making them like fractions with the LCD. Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given two fractions. You are asked to type in equivalent forms for these fractions, such that they are like fractions with LCD. Type the requested numbers (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Try as many practice exercises as you want.

Comparing Fractions:

In this topic, you learn about the size of fractions and what the symbols $<$ (less than), $=$ (equal to), and $>$ (greater than) mean. In the **Review** mode, you are shown two fractions along with their pictorial representation (a divided circle). The relative size of the fractions is indicated by the symbol ($<$, $=$, or $>$) separating them. Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given two fractions separated by a question mark. You are to type the symbol that indicates the correct size relationship. (You can either type the sign directly or click on the displayed choices.) Choose the requested symbol. If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the correct symbol is found, pictorial representations of the two fractions are presented. Try as many practice exercises as you want.

Reciprocal Fractions:

In this exercise, you learn what reciprocal fractions are (needed to divide fractions). In the **Review** mode, you are shown two fractions, each the reciprocal of the other. Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given one fraction. You are asked to type in the numerator and the denominator of the corresponding reciprocal fraction. Type the requested numbers

(the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Try as many practice exercises as you want.

Mixed Fractions:

Here, you learn what mixed fractions are and how to convert improper fractions to mixed fractions. In the **Review** mode, you are shown an improper fraction and its mixed equivalent fraction along with a divided circle(s) pictorial representation. Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given an improper fraction. You are asked to type in the corresponding mixed fraction values: a whole number, if any, and the fraction's numerator and denominator. Type the requested number(s) (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the mixed fraction is found, a pictorial representation of the equivalent fractions is presented. Try as many practice exercises as you want.

Improper Fractions:

In this last topic, you learn what how to convert mixed fractions to improper fractions. In the **Review** mode, you are shown a mixed fraction and its improper equivalent fraction along with a divided circle(s) pictorial representation. Click the **Next** button to move through the review and see new examples. In the **Practice** mode, you are given a mixed fraction. You are asked to type in the numerator and denominator of the corresponding improper fraction. Type the requested number(s) (the current digit is highlighted in a magenta color). If correct, a tune is heard - if not, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the improper fraction is found, a pictorial representation of the equivalent fractions is presented. Try as many practice exercises as you want.

Help:

Clicking **Help** or pressing <F1> brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Fraction Math

In this program, you learn how to add, subtract, multiply, and divide both simple and mixed fractions. Review material or take a quiz. The program is run by selecting **Fraction Math** from the main menu screen. You have several choices: **Addition**, **Subtraction**, **Multiplication**, **Division**, **Options**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

For each problem type, you also choose the mode the program works in. Choose **Review** to get a tutorial on the selected fraction operation. Choose **Practice** to get problems covering the selected operation. At any point in any of the exercises, click the **Next** button (a Check Mark) to move to the next screen, click the **Help** button (a Question Mark) to see on-line help, and click the **Stop** button (a Stop Sign) to return to the **Fraction Math** main menu screen.

Addition:

Here, you learn and practice adding simple or mixed fractions. In the **Review** mode, problems are selected at random and the step-by-step addition procedure is outlined. Move from one step to the other by clicking the **Next** button. Review as many problems as you like. In the **Practice** mode, you are given a problem. You are to solve that problem in a step-by-step fashion, as requested by the computer. Type the requested number(s) as they are called for (the current digit is highlighted in a magenta color). If correct, a tune is heard - if incorrect, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the solution is complete, you may press any key for another problem.

Subtraction:

Here, you learn and practice subtracting simple or mixed fractions. In the **Review** mode, problems are selected at random and the step-by-step subtraction procedure is outlined. Move from one step to the other by clicking the **Next** button. Review as many problems as you like. In the **Practice** mode, you are given a problem. You are to solve that problem in a step-by-step fashion, as requested by the computer. Type the requested number(s) as they are called for (the current digit is highlighted in a magenta color). If correct, a tune is heard - if incorrect, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the solution is complete, you may press any key for another problem.

Multiplication:

Here, you learn and practice multiplying simple or mixed fractions. In the **Review** mode, problems are selected at random and the step-by-step multiplication procedure is outlined. Move from one step to the other by clicking the **Next** button. Review as many problems as you like. In the **Practice** mode, you are given a problem. You are

to solve that problem in a step-by-step fashion, as requested by the computer. Type the requested number(s) as they are called for (the current digit is highlighted in a magenta color). If correct, a tune is heard - if incorrect, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the solution is complete, you may press any key for another problem.

Division:

Here, you learn and practice dividing simple or mixed fractions. In the **Review** mode, problems are selected at random and the step-by-step division procedure is outlined. Move from one step to the other by clicking the **Next** button. Review as many problems as you like. In the **Practice** mode, you are given a problem. You are to solve that problem in a step-by-step fashion, as requested by the computer. Type the requested number(s) as they are called for (the current digit is highlighted in a magenta color). If correct, a tune is heard - if incorrect, an 'uh-oh' sound. Answer until correct or click the **Answer** button to see the correct response. Once the solution is complete, you may press any key for another problem.

Options:

There are two choices. Through these choices, you select the level of difficulty of the fraction problems presented. You first select **Fraction Type**. Decide whether you want to work with **Simple Fractions** (no whole parts - though some small ones may occasionally show up in addition and division problems) or **Mixed Fractions**. Then, select the **Possible Denominators** you want to use (this allows kids familiar with just halves, thirds and quarters to only work with problems with these denominators). There are 11 possible denominators (**2-12**). Click on the corresponding check boxes to select / deselect denominators. Note, one denominator must always be selected (checked).

Help:

Clicking **Help** or pressing <F1> brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

Lemonade Stand

This game simulates the economics of operating a lemonade stand. How you do depends on business decisions you make regarding purchases and pricing. The program is run by selecting **Lemonade Stand** from the main menu screen. You have three choices: **Shopping**, **Help**, or **Exit**. Make your choice by clicking on the desired button. Before describing program operation, let's describe the overall concept of the game.

You have decided to open a lemonade stand to earn some money during the summer. You will operate the stand each Saturday for eight weeks. To make the lemonade, you will need sugar, lemons, and paper cups. You will buy your supplies every Friday. Your parents will loan you \$25 to get started, but you have to pay them back at the end of the summer. To guide you in purchasing supplies, you will be given a weather forecast consisting of the expected high temperature for Saturday and the chance of rain. You will sell more lemonade on hot, dry days so stock up on supplies. As a guide, note that to make 20 cups of lemonade, you need one pound of sugar and 16 lemons. Buy carefully - you can save any leftover sugar and cups, but the lemons spoil and you must buy new ones each week. Also, the hotter it is, the more you can charge for your lemonade. To help you set your prices, sugar sells for about 40 cents per pound, lemons sell for about 10 cents each, and paper cups cost about 50 cents for a box of fifty. Be careful though, if you set your prices too high, you can lose sales. Good luck! Try to learn the rules used in the program as you use it.

Shopping:

During each simulated week of the game, you will be shown a weather forecast, your stored supplies, current product selling prices, and your current bank balance. Based on this information, you decide how much sugar (bought in pound units), how many lemons (priced singly, bought in groups of 5), and how many cups to purchase (cups come in boxes of 50). Make your selections using the vertical arrow controls. If your purchases ever exceed your bank balance, an uh oh sound will be heard. When done, click **Done Shopping**.

Next, you will be told what the weather (temperature and sky condition) is on the day you sell. Based on weather, you choose a selling price for your lemonade. Use the arrow control to make this choice. Click **Start Selling** when ready. Your stand will be shown and sales displayed as they are generated. At the end of the day, a tune plays. Click **OK** to see a sales report. On this report, you will see how many cups of lemonade you sold, how much money you made, and your current financial summary. (Profits are shown as white numbers, while losses are shown by red numbers enclosed in parentheses.) You then click **OK** to continue to the next week. Clicking **Stop** will stop the program and show you what your sales were when you stopped. At this point, click **OK** to continue to a new game or click **Exit** to exit the program. Note you cannot stop the game while sales are being generated. The game ends after eight weeks and

an overall summary is given.

Help:

Clicking **Help** or pressing **<F1>** brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

US Geography

In this program, you learn significant facts about each of the fifty states. Covered facts are location, flag, postal abbreviation, capital city, nickname, date and order of admission into the union, region of the country, and facts of historical and/or geographical significance. The program is run by selecting **US Geography** from the main menu screen. You have several choices: **Review States, State Capitals, Name the State, Help, or Exit.** Make your choice by clicking on the desired button.

Review States:

Here, a map of the United States and one state (chosen at random) is highlighted. You are told the name of that state and its corresponding facts are presented. Click **Next** to see the next state (they are in alphabetical order), click **Previous** to see the previous state, or click **Stop** to return to the **US Geography** menu.

State Capitals:

In this quiz, name the state capital, knowing the state. In the **Answer Type** frame, decide if you want **Multiple Choice** answers or if you want to **Type In** the answer. A map will then be drawn and one state highlighted. You must name the capital. If you chose multiple choice answers, four possible answers will be given - make your choice by clicking with the mouse. If you chose to type in your answer, do so, then press **<Enter>**. If your answer is correct, a tune will be heard and you will be shown another state. If you are incorrect, an 'uh-oh' is heard and you try again. Answer until correct with the multiple choice option. You have three tries if typing in your answer. The correct answer will be given to you after your third attempt. Clicking **See Answer** will give you the correct answer at any time. If your spelling is close, it will be corrected and you will be credited with a correct response. The program will cycle through all 50 states (in random order) then return to the **US Geography** menu, or you can return to the menu at any time by clicking the **Stop** button.

Name the State:

In this exercise, you name the state given clues about it. Decide if you want **Multiple Choice** answers or if you want to **Type In** the answer (make your choice in the **Answer Type** frame). Clues are given one at a time in random order. The eleven clues possible are: (1) map location, (2) two letter postal abbreviation, (3) state flag, (4) nickname, (5) order of admission into the union, (6) date of admission, (7) capital city, (8) region of country, and (9)-(11) a historical or geographical feature. After getting a clue, you try to identify the state. If you chose multiple choice answers, four possible names will be given - make your choice using the mouse. If you chose to type in your answer, do so, then press **<Enter>**. If your answer is correct, a tune will play and any remaining clues will be shown. Click **Next** to go on to the next state. If you are incorrect, an 'uh-oh' is heard, another clue is given, and you try again. Keep trying until

all clues are displayed - after that the answer is given to you. If you don't have a guess, just click **Clue** to get another clue, or click **Answer** to see the correct answer at any time. If your spelling is close, it will be corrected and you will be credited with a correct response. You stop the test by clicking the **Stop** button. This returns you to the **US Geography** menu.

Help:

Clicking **Help** or pressing **<F1>** brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

US Presidents

In this program, you learn significant facts about each president of the United States. Covered facts are a picture of the president, order of term, dates of term, birthdate, birthplace, political party, and significant achievements during his life or term. The program is run by selecting **US Presidents** from the main menu screen. You have several choices: **Review Presidents**, **Who Is Missing?**, **Name the President**, **Help**, or **Exit**. Make your choice by clicking on the desired button.

Review Presidents:

A president is chosen at random. You are given the name of that president, shown his picture, and given the corresponding facts. Click **Next** to see the next president (they are sequenced in the order they served), click **Previous** to see the previous president, or click **Stop** to return to the **US Presidents** menu.

Who is Missing?:

In this test, you learn the order in which the presidents served. Three boxes are drawn and two of them filled with president's names, pictures, and term dates. You must decide which president goes in the empty box, in order that the names reflect three consecutive presidential terms. Your answers can be **Multiple Choice** or **Type-In** (make your choice in the **Answer Type** box). If you chose multiple choice answers, four possible names will be given - make your choice by clicking with the mouse. If you chose to type in your answer, do so, then press **<Enter>**. If your answer is correct, a tune will be heard. Click **Next** for another set of presidents. If you are incorrect, an 'uh-oh' is heard and you try again. Answer until correct with the multiple choice option. You have three tries if typing in your answer. The correct answer will be given to you after your third attempt. Clicking **See Answer** will give you the correct answer at any time. If your spelling is close, it will be corrected and you will be credited with a correct response. You return to the **US Presidents** menu by clicking the **Stop** button.

Name the President:

In this quiz, you are to identify a selected president by examining clues given by the computer. The clues are given one at a time in random order. The ten clues possible are: (1) picture, (2) order of term, (3) birthdate, (4) birthplace, (5) dates of term, (6) political party, and (7)-(10) events during his life or term. After getting a clue, you try to identify the president. Your answers can be **Multiple Choice** or **Type-In** (make your choice in the **Answer Type** box). If you chose multiple choice answers, four possible names will be given - make your choice by clicking with the mouse. If you chose to type in your answer, do so, then press **<Enter>**. If your answer is correct, a tune will play and any remaining clues will be shown. Click **Next** to go on to the next president. If you are incorrect, an 'uh-oh' is heard, another clue is given, and you try again. Keep trying until all clues are displayed - after that the answer is given to you. If you don't

have a guess, just click **Clue** to get another clue, or click **Answer** to see the correct answer at any time. And, if your spelling is close, it will be corrected and you will be credited with a correct response. You stop the test by clicking the **Stop** button. This returns you to the **US Presidents** menu.

Help:

Clicking **Help** or pressing <F1> brings up this screen of information.

Exit:

Click **Exit** and you are returned to the **Primary Learning** main menu screen.

No Sound Card

The **Primary Learning** programs will work if your computer is not equipped with a sound card. However (of course), you will not hear any sounds and some program action may be faster than expected.

