
Software user guide

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Introduction

The software

This booklet provides running guides to the following programs:

Six short programs:

- Counter
- Play Train
- MiniMax
- Monty
- Take Part
- Toy Shop

These are conversions from programs originally developed by the Association of Teachers of Mathematics (ATM), the Microelectronics Education Programme (MEP), and SMILE Mathematics. These programs are written in JAVA and will operate on these Internet browsers: Microsoft Internet Explorer version 3.0 or later or Netscape Navigator version 3.0 or later. You can operate these programs on either Apple or PC platforms.

These programs have been used in the sample lessons provided in the training pack. The table on the next page shows the year group that the programs are suitable for, and teaching objectives that could be covered by using them.

Program	Sample lesson	Year group	Teaching objectives
Counter	1	Reception	● Counting on and back to 10
	2	Y3	● Counting in 2s, 5s and 10s to 100
	3	Y6	● Showing triangular number sequences
Play Train	4	Y1	● Partitioning numbers 1-5
	5	Y6	● Solving mathematical problems ● Using multiples ● Solving mathematical problems
MiniMax	6	Y2	● Exploring place value to two digits
	7	Y4	● Exploring place value to five digits
Monty	8	Y2	● Exploring simple number sequences on 100 square
	9	Y5	● Exploring multiples and factors on 100 square
Take Part	10	Y2	● Recognising halves and quarters
	11	Y6	● Recognising thirds and sixths
Toy Shop	12	Y2	● Solving addition, subtraction and simple multiplication problems with money
	13	Y4	● Solving words problems with money using all four operations

Six Internet applications or films:

- Handy Graph
- What's My Angle?
- Function Machine
- Carroll Diagram
- Venn Diagram
- Sorting 2D Shapes

These programs will operate on either of these Internet browsers:

Microsoft Internet Explorer version 3.0 or later or Netscape Navigator version 3.0 or later. You can operate these programs on either Apple or PC platforms. You will need to have a Flash plug-in installed.

The programs and the training material

This table shows where the programs on the CD-ROM fit in with the training materials.

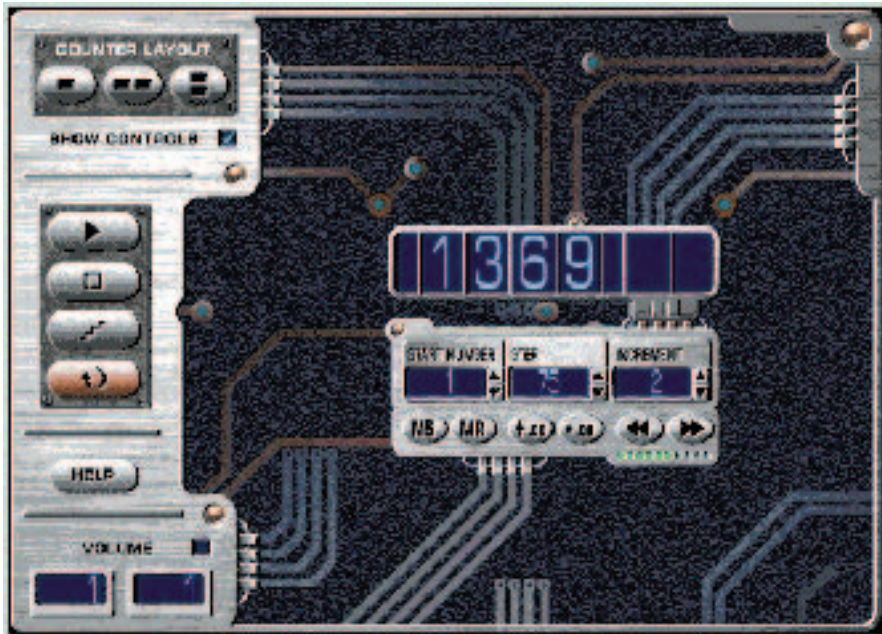
Program	Training chapter	Video sequence	Sample lessons	Platform
Counter	Chapter 2	1, 3	1, 2, 3	PC, Apple
Play Train	Chapter 5	7	4, 5	PC, Apple
Minimax	Chapter 1		6, 7	PC, Apple
Monty			8, 9	PC, Apple
Take Part			10, 11	PC, Apple
Toy Shop	Chapter 5	6	12, 13	PC, Apple
Handy Graph		4		PC, Apple*
What's My Angle?				PC, Apple*
Function Machine				PC, Apple*
Carroll Diagram				PC, Apple*
Venn Diagram		4		PC, Apple*
Sorting 2D Shapes		1, 4		PC, Apple*
Unit the Robot	Chapter 4			PC, Apple*
Bounce	Chapter 5			PC only
Strawberry Garden	Chapter 4			PC only
Multiplication Machine	Chapter 2			PC only
VersaTile	Chapter 4			PC only

* These programs require the FLASH plug-in to run.

Counter

User description and instructions

Illustration



Explanation

Counter is a very flexible counting program which allows you to set up either one or two counters to count in different ways.

You can set the starting number and the step by which the counter increases, so at the simplest level you might set the counter to start at 0 and count in steps of 1.

The program also allows the setting of a step increment so you can start at 0 with a step of 2 and a step increment of 1 to produce the sequence: 0 2 5 9 14 20...

Other controls allow the speed of the counter to be adjusted and an audio signal to be set to show the changes to the units, tens, hundreds or thousands column.

Decimal numbers up to two decimal places can be used, as can negative numbers.






You can choose to have a single counter displayed or two counters displayed side-by-side or one above the other.



This control bar allows you to select the number of counters displayed and how they appear on the screen. Checking the 'Show Controls' button allows you to choose whether or not to display the controls with the counter.


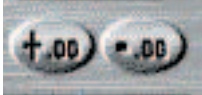

Counter

User description and instructions

Illustration	Explanation
	<p>This control bar allows you to:</p> <ul style="list-style-type: none">● Start the counter● Stop the counter● Manually 'step through' the count● Restart the counter with the original settings
	<p>Clicking the 'Help' button will show you an overview of what Counter does and provide details of how the controls operate.</p>
	<p>This button allows you to select whether or not you want to use sound with the counter(s). It also allows you to choose whether you want sound to accompany changes to the units, tens, hundreds or thousands column(s).</p>
	<p>This is the Counter display. Counter will display numbers from -9999 to 9999. It can also be set to display decimal numbers with two decimal places.</p>
	<p>These buttons allow you to set the number from which the counter will start, the 'Step' by which the number will grow and the 'Increment' by which the step will increase as the count progresses.</p>

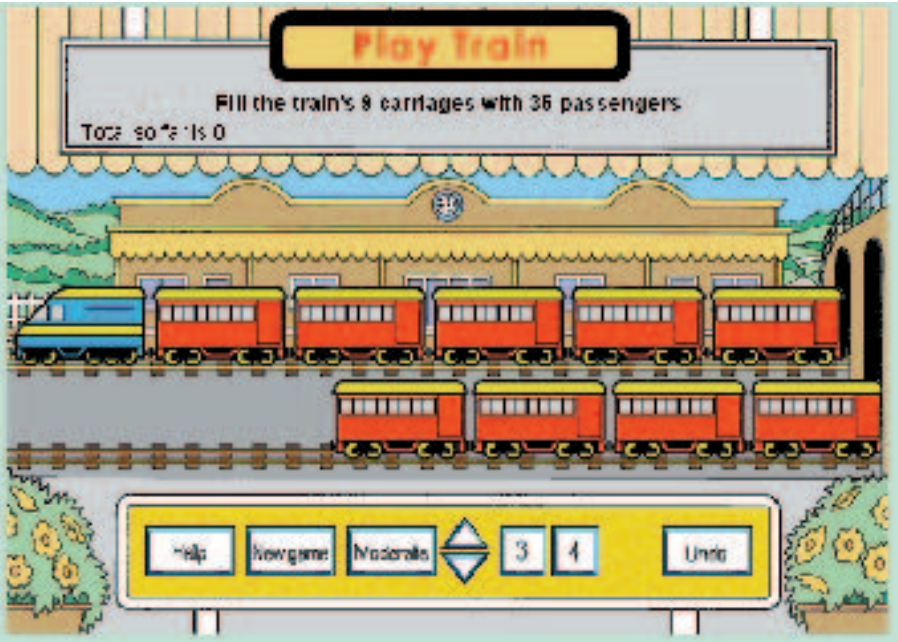

Counter

User description and instructions

Illustration	Explanation
 The image shows two circular buttons side-by-side. The left button is labeled 'MS' and the right button is labeled 'MR'. Both buttons have a slightly raised, tactile design.	<p>These two buttons act like the 'Memory' buttons on a calculator. 'MS' allows you to store your settings to memory and 'MR' allows you to recall these original settings when required. This is very useful if you make a number of changes as you explore the way the counters operate.</p>
 The image shows two circular buttons side-by-side. The left button is labeled '+.00' and the right button is labeled '= .00'. Both buttons have a slightly raised, tactile design.	<p>These buttons allow you to choose whether or not one or two decimal places are displayed on the counter(s).</p>
 The image shows two circular buttons side-by-side. The left button has a left-pointing arrow and the right button has a right-pointing arrow. Below the buttons is a row of seven small green indicator lights.	<p>These buttons allow you to increase or decrease the speed at which each counter counts.</p>

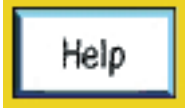


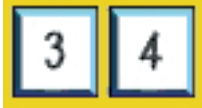

Play Train

User description and instructions

Illustration	Explanation
	<p>This is a number puzzle program. A train is standing in a station waiting for passengers to board. The task is displayed on the screen, telling you how many passengers are needed and the number of carriages you have to fill. The displays also show which numbers can be used to complete the operation.</p> <p>The user clicks the mouse on the appropriate number. This number appears on the carriage door and passengers appear in the carriage windows. A running total of the number of passengers used is displayed on the screen. When the carriages have been successfully filled, a message is displayed, the train whistle is heard and the train pulls out of the station. If the number of passengers selected is too large a warning message is displayed on the screen.</p> <p>There are three levels of difficulty with this program which are characterised by a greater number of carriages, the size of the target number of passengers and the range of numbers you can use to fill the carriages. 'Easy' uses two numbers from 1–5 with a maximum total of 35 and 4–7 carriages. 'Moderate' uses two numbers from 1–9 and a maximum total of 99 and 7–11 carriages. 'Hard' uses three numbers and a maximum total of 99 and 7–11 carriages.</p>
	<p>This is the control bar for the program. The buttons are operated by clicking the mouse on the appropriate button.</p>

Play Train

User description and instructions

Illustration	Explanation
	<p>Clicking on this button will give you an overview of how the program works and the function of each of the buttons.</p>
	<p>Clicking this button will start a new, randomly chosen game at the level displayed. This button should be clicked after each game is successfully completed and a new game is required or when a new level of game is chosen.</p>
	<p>This button shows the level of the game you are playing. There are three levels of difficulty: Easy; Moderate; Hard. Clicking the up arrow will move you up a level, clicking the down arrow will move you down a level.</p>
	<p>These buttons show you which numbers you can use to fill the carriages. The program provides the possible numbers you can use and sometimes only two numbers are displayed.</p>
	<p>This button allows you to undo previous choices of number. Each click undoes one number. The button can be used repeatedly until all carriages are empty.</p>

Minimax

User description and instructions

Illustration



Explanation

Minimax is a program which helps you to understand the effects of large and small digits on the operations of addition, subtraction, multiplication and division.

A player or team name can be set to appear on the gantry. The user can then choose which operation to use for each game, the size of the numbers involved and whether the target is to make the maximum or minimum possible value.

Having set the options and pressed 'New Game', the computer presents you with a digit and you have to decide on the best place to put that digit within your sum in order to reach your target.

When you have filled each of the spaces in the sum you have to type in the answer and the computer checks your calculation. If it is correct a 'Well done' message will appear on the screen. If it is incorrect you will get a message encouraging you to try again.

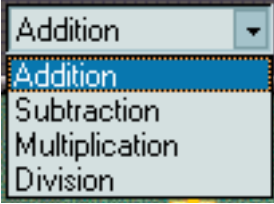
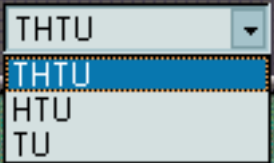
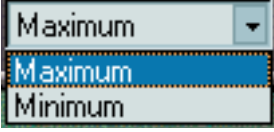

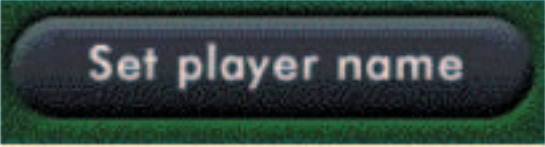


This is the gantry. It displays the name of the program, the name of the player or team and the instructions for what to do next as you play.

It also contains the drop down menu boxes to allow you to select the operator, the number size and the target for your game, while the digits chosen by the computer also appear there.

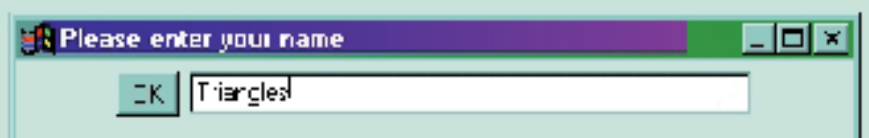


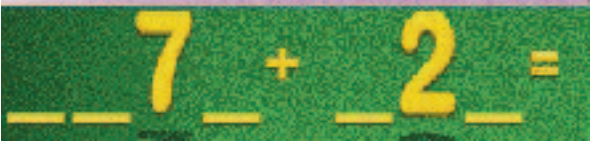

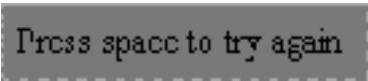
Minimax

User description and instructions

Illustration	Explanation
	<p>This drop down menu allows you to select the type of operation you will use for your game: addition, subtraction, multiplication or division.</p>
	<p>This drop-down menu allows you to select the size of the number you will use for your game: thousands, hundreds, tens and units (THTU); hundreds, tens and units (HTU) or tens and units (TU).</p>
	<p>This drop-down menu allows you to select the target for your game: the maximum possible or the minimum possible number.</p>
	<p>This is an example of the randomly generated numbers that will appear during the game. You have to decide on the best place in the sum to put this number in order to reach your target.</p>
	<p>This allows you to set the name of a player or team to play the game. The name entered will be displayed on the gantry.</p>

Minimax

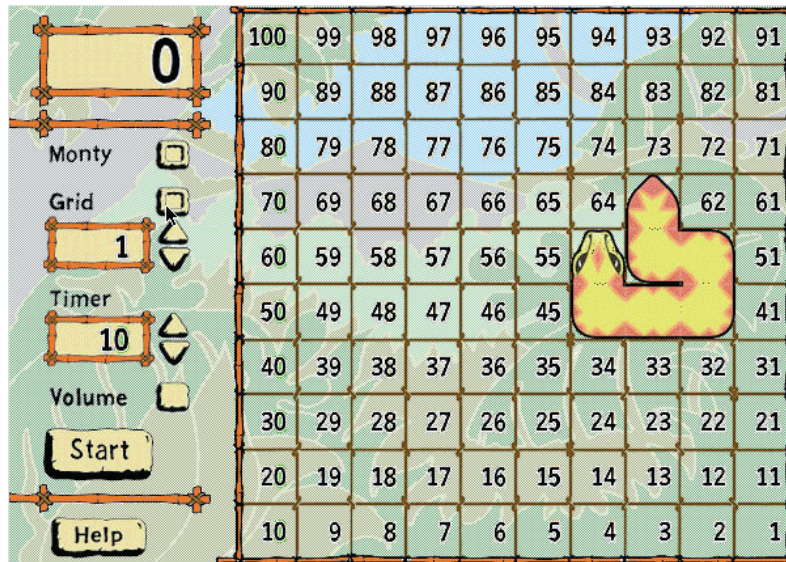
User descriptions and instructions

Illustration	Explanation
	<p>When you click on 'Set player name' this box will open on the screen. You have to click your mouse in the box and type in the name of a player or team. When you click on 'OK' the box will close and the name will appear on the gantry.</p>
	<p>Clicking this button will cause a new game to appear on the screen. If you click this button while a game is in progress any moves already made will be lost.</p>
	<p>Clicking this button will open up a separate 'Help' window on which the instructions for operating the program will appear.</p>
	<p>This is where you decide on the best place to play the digit that the computer has chosen in order to reach your target number. To place a digit you click on the position in the sum where you want it to appear.</p>
	<p>Once you have placed all the digits, done your calculation and entered your answer, a 'Well done' message will appear if your calculation is correct.</p>
	<p>This message will appear on the gantry if your calculation is incorrect.</p>

Monty

User description and instructions

Illustration

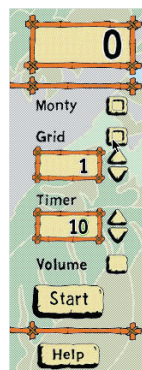


Explanation

Monty is a program based around the exploration of various 10 x 10 number grids. There are 9 different grids which can be selected and some of these can be used in different orientations on the screen. 'Start' begins a new game and/or changes the orientation of the grid.

Clicking on the 'Monty' button will make 'Monty' python appear or he will appear automatically after a set time. 'Monty' then starts to move around the screen. After a number of seconds or when the mouse is clicked 'Monty' will stop and a number clue will be displayed on his back.

The user has to determine which numbers are being concealed by the rest of Monty's body. As the user types in a number the number is displayed in a message box on the screen and on Monty's back if the guess is correct or in the appropriate position on the grid if it is not correct. When every concealed number is revealed a "Reward" screen is displayed.


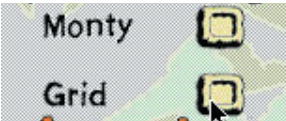






This is the control bar for the program. It contains a display box that shows the number that has been entered by the user. Other controls allow the user to select when the number grid and/or 'Monty' are displayed on the screen, to choose the number of the grid to be displayed on the screen and to set the number of seconds the grid or 'Monty' will be displayed on the screen.

The 'Start' button selects a new game and sometimes a different orientation of the number grid chosen. The 'Help' button gives help on how to operate the program.


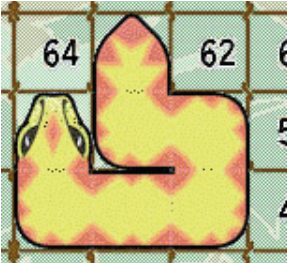
Monty

User description and instructions

Illustration	Explanation
	<p>This message box shows the last number that has been typed in by the user. If this number is one that is being concealed by 'Monty' it will also appear on his back. If it is not hidden by 'Monty' but is a number from the grid, it will be displayed in the appropriate place on the grid.</p>
	<p>These buttons allow you to choose to display Monty and/or the grid on the screen.</p>
	<p>This box displays which of the 9 number grids has been selected. For higher numbers click the up arrow. For lower numbers click the down arrow. See below for details of the 9 grids.</p>
	<p>This is the Timer display. The timer determines the length of time the grid is displayed before Monty appears or the length of time that Monty will move around the grid before stopping if the mouse button is not clicked before this time expires.</p>
	<p>This button allows you to choose whether to have sound on or off.</p>
	<p>This button allows you to start a new game. With some grids, it will also change the orientation of the numbers.</p>

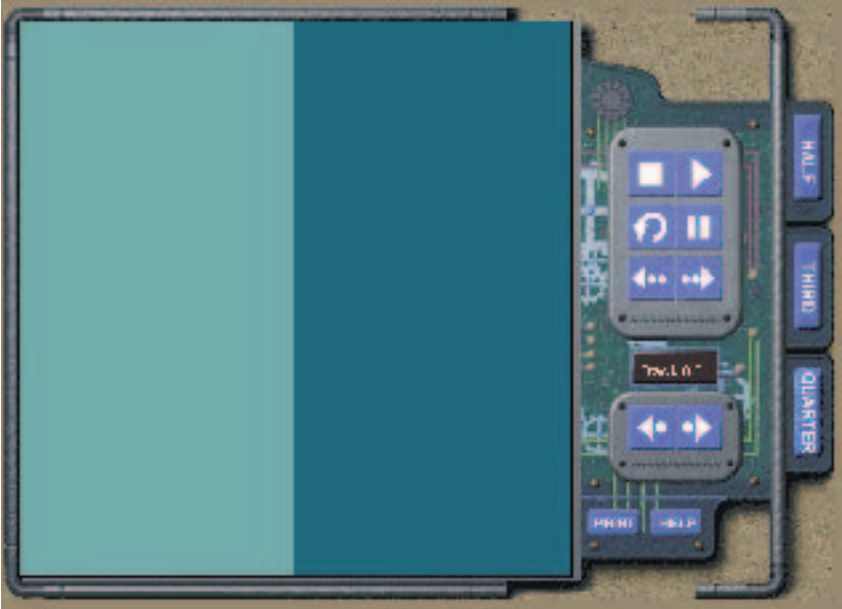

Monty

User descriptions and instructions

Illustration	Explanation
	<p>Clicking the 'Help' button will show you an overview of what 'Monty' does and provide details of how the controls operate.</p>
	<p>This is 'Monty'. He will move over the number grid you have selected and stop automatically when you click the mouse button or after the allotted time has expired. He will give you a number clue to help you guess which number he is concealing on his back.</p>
<p>Grid 1</p> <p>Grid 2</p> <p>Grid 3</p> <p>Grid 4</p> <p>Grid 5</p> <p>Grid 6</p> <p>Grid 7</p> <p>Grid 8</p> <p>Grid 9</p>	<p>Displays the numbers from 1–100</p> <p>Displays a 10 x 10 multiplication square</p> <p>Displays sequential numbers not starting from 1</p> <p>Displays a multiplication square not starting from 1</p> <p>Displays a diagonal number sequence, 1–100</p> <p>Displays a diagonal number sequence, not starting at 1</p> <p>Displays a number spiral, counting in 1s or 3s</p> <p>Displays horizontal numbers in 2s, vertical in 3s, from 5 to 50</p> <p>Displays numbers from 11–100 showing increase by 10</p>





Take Part

User description and instructions

Illustration	Explanation
	<p>Take Part consists of three on-screen films which show shapes being divided into halves, thirds or quarters.</p> <p>The transitions of the shapes are made mainly through rotation, reflection or shears.</p> <p>Each shape movie has a number of segments within it and these can be selected easily and quickly using the control buttons and the track display numbers.</p> <p>The movies can be stopped or slowed down at any time or they can be replayed again and again. Individual screens can be 'captured' and printed using the PRINT button.</p> <p>The value of this program is best seen as a teacher demonstration tool used with the whole class or with a small group of children, with the teacher asking questions about what is being displayed on the screen.</p>
	<p>This is the viewing screen area for each movie. These screenshots are taken from the Thirds and Quarters movies.</p>







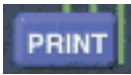
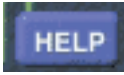
Take Part

User description and instructions

Illustration	Explanation
	<p>This control bar is where you:</p> <ul style="list-style-type: none"> ● Select the movie to be played ● Start/Stop the movie, play in slow motion or replay the movie from the beginning of the track ● Manually choose the movie track to be viewed ● Get Help or Print a screen from the movie
	<p>These are the buttons for selecting which movie you want to view.</p> <p>HALF has 7 tracks and shows a square being halved in different ways.</p> <p>THIRD has 2 tracks and shows a triangle being divided into thirds in different ways.</p> <p>QUARTER has 5 tracks and shows a square being divided into quarters in different ways.</p>
	<p>This button allows you to return quickly to the beginning of the first track of each movie.</p>
	<p>This is the PLAY button. You will need to press PLAY to start each movie for the first time or after you have paused a movie.</p>



Take Part

User description and instructions

Illustration	Explanation
	<p>This button allows you to replay the particular track you have previously selected.</p>
	<p>This button allows you to pause a movie at any time when it is in motion. To resume playing you press the PLAY button.</p>
	<p>This button allows you jump back to the beginning of the current track.</p>
	<p>This button allows you to advance through the current track in slow motion.</p>
	<p>This window displays the number of the track being played. The counter enables you to choose the track you want to view.</p>
	<p>These buttons help you advance forward or backwards through the track numbers to select the track you want to view.</p>
	<p>This button freezes the movie that is currently being played and shows it in a separate window from where you can choose whether or not to print it out.</p>
	<p>This button displays the HELP pages in a separate window on the screen.</p>

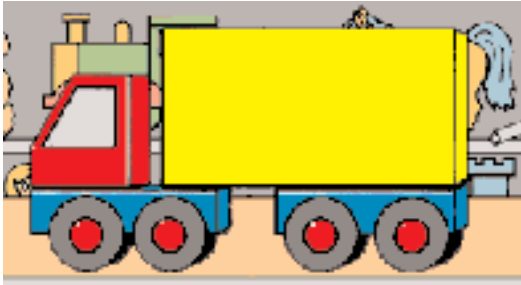
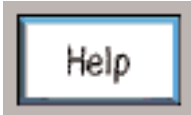

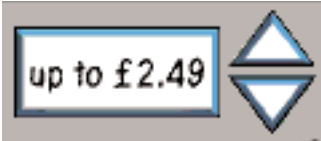
Toy Shop

User description and instructions

Illustration	Description
	<p>This is a game of strategy for two players (or groups of players). Players take turns to select a coin to pay towards the cost of the displayed toy. The winner is the player who lays down the coin to make up the exact cost of the toy.</p> <p>There are three levels of game available. The first level uses values up to 19p, the second level uses values up to 99p and the third level uses values up to £2.49.</p> <p>There are fifteen different toys which can be bought in the Toy Shop. Coins are selected by clicking on them. The top message board displays: the name and cost of the toy to be bought; the names of the two players; whose turn it is to select a coin and how much has been paid. An error message appears if too much money has been offered. The lower message board keeps a running total of how much money has been paid.</p> <p>When the correct coin has been paid to make up the exact cost of the toy a message is displayed on the lower message bar saying which player has won the game and the toy whizzes off towards that player's name. Under each player's name is displayed the amount they have each contributed towards the cost of the toy.</p>
	<p>The top message board displays the name of the toy to be bought and how much it costs. This board also displays: the names of the two players; whose turn it is to select a coin; how much has been paid by the last player and an error message if too much money has been paid.</p>




Toy Shop

User description and instructions

Illustration	Explanation
	<p>This is one of fifteen different toys that can be bought in the Toy Shop. The toys and their cost are selected at random when a 'New Game' is chosen, up to the maximum amount allowed for each of the three levels of difficulty.</p> <p>The toy moves towards the player who lays the last coin to make up the exact amount of the cost of the toy. This movement is accompanied by a 'whizzing' sound.</p>
	<p>This button displays help on how to play the game. Directions are given in a separate 'pop up' window. The user closes the window by clicking the standard 'close window' button.</p>
	<p>This button is used to select a new game to play. It can be used to select a new game at the same level, or after a new level has been selected (see below).</p>
	<p>This box displays the maximum value of the toys that can be bought at the level of the game which has been selected. Clicking the up arrow increases the level of difficulty, while clicking the down arrow decreases it.</p>

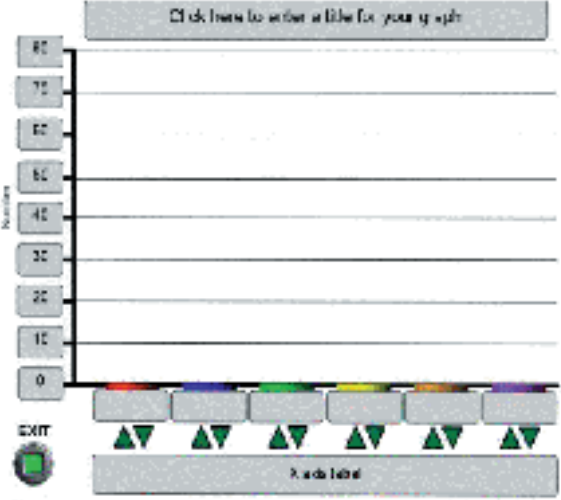
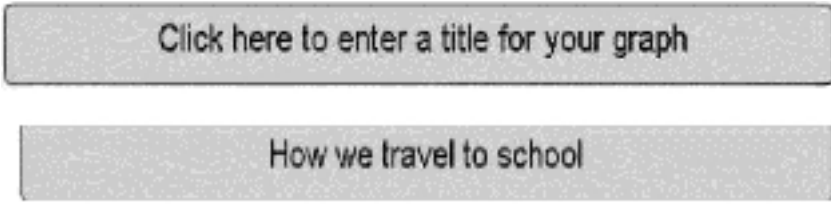
Toy Shop

User description and instructions

Illustration	Explanation
	<p>This is the range of coins displayed for game level 1. Toys will cost up to 19p at this level. Coins are paid by clicking on the appropriate coin image.</p>
	<p>This is the range of coins displayed for game level 2. Toys will cost up to 99p at this level. Coins are paid by clicking on the appropriate coin image.</p>
	<p>This is the range of coins displayed for game level 3. Toys will cost up to £2.49 at this level. Coins are paid by clicking on the appropriate coin image.</p>

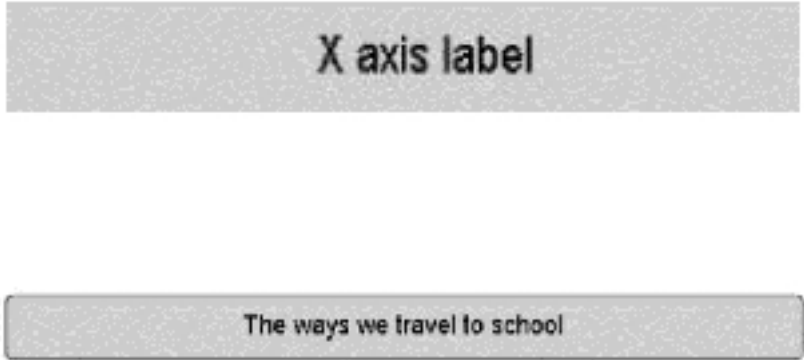
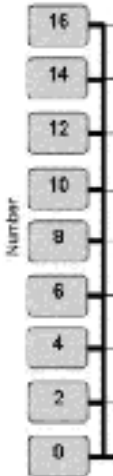
Handy Graph

User description and instructions

Illustration	Explanation
	<p>This is a simple program that draws block graphs.</p> <p>The examples shown are set in the context of a handling-data activity 'How we travel to school'.</p>
	<p>To change the title</p> <p>Click on the title bar.</p> <p>Highlight the text by positioning the cursor at the start of the text. Click and hold the left mouse button while dragging the highlighter along the text. Press the 'Delete' key.</p> <p>OR</p> <p>Position the cursor at the end of the text and press the 'backspace' (←) key until you have deleted the text. Type in your own text.</p>


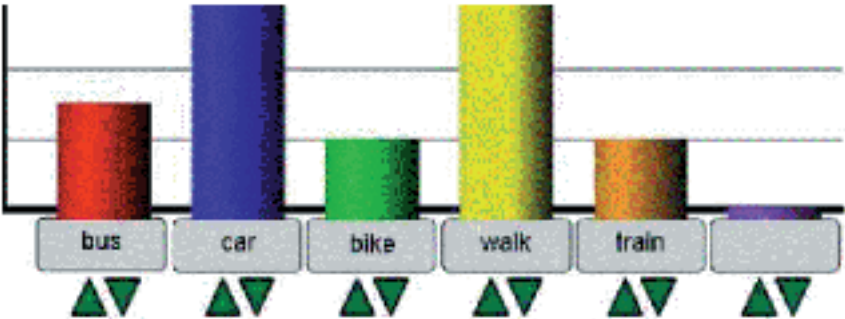
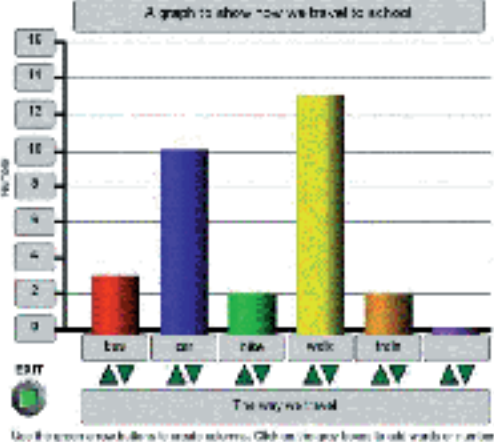
Handy Graph

User description and instructions

Illustration	Explanation
	<p>To change the x-axis label</p> <p>Click on the 'x axis label' bar.</p> <p>Highlight the text by positioning the cursor at the start of the text. Click and hold the left mouse button while dragging the highlighter along the text. Press the 'Delete' key.</p> <p>OR</p> <p>Position the cursor at the end of the text and press the 'backspace' (←) key until you have deleted the text.</p> <p>Type in your own text.</p>
	<p>To change the scale on the y-axis</p> <p>Click on the number you want to change.</p> <p>If you click at the end of the number it will be highlighted.</p> <p>Press the 'Delete' key</p> <p>OR</p> <p>Click in front of the number. The cursor will flash.</p> <p>Press the 'Delete' key to delete one digit at a time.</p> <p>Type in your own value.</p>


Handy Graph

User description and instructions

Illustration	Explanation
	<p>To label the columns</p> <p>Click in the box where you want to enter text. Type in your own text.</p>
	<p>To alter the height of the columns</p> <p>To increase the height of the column, click on the green up arrow. Each time you click the arrow the column will rise by half the distance between the grid lines.</p> <p>To delete the column, press the green down arrow once.</p>
	<p>This shows the finished graph.</p>

Handy Graph

User description and instructions

Illustration	Explanation
 An illustration of a circular button with a green square in the center. The word "EXIT" is written in bold, black, uppercase letters above the button.	<p>Press this button to exit the program.</p>

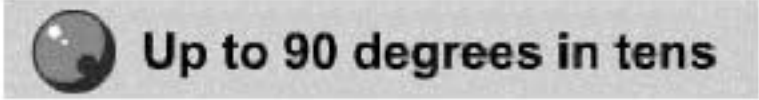
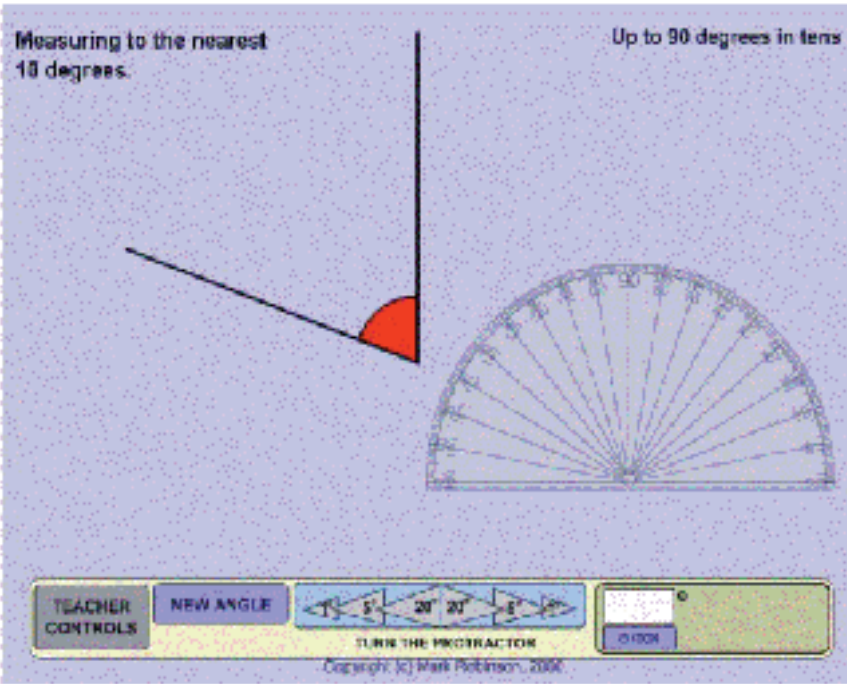
What's My Angle?

User description and instructions

Illustration	Explanation
	<p>What's My Angle is a program that allows the user to practise skills of estimating and measuring angles.</p> <p>The introduction demonstrates the correct way to use a protractor to measure angles.</p> <p>Acute, obtuse and reflex angles are explained.</p> <p>The introduction plays continuously until the SKIP INTRO button is pressed.</p>
	<p>Clicking on this button takes you from the INTRODUCTION to the TEACHER CONTROL screen.</p>
	<p>On the TEACHER CONTROL screen, clicking on this button will take you to the INTRODUCTION.</p>
	<p>On the TEACHER CONTROL screen, clicking on this button will close the program.</p>

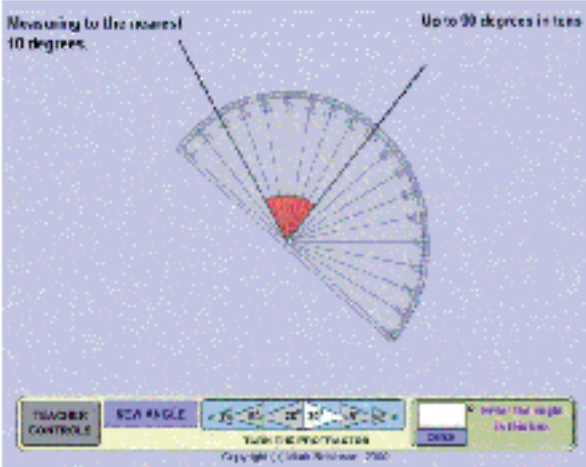
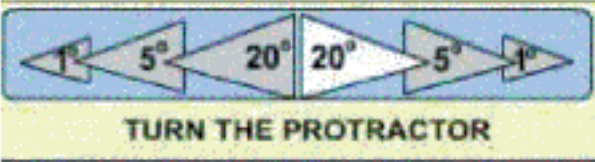
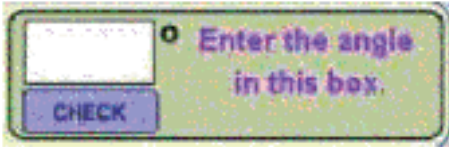
What's My Angle?

User description and instructions

Illustration	Explanation
	<p>Click on the button next to the activity you want to practise.</p> <p>These examples show the 'Measure up to 90 degrees in tens' activity.</p>
	<p>The screen shows an angle up to 90°.</p> <p>Move the mouse until it is over the protractor – the cursor changes to a hand.</p> <p>When the cursor has changed to a hand, you can drag the protractor and position it over the angle by clicking and holding the left mouse button.</p> <p>Releasing the left mouse button will drop the protractor.</p>




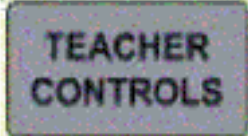
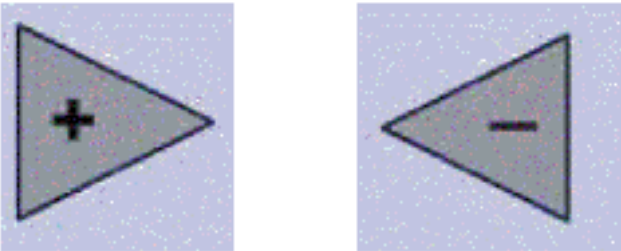
What's My Angle?

User description and instructions

Illustration	Explanation
 <p>The screenshot shows a digital protractor on a blue background. A red angle is drawn. Text at the top left says "Measuring to the nearest 10 degrees." and at the top right "Up to 90 degrees in total". At the bottom, there is a control panel with buttons for "TEACHER CONTROL", "NEW ANGLE", "TURN THE PROTRACTOR" (with left and right arrows), a text input box with "Enter the angle in this box." and a "CHECK" button. Copyright information "Copyright © Math Alive Inc. 2007" is visible at the bottom.</p>	<p>You can rotate the protractor until it is correctly aligned by clicking one of the buttons at the bottom of the screen.</p>
 <p>A close-up of the "TURN THE PROTRACTOR" control panel. It features five buttons with arrows and angle values: 1°, 5°, 20°, 20°, 5°, and 1°. Below the buttons is the text "TURN THE PROTRACTOR".</p>	<p>You can rotate the protractor clockwise or anticlockwise by clicking on the angle buttons.</p> <p>Now you can measure the size of the angle.</p>
 <p>A close-up of the angle input box. It contains a text input field, a cursor icon, and the text "Enter the angle in this box." Below the input field is a "CHECK" button.</p>	<p>Click in the box.</p> <p>The cursor appears.</p> <p>Enter the angle in digits.</p> <p>Click on the CHECK button.</p>

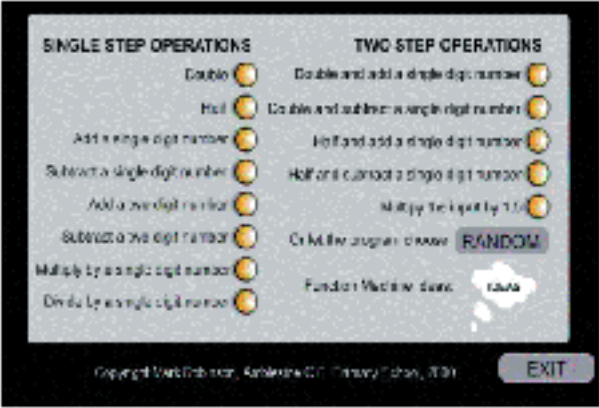
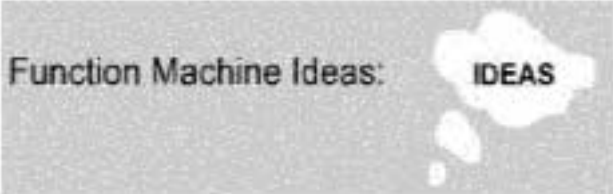

What's My Angle?

User description and instructions

Illustration	Explanation
	<p>This screen appears when the correct angle measurement has been entered.</p>
	<p>If you have entered an incorrect value, an error message like this is shown. You will be told whether the value entered is too high or too low.</p>
	<p>If you click on this button, a different angle will be shown.</p>
	<p>Clicking on this button will take you back to the TEACHER CONTROL screen.</p>
	<p>Different buttons are used in some other activities.</p>
	<ul style="list-style-type: none"> ● Show the angle ● Make and measure ● Make the angle game <p>In these games clicking on the '+' button will increase the size of the angle, and clicking on the '-' button will decrease the size of the angle.</p>




Function Machine

User description and instructions

Illustration	Explanation
	<p>This program simulates a function machine.</p> <p>This is the MENU screen.</p> <p>There are 8 single-step operations and 5 two-step operations to choose from, or you can click on RANDOM to allow the computer to select from the choices.</p>
	<p>Clicking on the 'Function Machine Ideas' button gives you some ideas for using Function Machine in mental/oral starters and in group activities.</p>
	<p>Click on the orange button next to the function you want the user to practise.</p> <p>These examples show the 'Double' function.</p>



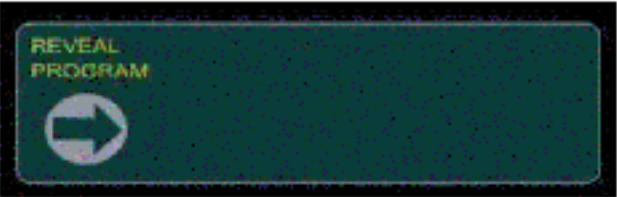
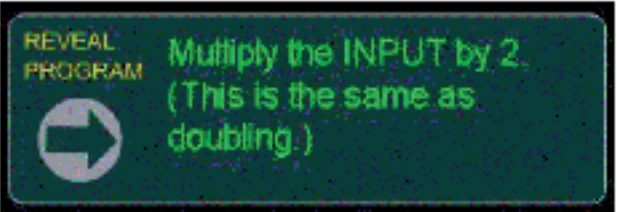
Function Machine

User description and instructions

Illustration	Explanation
 <p>The screenshot shows the 'FUNCTION MACHINE' interface. At the top, it says 'FUNCTION MACHINE'. Below that, there are two boxes: 'INPUT' (yellow) and 'OUTPUT' (green). In the center is a large 'ACTIVATE' button. Below the main interface are several smaller buttons: 'MACHINES' with 'SHUFFLE' and 'RANDOM' options, a 'NEXT PROGRAM' button with a right arrow, and a 'PROGRAM' section with 'CLEAR' and 'EXIT' buttons. At the bottom, it says 'Copyright: Nick Peatling, Amberley C.E. Primary School, 2000'.</p>	<p>Once the function has been selected the FUNCTION MACHINE screen appears.</p>
 <p>A close-up of the 'INPUT' box, which is yellow. The number '6' is displayed in the center of the box. The word 'INPUT' is written at the top of the box.</p>	<p>Click in the INPUT box. The cursor appears. Type in any number.</p>
 <p>A close-up of the 'ACTIVATE' button, which is a large, rectangular button with the word 'ACTIVATE' written in white capital letters on a dark background. Below the button are several red buttons.</p>	<p>Click on the ACTIVATE button.</p>


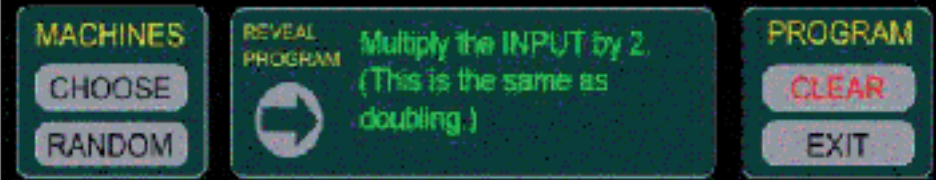

Function Machine

User description and instructions

Illustration	Explanation
 <p>The illustration shows a function machine with an 'INPUT' box containing the number 6 and an 'OUTPUT' box containing the number 12. The machine has a central 'FUNCTION PROCESSOR' with an 'ACTIVATE' button. Text on the processor includes 'ENTER A NUMBER IN THE INPUT WINDOW AND CLICK ACTIVATE'.</p>	<p>The output is displayed in the OUTPUT box.</p> <p>The user repeats the process, using different numbers, as many times as necessary until the function has been identified.</p>
 <p>The screenshot shows the 'FUNCTION MACHINE' interface. It features a 'MACHINES' section with 'CHOOSE' and 'RANDOM' buttons, a 'PROGRAM' section with a right-pointing arrow button, and a 'PROGRAM' section with 'CLEAR' and 'EXIT' buttons.</p>	<p>There are other buttons at the bottom of the FUNCTION MACHINE screen.</p>
 <p>A close-up of the 'REVEAL PROGRAM' button, which is a dark green rectangle with a white right-pointing arrow.</p>	<p>You can check your answer by clicking on the arrow.</p>
 <p>A close-up of the 'REVEAL PROGRAM' button showing the function: 'Multiply the INPUT by 2. (This is the same as doubling.)' The text is displayed in green on a dark green background.</p>	<p>The function is displayed.</p>

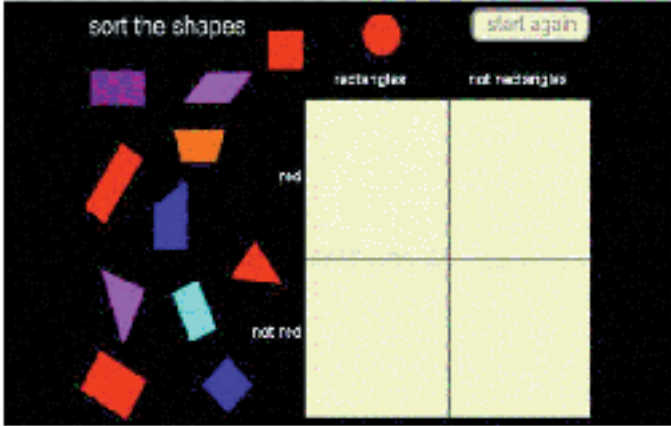
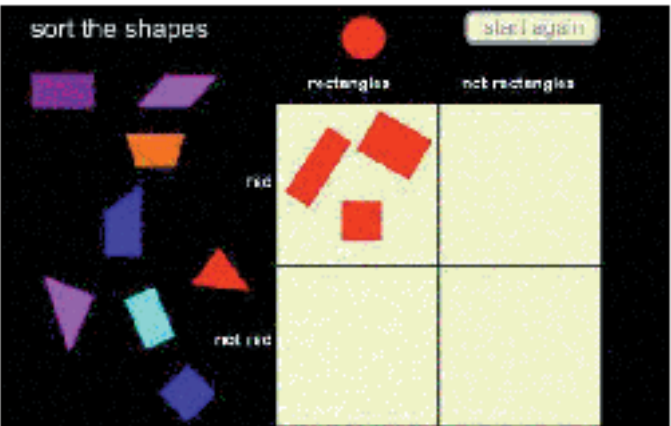
Function Machine

User description and instructions

Illustration	Explanation
 <p>A screenshot of the 'MACHINES' screen. At the top, the word 'MACHINES' is displayed in yellow. Below it are two buttons: 'CHOOSE' and 'RANDOM', both in white text on a grey background.</p>	<p>Clicking on the CHOOSE button on the FUNCTION MACHINE screen takes you to the MENU screen, whilst the RANDOM button directly activates the random function.</p>
 <p>A screenshot of the 'PROGRAM' screen. On the left is the 'MACHINES' menu with 'CHOOSE' and 'RANDOM' buttons. In the center, a 'REVEAL PROGRAM' button with a right-pointing arrow is shown. To its right, the function 'Multiply the INPUT by 2. (This is the same as doubling.)' is displayed in green text. On the far right, the 'PROGRAM' menu is visible with 'CLEAR' and 'EXIT' buttons.</p>	<p>Clicking on CLEAR button will clear the displayed function. It does not clear the program.</p>
 <p>A screenshot of the 'PROGRAM' screen. At the top, the word 'PROGRAM' is displayed in yellow. Below it are two buttons: 'CLEAR' and 'EXIT', both in white text on a grey background.</p>	<p>Clicking on the EXIT button will close the program.</p>

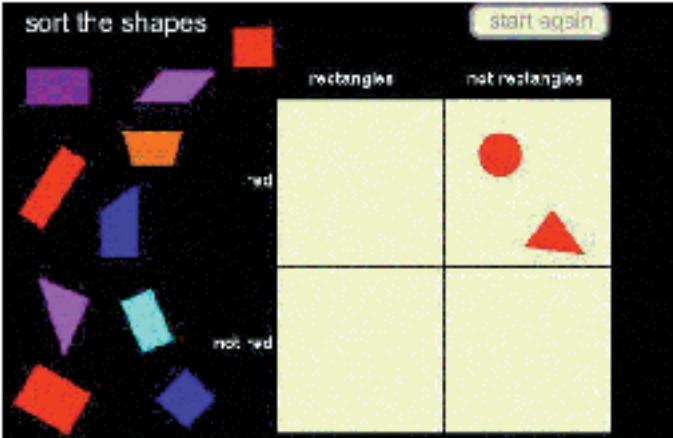
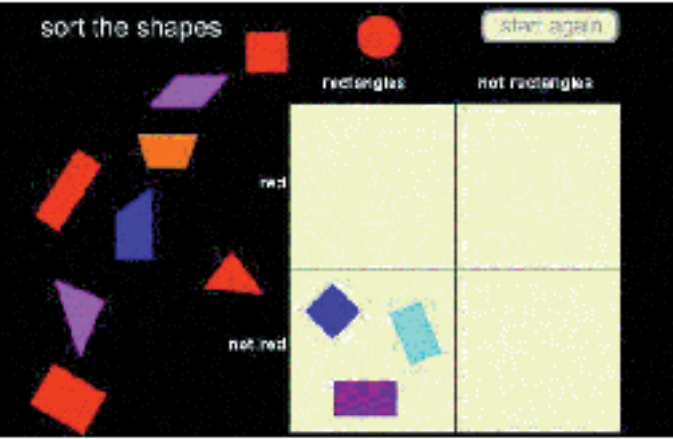
Carroll Diagram

User description and instructions

Illustration	Explanation
 <p>The screenshot shows a black background with the text "sort the shapes" in the top left and a "start again" button in the top right. A red circle is positioned above the Carroll diagram. The diagram is a 2x2 grid with columns labeled "rectangles" and "not rectangles", and rows labeled "red" and "not red". To the left of the grid, there are 12 colorful shapes: a purple rectangle, a purple parallelogram, a red square, a red rectangle, an orange trapezoid, a blue triangle, a red triangle, a purple triangle, a cyan rectangle, a blue square, and a blue parallelogram.</p>	<p>This is a complex sorting program.</p> <p>The screen shows a Carroll diagram. The matrix is labelled red, not red, rectangles, not rectangles.</p> <p>There are 12 shapes to sort using two criteria.</p>
 <p>The screenshot is identical to the one above, but the three red rectangles (one large, one medium, and one small) have been moved from the left and are now placed in the top-left quadrant of the Carroll diagram, which is labeled "red" and "rectangles".</p>	<p>Move the mouse until it is over a shape – the cursor changes to a hand.</p> <p>When the cursor has changed to a hand, you can drag the shape and place it in the Carroll diagram by clicking and holding the left mouse button.</p> <p>Releasing the left mouse button will drop the shape.</p> <p>In this screen the red rectangles have been correctly placed.</p>

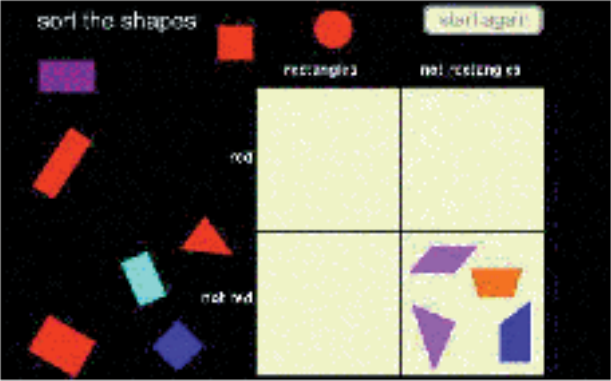
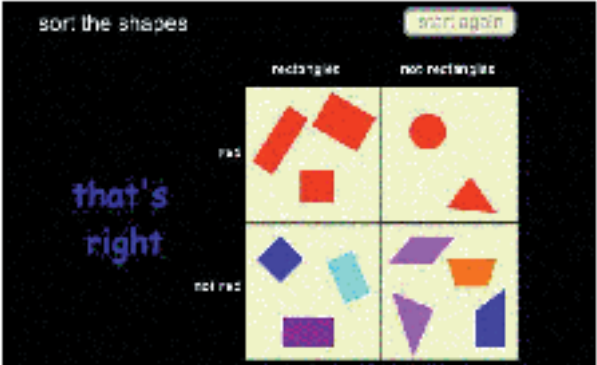

Carroll Diagram

User description and instructions

Illustration	Explanation
 <p>The screenshot shows a Carroll diagram with a black background. On the left, there is a collection of various colored shapes (red, purple, orange, blue, cyan, red, purple, red, blue). To the right of the shapes is a 2x2 grid. The top row is labeled 'red' and the bottom row is labeled 'not red'. The left column is labeled 'rectangles' and the right column is labeled 'not rectangles'. A 'start again' button is visible in the top right corner. In this screenshot, a red circle and a red triangle are placed in the 'red' / 'not rectangles' quadrant.</p>	<p>In this screen the shapes that are red but not rectangles have been correctly placed.</p>
 <p>The screenshot shows the same Carroll diagram as above. In this screenshot, a red circle is placed in the 'not red' / 'not rectangles' quadrant, and a purple rectangle, a cyan rectangle, and a blue diamond are placed in the 'not red' / 'rectangles' quadrant.</p>	<p>In this screen shapes that are rectangles but not red have been correctly placed.</p>

Carroll Diagram

User description and instructions

Illustration	Explanation
	<p>In this screen shapes that are not red and not rectangles have been correctly placed.</p> <p>If the shape is placed in the wrong part of the Carroll diagram it will pop back out.</p>
	<p>This screen appears when you have placed all the shapes correctly.</p>
	<p>Clicking on this button repeats the activity.</p> <p>This button should be clicked after each user has successfully completed the game.</p>

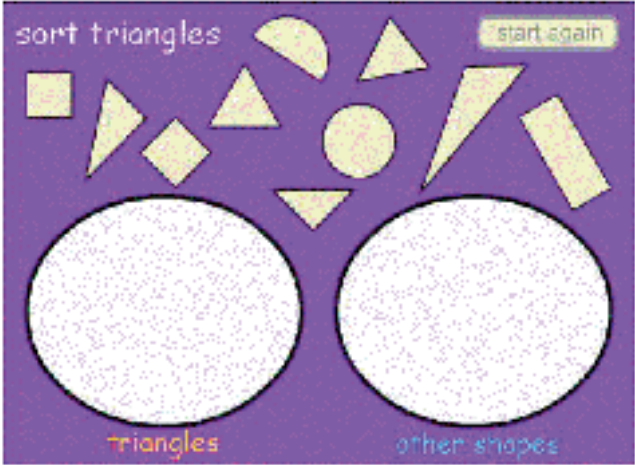
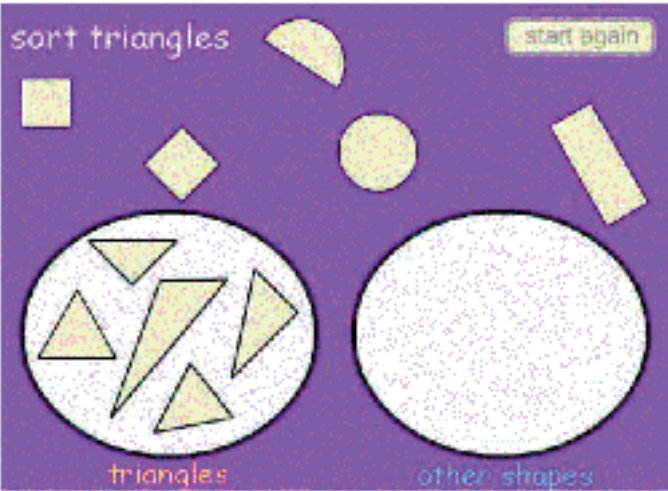
Carroll Diagram

User description and instructions

Illustration	Explanation
<p>The illustration shows a web browser toolbar with various navigation and utility icons. Below the toolbar, a navigation bar contains four links: [Index], [Venn diagram], [Sorting 2D shapes], and [Carroll diagram].</p>	<p>To return to the INDEX</p> <p>EITHER</p> <p>Click on the 'Back' button on the tool bar at the top of the screen</p> <p>OR</p> <p>Click on the 'Index' at the bottom of the screen.</p>
<p>The illustration shows the 'File' menu of a Microsoft Word application. The menu is open, displaying options such as New, Open, Save, Print, and Close. The 'Close' option is highlighted at the bottom of the menu.</p>	<p>To exit the program</p> <p>EITHER</p> <p>Click on 'File' at the top left of the toolbar then click on 'Close'</p> <p>OR</p> <p>Click on the 'X' at the top right of the screen.</p>

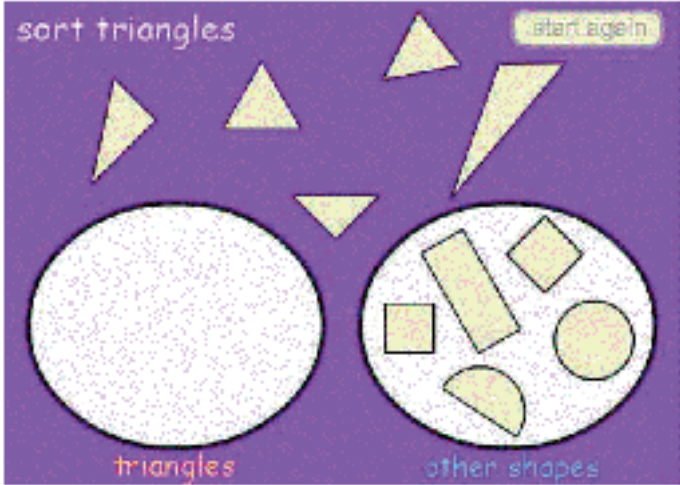

Venn Diagram

User description and instructions

Illustration	Explanation
	<p>This is a simple sorting program.</p> <p>The screen shows a non-intersecting Venn diagram labelled triangles and other shapes, and ten 2-D shapes, five of them triangles.</p> <p>The object is to place each shape in the correct section of the Venn diagram.</p>
	<p>Move the mouse until it is over a shape – the cursor changes to a hand.</p> <p>When the cursor has changed to a hand, you can drag the shape and place it in part of the Venn diagram by clicking and holding the left mouse button.</p> <p>Releasing the left mouse button will drop the shape.</p> <p>All the triangles have been correctly placed.</p>


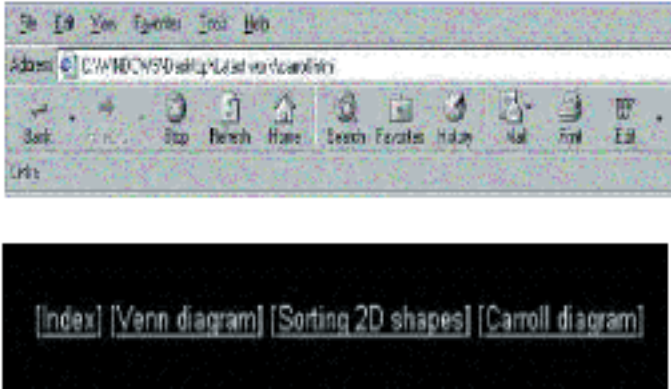
Venn Diagram

User description and instructions

Illustration	Explanation
 <p>sort triangles</p> <p>start again</p> <p>triangles</p> <p>other shapes</p>	<p>All other shapes have been correctly placed.</p> <p>If the shape is placed in the wrong part of the Venn diagram it will pop back out.</p>
 <p>sort triangles</p> <p>start again</p> <p>that's right</p> <p>triangles</p> <p>other shapes</p>	<p>This screen appears when you have placed all the shapes correctly.</p>


Venn Diagram

User description and instructions

Illustration	Explanation
	<p>Clicking on this button repeats the activity.</p> <p>This button should be clicked after each user has successfully completed the game.</p>
	<p>To return to the INDEX</p> <p>EITHER</p> <p>Click on the 'Back' button on the tool bar at the top of the screen</p> <p>OR</p> <p>Click on the 'Index' at the bottom of the screen.</p>

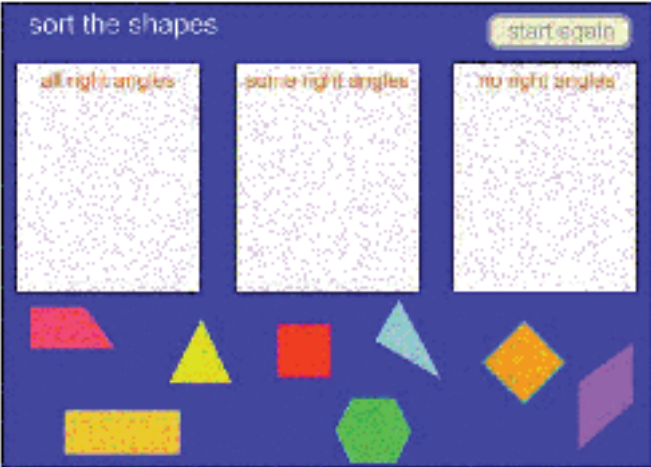
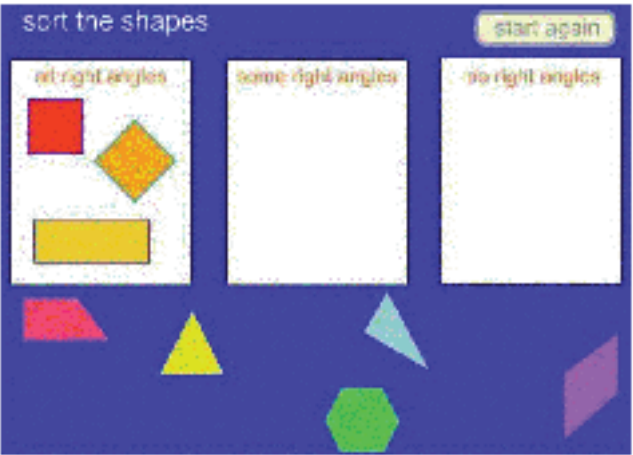
Venn Diagram

User description and instructions

Illustration	Explanation
 <p>The illustration shows a screenshot of a software application's menu bar. The 'File' menu is open, displaying options such as 'New', 'Open...', 'Edit with Microsoft Word for Windows® 97', 'Save', 'Save &...', 'Page Setup...', 'Print...', 'Send', 'Import and Export...', 'Properties', 'Work Offline', and 'Close'. Below the menu bar, a window title bar is visible, featuring a close button (an 'X' icon) on the right side.</p>	<p>To exit the program</p> <p>EITHER</p> <p>Click on 'File' at the top left of the toolbar then click on 'Close'</p> <p>OR</p> <p>Click on the 'X' at the top right of the screen.</p>

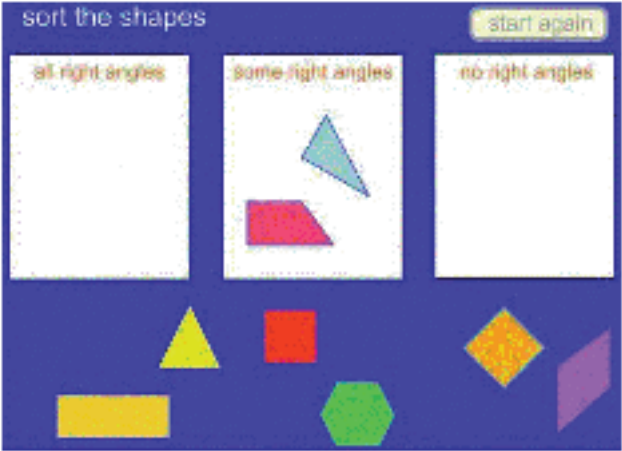
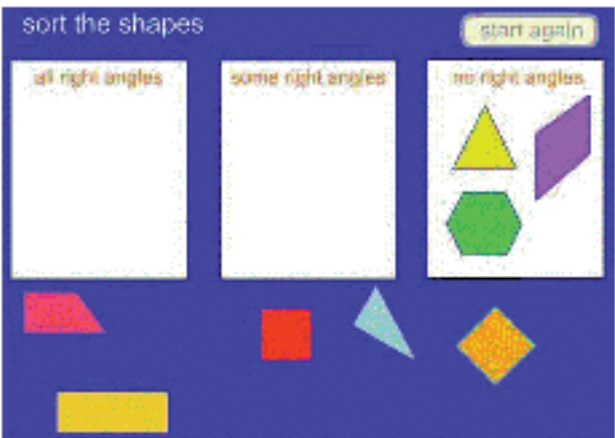
Sorting 2D Shapes

User description and instructions

Illustration	Explanation
	<p>This is a sorting program.</p> <p>The screen shows three boxes labelled all right angles, some right angles, no right angles, and eight different shapes.</p> <p>The object is to classify the shapes according to their properties and place each in the correct box.</p>
	<p>Move the mouse until it is over a shape – the cursor changes to a hand.</p> <p>When the cursor has changed to a hand, you can drag the shape and place it in a box by clicking and holding the left mouse button.</p> <p>Releasing the left mouse button will drop the shape.</p> <p>In this screen shapes containing all right angles are placed correctly.</p>



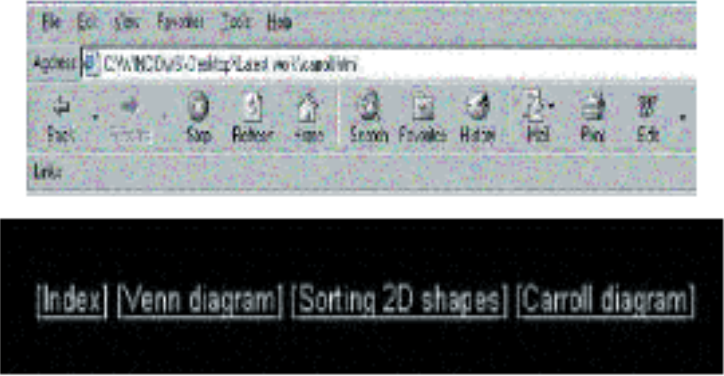
Sorting 2D Shapes

User description and instructions

Illustration	Explanation
	<p>In this screen shapes containing some right angles have been correctly placed.</p>
	<p>In this screen shapes containing no right angles have been correctly placed.</p> <p>If the shape is placed in the wrong box it will pop back out.</p>

Sorting 2D Shapes

User description and instructions

Illustration	Explanation
	<p>This screen appears when you have placed all the shapes correctly.</p>
	<p>Clicking on this button repeats the activity.</p> <p>This button should be clicked after each user has successfully completed the game.</p>
	<p>To return to the INDEX</p> <p>EITHER</p> <p>Click on the 'Back' button on the tool bar at the top of the screen</p> <p>OR</p> <p>Click on the 'Index' at the bottom of the screen.</p>