MathBase1 Software Upgrade 2006

Installation

Before installing MathBase1, first uninstall any previous version by using Add or Remove Programs**: Start > Control Panel > Add or Remove Programs > MathBase1School Edition**.

MathBase1 may be installed on Windows 95 or later. For stand-alone machines, navigate to **My Computer** and double click the CD, which will appear as MathBase1. Double click setup.exe (82KB Application) to begin the installation process and follow the on-screen instructions.

By default, the MathBase1 program will be installed at the location **C:\Program Files\ MathBase\ MathBase1.exe**. Note that previous versions of MathBase1 and other programs may have been installed at **C:\Program Files\MathBase1\MathBase1.exe**.

The installation will create a MathBase1 shortcut on the start menu and the program can be accessed as follows: **Start > All Programs > MathBase > MathBase1**. To create a shortcut on the desktop, navigate to **C:\Program Files\ MathBase\MathBase1.exe** and right-click, then click **Send To** then click **Desktop (create shortcut).**

To install the software on Windows XP, you will have to log on using an administrator account. This will install the program file as before at **C:\Program Files\MathBase\ MathBase1.exe** but will only create a MathBase1 shortcut in the Start Menu of this account. Other accounts can access the program directly from **C:\ Program Files\MathBase\ MathBase1.exe** or can right-click, then click **Send To** then click **Desktop (create shortcut)** to create a convenient shortcut on their own desktop.

The MathBase1 installation is now based on msi files. The actual msi file is **MathBase1.msi** and may be used to install MathBase1 on a **network** as required.

Introduction

MathBase1 is a collection of five easy to use programs that provide effective and enjoyable practice of many basic number skills:

> **Program 1**: Number to 10
>
> **Program 2**: Number to 20
>
> **Program 3**: Number to 100
>
> **Program 4**: Number Bonds
>
> **Program 5**: Number Tables (new).

Programs 1, 2 & 3 deal with the concept of **whole number** and its representation. Programs 4 & 5 provide structured practice of the four number operations. These operating notes concentrate on program control rather than the educational use and rationale. The software is equally suited to individual and whole class arrangements and works well with an IWB (interactive whiteboard). Home user versions of the software are available, allowing pupils extended practice.

Screen Reduction The screen of each program can be reduced to a shortcut on the taskbar by pressing **Esc** on the keyboard. The MathBase screen is restored by clicking this shortcut.

Number to 10

The initial screen of Program 1 shows two large grids of 25 cells. The left grid contains figures while the right grid contains words. Cells are selected by pointing and left-clicking the mouse or by tapping in the case of an IWB. The keyboard is not used. There is a yellow separator bar between the two grids for extra emphasis - this can be made visible or invisible by clicking.

The basic game activity consists of selecting a cell from the left grid and matching it with a cell from the right grid - the match is always from left to right. So, for example, we match a figure **2** in the left grid with the word **two** in the right grid. On a correct match, both cells disappear. The aim is to make all the cells disappear by matching. A new game may be started by clicking the **New** button.

Making faults

If the player makes a incorrect match, neither cell disappears and the player must select another cell on the right. If the new match is correct, both cells disappear. If not, the player keeps selecting cells on the right until a correct match is made.

For each correct match, a pleasant percussion sound is made. The button **Zz..** changes this sound to a piano note.

For each incorrect match, a fault is scored. Faults for the current game are displayed in yellow and are limited to five. On the sixth fault, the screen will freeze and show the flashing message 'Click Here'. This will start a new game.

Competing against the clock

The player can compete against the clock. MathBase uses a simple graphic timing device which pupils of wide ranging age and ability can understand. When the red **1min** button is clicked, a new game is started. At the same time, a red disc begins to form and will take one minute to complete. The aim is to make as many matches as possible before this red disc completes.

If the player matches all cells before disc completion, the clock will stop, showing that all cells have been matched with time to spare. If the clock completes before all cells are matched, the cells freeze and the player can count the remaining cells. The remaining number of cells becomes the basis of the next challenge i.e. to reduce the number of remaining cells. As the player continues to practice, becoming more proficient in the particular matching process, the number of remaining cells will gradually reduce until finally the player beats the clock!

The time taken for the disc to compete can be increased to 2, 3, 4 and 5 minutes. This is done by right-clicking on the **1min** button. When using an IWB, this can be achieved by tapping just to the right of the **1min** button.

Once the timer completes, the **1min** button flashes, indicating that time is up. Clicking the flashing button will unfreeze the cells and allow continuation of normal play - the player may wish to finish matching the last few cells once the test is over. Note that it is not possible exit the program while the clock is running. To do this, click the **1min** button to stop the clock and then click **Exit**.

The small black or white square tabs at the bottom corners of the screen control the background colour of each grid and can be selected as the player wishes. A running summary of performance is given at the bottom of the screen, which is mainly intended to help teachers monitor pupil activity.

Increasing the number range

The yellow button above the left grid initially displays the figure **2,** which defines the current number range (0 to 2). If clicked, this number is incremented to **3**. The player will now have to match numbers in the range 0 to 3. In this way, the number range can be incremented to 10.

Changing the type of content for each grid

The nine buttons above each grid are used to select the type of content. For example, selecting the **English** button above the left grid will place a question mark in each cell which, when clicked, will 'speak' a number word in English. If the **Spots** button is selected above the right grid, each cell shows a standard spot pattern. The player can then practice matching spoken number words on the left with dice patterns on the right. The option buttons above each grid allow a large and flexible range of matching operations. The nine basic options for each grid are described below.

At the bottom left and right there is a small square tab which controls the behaviour of cells in each grid - this behaviour is described in italics.

Spots Shows standard spots patterns found on dice and dominos.

> *Count with sounds (S). The spots can be clicked in any order and are highlighted to the sound of a drum. Clicking on the green background clears highlighted spots.*
>
> *Count with Words (W). The spots can be clicked in any order and are highlighted to the sound of spoken numbers.*
>
> *Read Spots (R). The number of spots is spoken when a cell is clicked.*
>
> *When using these options in the right grid, avoid selecting a cell by clicking on each spot. To select a cell, click between the spots.*

How Many ? Shows groups of randomly arranged squares.

> *Count with sounds (S). The squares can be clicked in any order and are highlighted to a percussion sound.*
>
> *Count with Words (W). The squares can be clicked in any order and are highlighted to the sound of spoken numbers.*
>
> *Move Squares (M). This allows the arrangement of squares to be altered. Click on a square and then click on an empty space to move the square to that space.*
>
> *When using these options in the right grid, avoid selecting a cell by clicking on each square. To select a cell click between the squares.*

English   Shows question marks which, when clicked, speak a number word in English. However, if the **English** button is clicked again it will change to **Welsh**, and then to **French**.

Words Shows written number words in the current language: if the English button was changed to Welsh the words will be in Welsh, if the English button was changed to French the words will be in French.

> *Read Words (R). The word is read aloud when a cell is clicked.*
>
> *Spell Words (S). The word is spelled out when the cell is clicked.*
>
> *The language and letter names used depend on the chosen language for that grid.*
>
> *When using these options in the right grid, avoid selecting a cell by clicking on the word. To select a cell, click away from the word i.e. towards the edge of the cell.*

Spelling Each cell has a question mark which, when clicked, spells out a number word. The language used will be either English, Welsh or French, depending on the current choice.

Figures Each cell contains a number in figures.

> *Read Figures (R) The language used to read the figure depends on the chosen language for that grid.*
>
> *When using this option in the right grid, clicking the edge of a cell will cause that cell to be selected. To avoid selecting a cell on the right, click on each figure precisely i.e. towards the centre of the cell.*

Count Sounds Each cell has a question mark. When clicked, a series of sounds will be played. If no sounds are played, this corresponds to the number 0!

Tally Marks Each cell contains tally marks.

> *Count with sounds (S). Individual sticks are highlighted when clicked.*
>
> *Count with Words (W). Individual sticks are highlighted together with spoken number words.*
>
> When using these options on the right grid, clicking between groups of tally marks will cause that cell to be selected if there is a current selection on the left. To avoid selecting a cell, click each group of tally marks precisely.

Roman1 Each cell contains roman numerals. With the **Roman1** option, these are simplified so that 4 = IIII and 9 = VIIII. If the **Roman1** tab is clicked again, it becomes **Roman2,** which displays the more sophisticated but standard system of Roman numerals where 4 = IV and 9 = IX.

Screen Lock

To prevent pupils exiting the program early or changing grid formats, the teacher can press CTRL and L on the keyboard. This will cause the word **Lock** (in small red letters) to appear at the bottom right corner of the screen. The lock can be removed by pressing CTRL and L again. This can be used 'silently' with pupils who have difficulty remaining on task.

Number to 20

The general operation of this program is similar to the first program. The main difference is the number range. The program begins with the range 0 up to 10 and can be incremented to 20. Each grid is now made of 18 rectangular cells. The most important new concept is place value to 20. The nine grid options are given below.

Tens Shows two columns of counters stacked to a maximum height of ten. The small square tab at the bottom of the screen has the following options:

> *Count with sounds (S). The counters have to be clicked in order from bottom to top, starting with the left column. The counters are highlighted to a percussion sound.*
>
> *Count with Words (W). The counters have to be clicked in order from bottom to top, starting with the left column. The counters are highlighted to the sound of spoken numbers in the current language.*
>
> *Count On from Ten (T). The counters have to be clicked in order from bottom to top, starting with the left column. The counters are highlighted to the sound of spoken numbers in the current language. However, a complete group of ten is highlighted at once without counting. We then count-on from ten.*
>
> *Use Place Value (P). Columns of counters are identified as 'One ten', 'Two tens' or so many 'Units'. So 14 counters would be read as 'One ten, four units'. This last option is currently given in English only, regardless of selected language.*
>
> *When using these options in the right grid, clicking between counters will cause that cell to be selected if there is a current selection on the left. To avoid selecting a cell, click each counter precisely.*

How Many ? Shows groups of randomly arranged squares.

English Shows question marks which, when clicked, speak a number word in English. However, if the **English** button is clicked again, it will change to **Welsh**, and then to **French**.

Words Each cell contains a number word in the current language.

Spelling Each cell has a question mark which, when clicked, spells out a number word in the current language.

Figures Each cell contains a number in figures.

Fives Counters are arranged in groups of five.

Tally Marks Each cell contains tally marks.

Roman1 Each cell contains roman numerals. With the **Roman1** option, these are simplified so that 4 = IIII and 9 = VIIII. If the **Roman1** tab is clicked again, it becomes **Roman2** which displays the more sophisticated but standard system of Roman numerals where 4 = IV and 9 = IX.

Number to 100

The general operation of this program is identical to the first two programs. The number range is extended to 100. The program begins with numbers in the range 0 to 20, numbers can then be added in groups of ten until we reach 100. Each grid is made of nine square cells. The nine grid options are given below. Again, the square tab at the bottom of the screen allows further options.

Tens Square counters are stacked vertically to a maximum height of ten.

How Many ? Each cell contains group of coloured squares useful for counting to 100. Counters can also be rearranged to create recognisable patterns such as groups of ten. This option is also useful for estimation and comparison to 100.

English Each cell has a question mark which, when clicked, speaks a number word in English. However, by clicking the **English** button again this can be changed to **Welsh**, and then **French**.

Words Each cell contains a number word in the current language.

Tens & Units The number of tens and units is specified e.g. **3 Tens and 5 Units**.

Figures Each cell contains a number in figures.

Fives   Counters are arranged in groups of five.

Tally Marks Each cell contains tally marks.

Roman1 Each cell contains roman numerals. With the **Roman1** option, these are simplified so that 4 = IIII and 9 = VIIII. If the **Roman1** tab is clicked again, it becomes **Roman2,** which displays the more sophisticated but standard system of Roman numerals where 4 = IV and 9 = IX

Number Bonds

This program provides opportunities for structured practice of the four operations. The player has to match each number bond with the correct answer. Buttons at the top of the screen are used to select the type of number bond to practice. The four operations are practised in 21 stages, arranged into six groups. Resting the mouse over each option button will give a tool tip, indicating the arithmetic scope of that button.

GROUP 1: Addition & Subtraction in 5

Stage 1: **Add A**

Stage 2: **Subtract A**

Stage 3: **Add Sub A**

GROUP 2: Addition & Subtraction in 10

Stage 4: **Add B**

Stage 5: **Subtract B**

Stage 6: **Add Sub B**

GROUP 3: Addition & Subtraction in 20

      Stage 7: **Add C**

      Stage 8: **Subtract C**

      Stage 9: **Add Sub C**

GROUP 4: Multiplication & Division with emphasis on factors 0, 1, 2, 5 and 10

      Stage 10: **Multiply A**

      Stage 11: **Divide A**

      Stage 12: **Mul Div A**

      Stage 13: **All Four A**

GROUP 5: Multiplication & Division with emphasis on factors 3 and 4

      Stage 14: **Multiply B**

      Stage 15: **Divide B**

      Stage 16: **Mul Div B**

      Stage 17: **All Four B**

GROUP 6: Multiplication & Division with emphasis on factors 6, 7, 8 and 9

      Stage 18: **Multiply C**

      Stage 19: **Divide C**

      Stage 20: **Mul Div C**

      Stage 21: **All Four C**

To change the number of cells in each grid, click the small yellow number on the right of the screen. Clicking the blue arrow will cause the two grids to swap. However, we still match from left to right. The small grid icon on the right of the screen can be used to display an interactive addition or multiplication square - click the operation sign to change between the two. A small square tab at the bottom left can be used to speak the clicked number bond (only available in English).

If the player makes a mistake, the correct answer is shown above the right grid, this answer must be clicked to continue the game.

Number Tables

The previous program is highly structured and follows a strong rationale. The program **Number Tables** plays a supporting role as well as being valuable in itself.

The program deals with all four operations in the same way. The traditional idea of a 'times table' is extended to all four operations. So, for example, pupils have an opportunity to practice the **Add 3 table**. To do this, click the **3** button on the first row and the **Add** button on the second row. Similarly, one could practice the **Divide by 7 table**.

To practice with any particular number, click that number button in the top row. To include all previous numbers, click the number button twice. Right-clicking number buttons will allow any combination of numbers to be practised.

Reducing the number square

The arithmetic of this program (like the Number Bonds program) is based on the 10 by 10 addition square with the reverse subtractions and the 10 by 10 multiplication square with the reverse divisions.

The **Full Table** button, when clicked, becomes **Part Table** and is used to reduce this number square. So, for example, if the **Add 3 Table** is practised with the full table option, questions are taken from the full 10 by 10 addition square. If the **Add 3 Table** is practised with the part table option, questions are taken from the 3 by 3 addition square. This option is useful for players who are still calculating with small numbers.

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These instructions focus on how to operate MathBase1. For further information on the educational rationale behind these programs see our web

www.mathbase.co.uk