

MathBase6 2008

Installation from CD

Before installing MathBase6 first uninstall any previous version. Click:

Start > Control Panel > Add or Remove Programs > MathBase6 School Edition > Remove

MathBase6 may be installed on any Windows PC. Run setup.exe from the CD and follow the on-screen instructions. By default, the MathBase6 program is installed at location

C:\Program Files\MathBase\MathBase6.exe

A MathBase6 shortcut will be created on the start menu and can be accessed by clicking:

Start > All Programs > MathBase > MathBase6

To create a desktop shortcut, locate the program file at

C:\Program Files\MathBase\MathBase6.exe

right click on MathBase6.exe then click 'Send To Desktop'.

MathBase6 installation uses msi files. The actual msi file is MathBase6.msi and may be used to install MathBase6 on a network as required.

Introduction

MathBase6 comprises twelve programs dealing with whole number skills:

1. Multiply and Divide
2. Integer Division
3. Plus or Minus
4. Three Numbers
5. Smallest and Largest
6. The next number is ...
7. The difference
8. Order of Operations
9. Prime Numbers
10. Product of Primes
11. Multiply by Ten
12. Expanding Brackets

The normal operation of MB6 is controlled by **left** mouse clicks, **right** clicks are used to provide help information. To turn **HELP** on or off, go to any program screen and click the 'Ops' button then in the **options panel** click the large purple button labelled 'Help'.

Clicking the MathBase logo on each game screen can also provide useful information and may be of help to pupils with visual difficulties.

1. Multiply and Divide

The top row of **purple** buttons set the number range to work with. The second row of **orange** buttons set a number to multiply or divide by. Initially the number range is 1 – 100 and the operation is x2. Division may be selected from the options panel (shown by clicking the 'Ops' button).

The program covers mental multiplication and division with numbers in the range 0 to 1000. Pupils can of course use pencil and paper or other equipment to support their calculations if necessary.

All games in MathBase6 have two grids that contain a number or rectangular cells. Numbers on the left are selected, multiplied by 2 and matched with numbers on the right. If a match is **correct** then both cells disappear. The aim is to match all the cells and clear the screen.

On an **incorrect** match, both cells are made red **and corrective** message will appear that must be clicked for the game to continue. Each wrong match scores a fault and is displayed in yellow. Five faults are allowed before the game must restart.

The number of **correct** and **incorrect** matches is shown at the bottom of the screen. These figures are cumulative so if the player returns from playing another game they will still be in place.

The player can start a new game by clicking the 'New' button. The button marked Man(ual) can be set to Auto(matic) in which case cells on the left are selected automatically after each correct match.

The '1m' button starts the formation of a red disc that will give the player 1 minute to match as many cells as possible. This can be varied from half a minute to three minutes using the options panel. The time can also be expressed in seconds.

Typing CTRL + L at the keyboard will disable the **Exit** button and a red letter **L** will appear in the bottom right hand corner. To remove the 'LOCK' press CTRL + L again.

The MathBase screen may be reduced to the taskbar by pressing ESCAPE on the keyboard.

2. Integer Division

This program concerns integer division within 100 by the numbers 1 to 10. The **purple** buttons set the range while the **orange** buttons decide the number to divide by.

Numbers in the **left** matrix are divided (by the number selected using the orange buttons) and are matched with the correct quotient and remainder. Zero remainders can be either shown or hidden using the **options** panel.

Multiplication may also be selected from the options panel. In this case multiplication demonstrates the reverse of integer division – i.e. we multiply the quotient by the divisor and add the remainder to get back to the original number.

3. Plus or Minus

This program practises adding and subtracting single-digit numbers from multiples of 10 and 100. A range of multiples of 10 can be chosen using the top row of **purple** buttons or alternatively multiples of 100 can be selected using the options panel.

The **orange** buttons can be used to select a specific single-digit number to add or subtract. By clicking a second time a range of single-digit numbers can be selected.

4. Three Numbers

Initially this game involves the addition of 3 single-digit numbers. The range of these numbers is selected using the top row of **purple** buttons giving a possible maximum sum of $9 + 9 + 9$.

Using the options panel we can choose:

- a) To add three multiples of 10 e.g. $30 + 60 + 10$
- b) To add three multiples of 100 e.g. $400 + 200 + 300$
- c) To add HTU's written in order e.g. $500 + 20 + 3$
- d) To add HTU's in no order e.g. $20 + 3 + 500$
- e) Random calculations such e.g. $700 + 30 + 600$
- f) Products of single-digit numbers e.g. $4 \times 3 \times 5$

5. Smallest and Largest

The top row of **purple** buttons can be used to select a working number range from 0 to 10,000. The **orange** buttons give a choice of four activities:

- a) Smallest: select the smallest from each pair
- b) Largest: Select the largest from each pair
- c) Less than or Greater than: select the correct sign from $<$, $>$ or $=$
- d) True or False: decide if each statement is true or false

6. The next number is

Increasing and decreasing sequences formed by adding or subtracting a single-digit number. The **purple** buttons select the number range (up to 10,000) while the **orange** buttons select a number, or when clicked a second time a range of numbers, to add or subtract.

The **options** panel can be used to select whether sequences are increasing, decreasing or a mixture of both.

7. The Difference

The top row **purple** buttons select a number range up to 10,000. The game practises finding small differences, from 0 to 10, between two numbers. The **options** panel can be used to display either pairs of numbers or subtractions.

8. Order of Operations

This game involves calculations based on the correct order of operations and brackets. Using the **orange** buttons, operations can be practised individually or in any combination with or without brackets.

Any combination of additions and subtractions are performed from left to right (of course in some circumstances this is not necessary as in the case of pure additions). Any combination of multiplications and divisions are also performed from left to right. Any multiplications or divisions are done **before** additions and subtractions. Brackets are always done first.

9. Prime Numbers

The top row of **purple** buttons set the range of prime numbers to investigate. Selecting a button such as 100 sets the range from 0 to 100, however clicking 100 a second time gives a more focused range 70 to 100.

The pupil must either identify a number on the left as **prime** or, in case the number is not prime, identify its **lowest prime factor** (abbreviated to LPF) i.e. its lowest factor greater than one.

10. Products of Primes

This program deals with numbers up to 150 expressing them as a product of their prime factors. The **purple** buttons set the range while the **orange** buttons select the prime factors to use.

11. Multiply by 10

The six **orange** buttons are used to select multiplication or division by 10, 100 or 1000. The buttons can be used in any combination.

The **options** panel can be used to restrict numbers to ten thousand, one hundred thousand or one million.

12. Expanding Brackets

This program gives pupils valuable practise in expanding simple brackets. The **orange** buttons select four simple situations and can be used in any combination.

The brackets should be multiplied out (or expanded) to produce the sum or difference of two terms. For a correct match the each term should be of the correct value and in the correct order (here the method of expansion is being tested rather than then end value).

Alternatively, the **options** panel can be set to 'Calculate the value', in which case the pupils can either calculate the final value by expanding the brackets or by calculating the brackets first. It is important, of course, for pupils to realise that both methods always yield the same result.