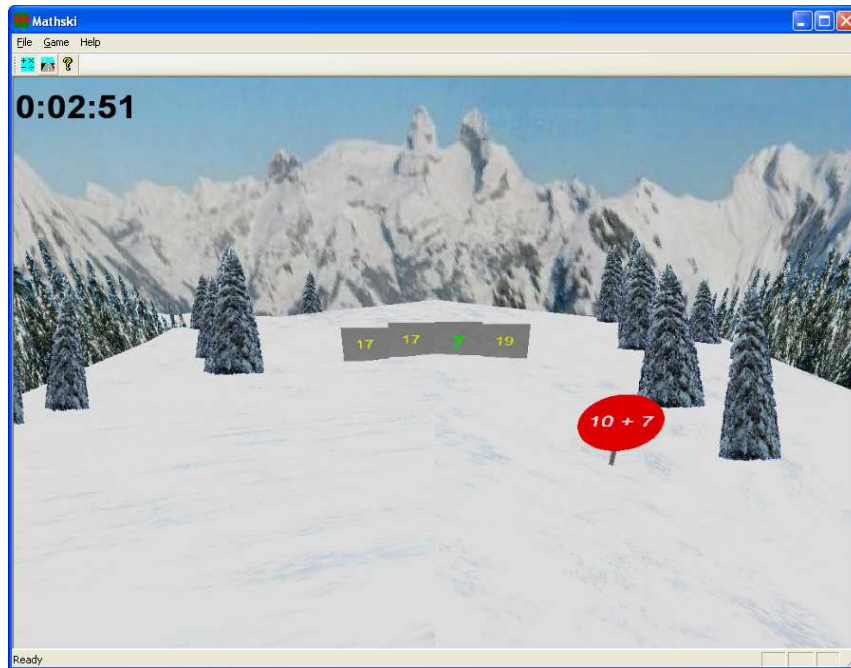


# Calculation and comparison learning software

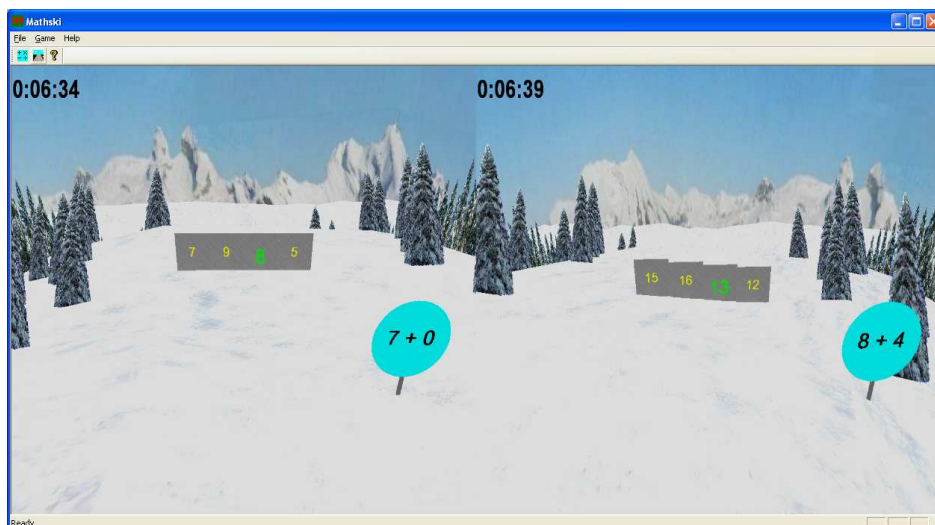
Mental calculation through a 3D race

## *Presentation*

This software is intended to elementary school children, who are learning arithmetic. Thanks to it they will be able to work and play with mental calculation, especially the multiplication tables. Its presentation in the form of a 3D ski race is unique.



The level of difficulty can be easily adapted to the level of the child.  
And for more fun, two players can compete simultaneously!




## Topics

The following topics are available:

- **Configuration**  
This activity allows selecting the kind of operations and the difficulty level that will be used during the race.
- **Arithmetic race**  
This activity allows working the mental calculation and / or comparisons in an original way based on a 3D race.

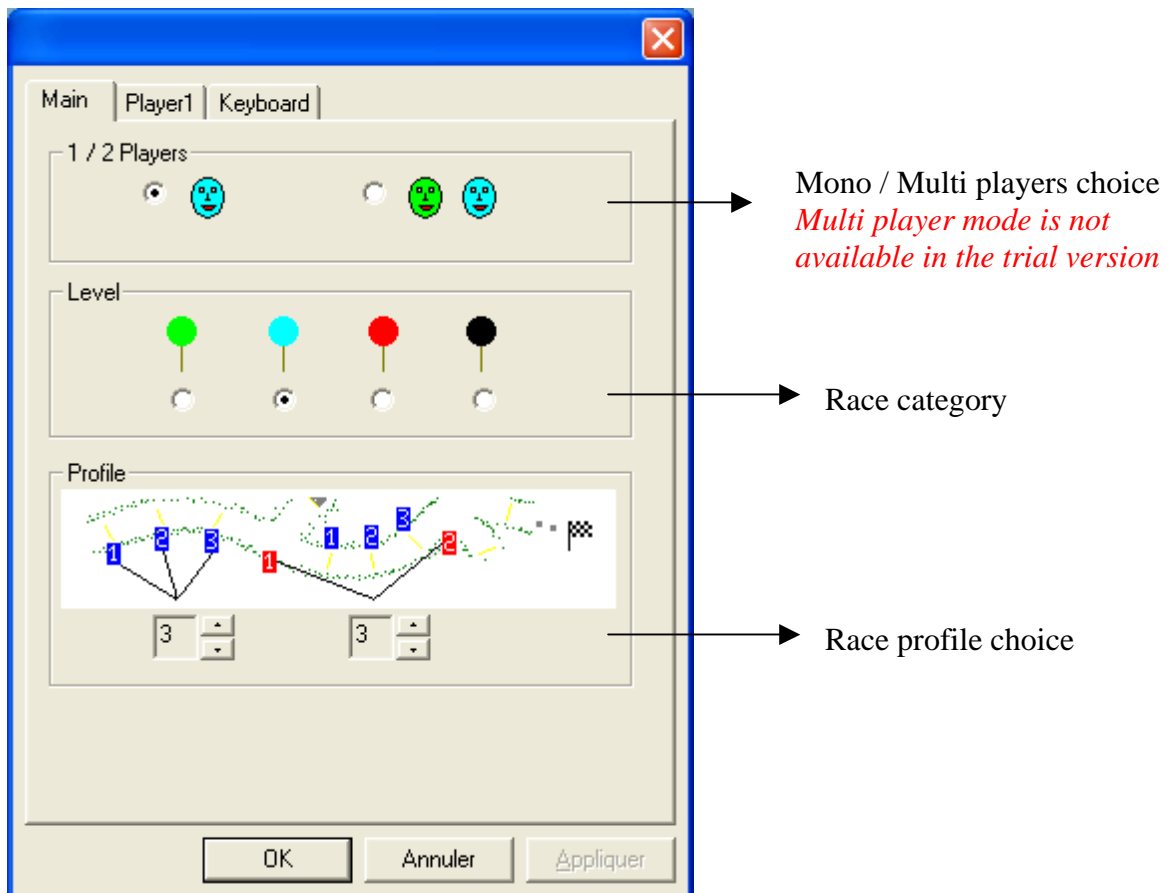
## Configuration

The configuration is available via the menu item: Game → Configure or via the icon . It allows configuring the race.

It consists of a dialog box with different tabs:

- A common tab
- One or two players configuration tabs
- A keyboard control tab

### Common tab



The common tab allows the selection of one or two players.  
 In case two players are selected, a new tab appears for the second player.

The race category is selected among standard colours (Green, Blue, Red, Black)

The race profile can be modified in terms of

- Number of problems between intersections {2, 3, 4}
- Number of intersections {0, ...5}.

## Players configuration tab

Operations selection

Operands selection  
 2<sup>nd</sup> is limited to 4  
 in trial version

Comparison predicates selection

Direct and / or reverse problem

Number of proposed solutions

### Operation selection

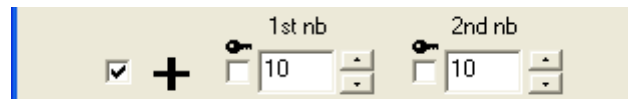
The child can select **one or more operations**. The mental calculation will use only the selected operations.

### Operands selection

For each selected operation the child can tune **the maximum value** of the each of the **two operands**. This allows tuning the complexity of the problems that will have to be solved. The bigger the operands, the more complex the operations.

If the maximum value for an operand is set to 'x' then this operand will randomly take a value up to 'x'.

For instance the following figure shows a tuning to work with *additions* of numbers between 0 and 10.



Moreover, a checkbox  beside the operand maximum value input allows fixing the operand to this value exactly. [This allows focusing on a particular table.](#)

For instance the next choice leads to work *the multiplication table by 7*:  
 $7 \times 0, 7 \times 1, \dots 7 \times 10$



### Comparison predicates selection

The software also allows working with comparison predicates (equal, different, greater than, less than, greater or equal than, less or equal than)

The child can select one or more comparisons predicates types and also fix the maximum number used in comparisons problems.

### Selection of direct and / or reverse problem

The software allows posing two kinds of problems:

- Direct: the program gives two operands and the child has to find the solution
- Reverse: the program gives one operand and the solution, and the child has to find the second operand. This mode allows introducing the symmetric operation.

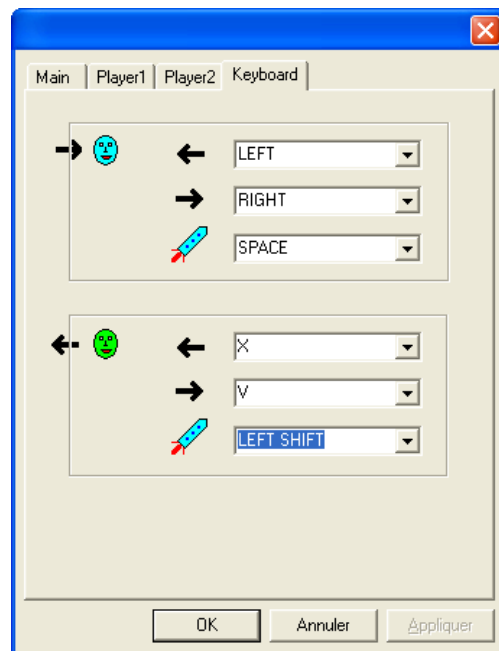
It is possible to use one or both kinds simultaneously.

This choice isn't operating on comparison problems

### Number of proposed solutions

This parameter influences the number of answers that are proposed for each problem. The greater this number, the more difficult the game.

## Keyboard control tab




} Keyboard keys for player alone or on the right

} Keyboard keys for player on the left

This tab allows tuning the keyboard commands (left, right, boost) for each player. Non occidental keyboards are handled since the special keys (SHIFT, CTRL, ALT, F1, F2...) are also available for choice. It is even possible to select the mouse buttons to pilot.

## Arithmetic Ski Race

This activity is started via the menu item Game→Play or via the icon . It is available as long as at least one operation has been selected in the configuration module. According to this selection, the software randomly selects an operation and two operands. It also proposes up to four solutions with at least a right one.

The game's purpose is to determine the right solution and to move transversally in order to face the associated piece of wall or the right panel in case of intersections.

If the right proposal is selected then the race can go on. Otherwise the current step has to be played again.

The driver must use the keyboard keys configure previously to move transversally on the road.

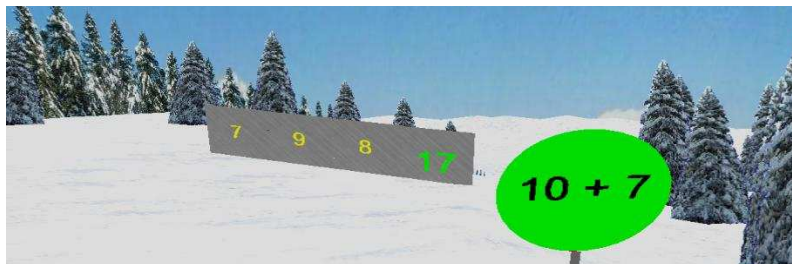
The race is over when all the players have reached the end. The timer of a given player stops as soon as he reaches the end.

Three kinds of problems are to be encountered during the race

- Walls of choices
- Comparisons
- Intersections

A **wall of choices** consists of:

- A round panel (or square in case of reverse problem) to pose the problem
- A wall lying across the road, showing the different proposals.



→ To pass a wall of choice, the driver shall face the correct answer. The following figure shows the case of a reverse problem.



A **comparison** is similar to a wall of choices but the proposals are chosen among two icons

representing TRUE  or FALSE 



An **intersection** consists of:

- A round panel (or square in case of reverse problem) to pose the problem
- Two directional panels showing the different proposals.



→ To pass an intersection, the driver shall select the correct side of the road.

At anytime it is possible to

- return to the configuration module, via the icon .
- restart the race via the icon .

### Language adaptation

The numbers between zero and one hundred are written with letters on directional panels.

The names of those numbers are stored in external files :

[Numbers\\_EN.txt](#) → English names. This is the default file in case no specific file exists for the system language.

[Numbers\\_FR.txt](#) → French names.

To fit a new language, you need to create a file named [numbers\\_<language code>.txt](#)

For example [numbers\\_DE.txt](#) for german language.

Format of these files must be either ansi, or Unicode big endian or Unicode little endian.

Hence it is possible to translate in non Latin alphabets.

-- Enjoy! \$88 --

P.S. In trial version the 2<sup>nd</sup> operand is limited to 4 and the multi players mode is not available. These limitations do not apply to full version.