

Mingo

EQUIPMENT

Four sets of cards: MiniMingo (beginner), MidiMingo (intermediate) Mingo (regular) and Mingo3D (expert); numbers from 1 to 100,121,144; tokens; multiplication table.

Each card is a grid containing either a mathematical expression (multiplication), rectangles composed of little squares, solids composed of cubes, or “Smarties” with a numerical value on each.

PREPARATION

Cut out the numbers.

Each player gets a card (depending on his knowledge of the multiplication and division facts) and some tokens. The teacher places the numbers in a non-transparent bag.

PLAYING THE GAME

The teacher takes out a number, says it aloud, shows it to players and puts it aside. Each player then has to check his card and look for fields that correspond to the given number (the rectangle has that number of little squares; the sum of the ‘Smarties’ is that number; the solid contains this number of cubes or the expression results in the given number). If he finds one (or two) such field(s), the player marks it with a token.

AIM OF THE GAME

The first players to complete a vertical, horizontal or diagonal row on their card wins the game.

VERIFICATION

The verification is a very important part of the game and of the learning process. The winners has to say the mathematical expressions that correspond to the fields of their winning row (horizontal or column) and the corresponding numerical values. The teacher verifies that the answer is in fact correct and that the number has been played.

TO THE TEACHER

The game is based on the inverse questioning and multiple representations principles. Instead of asking, "What is 4 times 3? » we ask, "How can you get 12" ($2 * 6$ and $3 * 4$). Furthermore, the child sees many "multiplications" (not answers) from which he must choose the right one. This leads to multiple elementary computations (supported by the visual models at the Mini and Midi levels), which increases the effectiveness of the game in terms of learning.

You can begin playing the game before the children start to study multiplication formally. The Mini level provokes familiarity with the model of multiplication (the area of the rectangle) prior to acquaintance with the abstract definition of this operation. While discussing the colouring of Mini cards with children, one can draw their attention to the distributive property of multiplication. At the beginning, give the students enough time to count the little squares (or use the multiplication table for MidiMingo and Mingo). As they get a hand on it, shorten the time to encourage them to memorize the structured associations.

The Midi level uses a different model of multiplication (iterative addition) providing a reduced visual support. Some pictures of this level can illustrate the commutative property of multiplication.

The basic level of the game is instrumental in memorizing the entire multiplication table.

The highest level of the game helps to deepen the understanding of the nature of multiplication and promotes an understanding of the measurement of the volume of a rectangular prism.

Have a good game!