Educational software designed to promote the mathematical skills of children with Down Syndrome

MIMOCAS 1 2 3 NUMBERS

“Mimocas Numbers” is an interactive software high in educational content, providing hours of entertainment in a play-and-learn environment while introducing the foundation skills in basic numeracy/mathematics. Skills are built on gradually and sequentially.

This software program was designed for use with children with Down syndrome, aged 36 months and older. The key objectives are:

1. To promote the development of mathematical language, comprehensive and expressive, by means of a visual learning process;
2. To promote number knowledge, number sense, number sequencing, numerals, numerical principles;
3. Has a special difficulty level organization that gives children enough time to consolidate and reinforce a successful strategy;
4. Introduces a new methodology based on visual processing and visual memory.

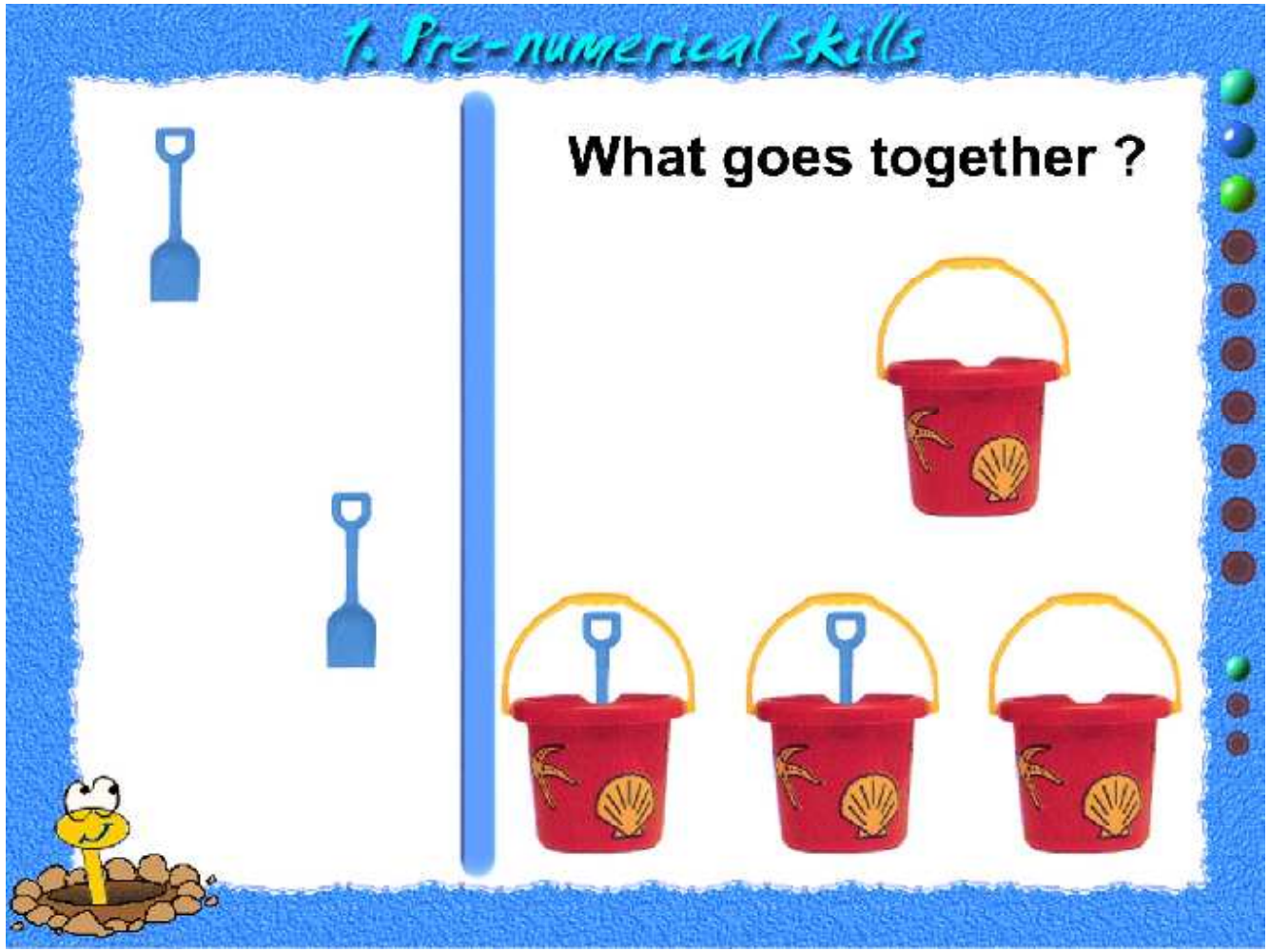
In year 2000, with the financial support of the Portuguese Department for Rehabilitation of Disabled People, the Portuguese Down’s Syndrome Association together with the Higher School for Management of Santarém, pooled their know-how in the respective fields of special education and information technology to develop this educational software.

Although this software was primarily created to meet the challenge of teaching children with Down syndrome, it is equally suitable for children with intellectual or learning disabilities aged 36 month and over.

This Educational Software can also be used successfully with children without any kind of impairment or learning disabilities up to the age of six.

If you click on letter M on the keyboard, it displays the names of the three games groups: Pre-numerical skills, Numerical skills (numbers 1 to 5) and Numerical skills (numbers 1 to 10).

First Group– Pre-numerical skills (foundation skills): indefinite size and amount, quantity concepts (understand "how many"); size concepts; number sense; one to one correspondence; number identification; categorization; follow a pattern.



In the third game, our goal is to promote one to one correspondence and grasp the concept of what is "too many"? The child has to pair the items that belong together, notice which ones are missing and take away those that cannot be paired.

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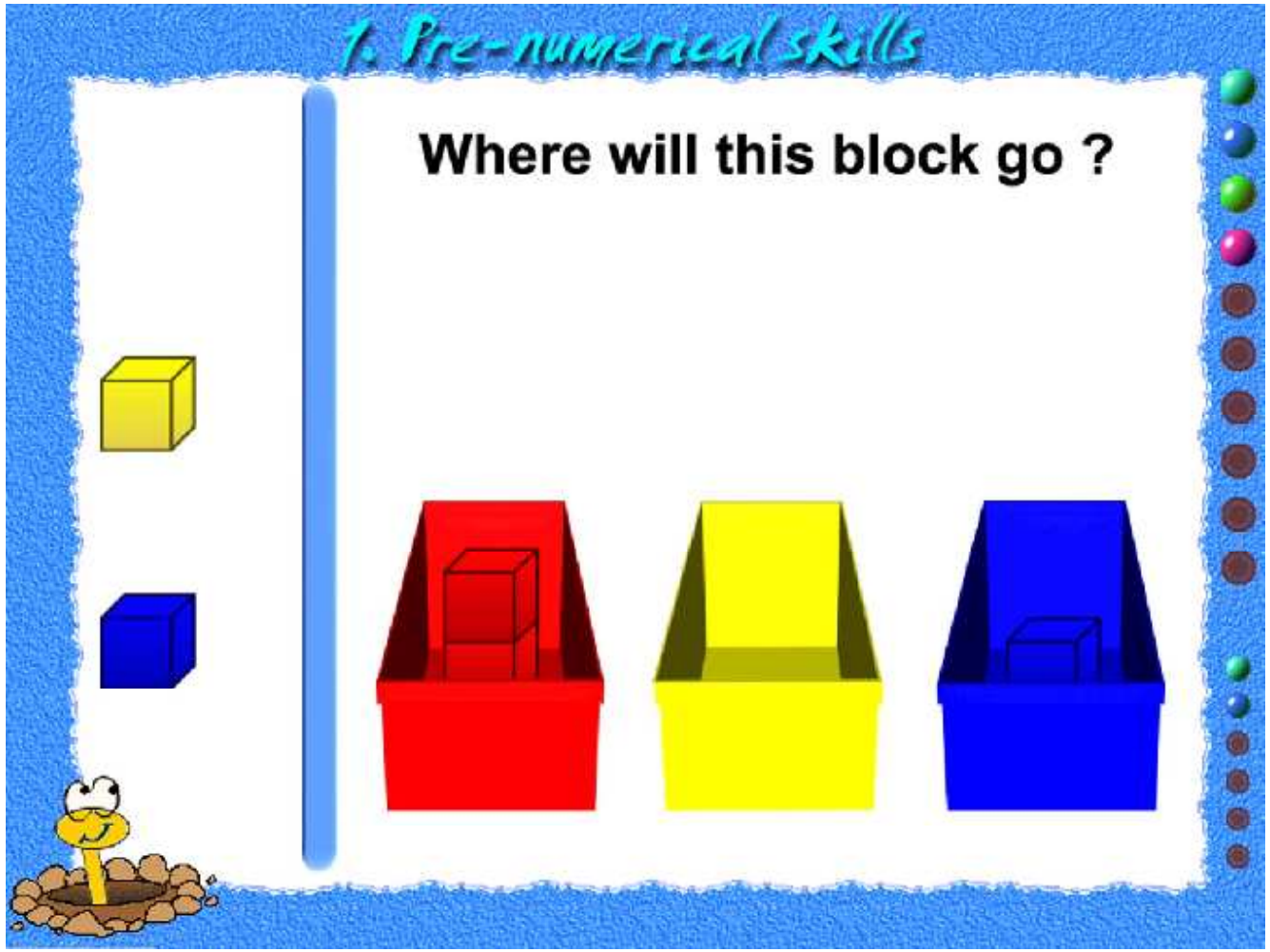

In the fourth game our final goal is to develop sorting abilities.
At first, the child is led to sort a few items into groups of the same colour, beginning with two colours and then introducing a third. Later the child has to sort well-known items according to shape, quality, size and colour.

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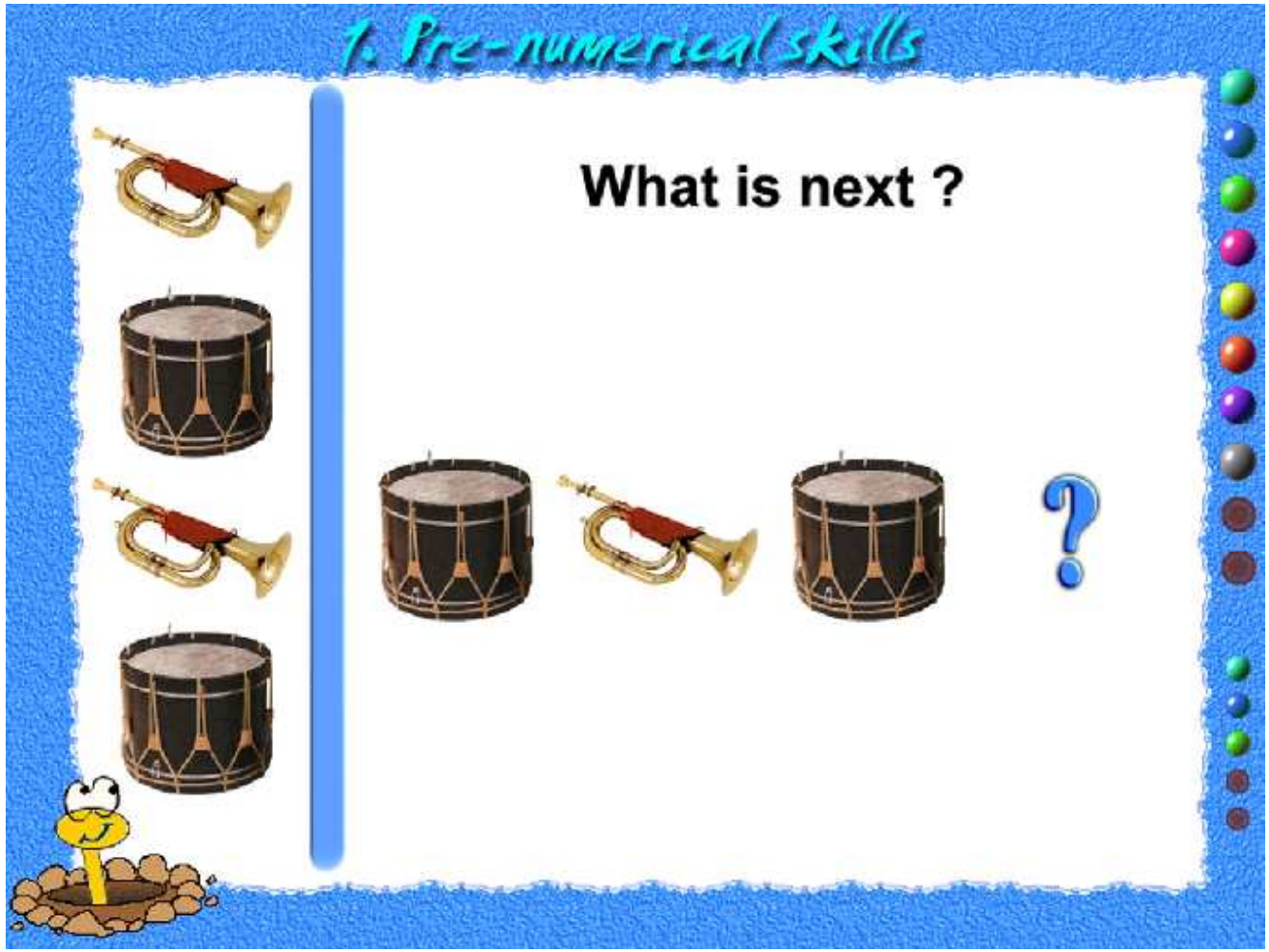
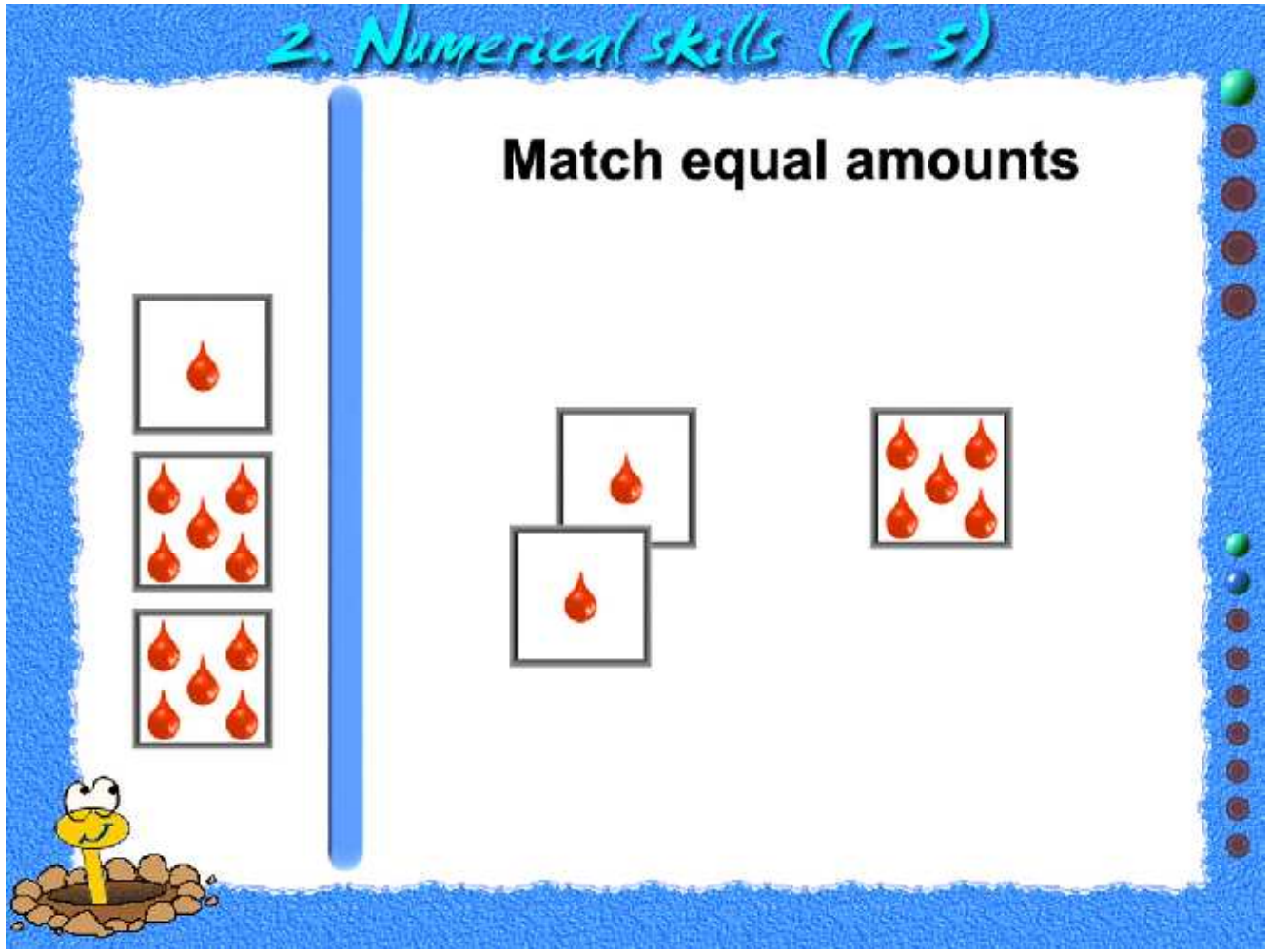


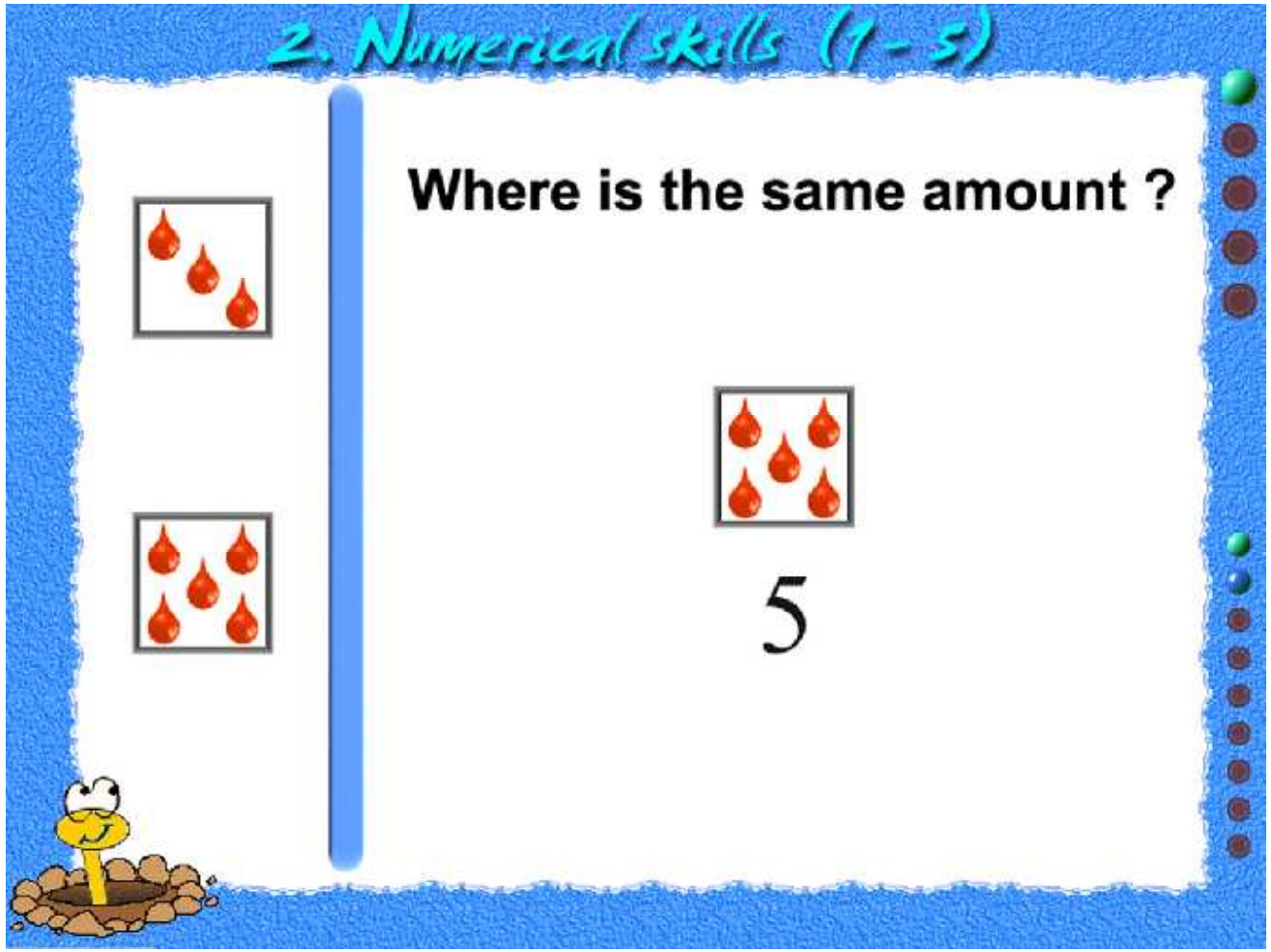
In the game number eight the child has to complete a pattern.
The child has to complete the missing items or the pictures of familiar objects.

Second Group – Work with numbers: 1 to 5 – number naming; quantity (How many?"); identify groups of numbers; count forward and backward, understand one to one correspondence; combine equal quantities; understand "same quantity";



In this activity, she has to match equal quantity cards. In other activity, presented with two cards she has to select the card to match equal quantities. The quantities are equal but the items could be different, or she could be matching number cards. We have also memory training activities were she has to recognize automatically the number of items in quantities. The child should visualize the quantity card. Then this card is hidden and she has to identify the correct number from those on display to match the quantity card.

Second Group – Work with numbers: 1 to 5 – number naming; quantity (How many?"); identify groups of numbers; count forward and backward, understand one to one correspondence; combine equal quantities; understand "same quantity"; understand the principles of addition and subtraction, understand "add one/two, how many altogether? "Take one/two, how many altogether?"; build a "number ladder"; develops fast recall and mental calculation skills; automatic recall number of items; automatic recall represented number.

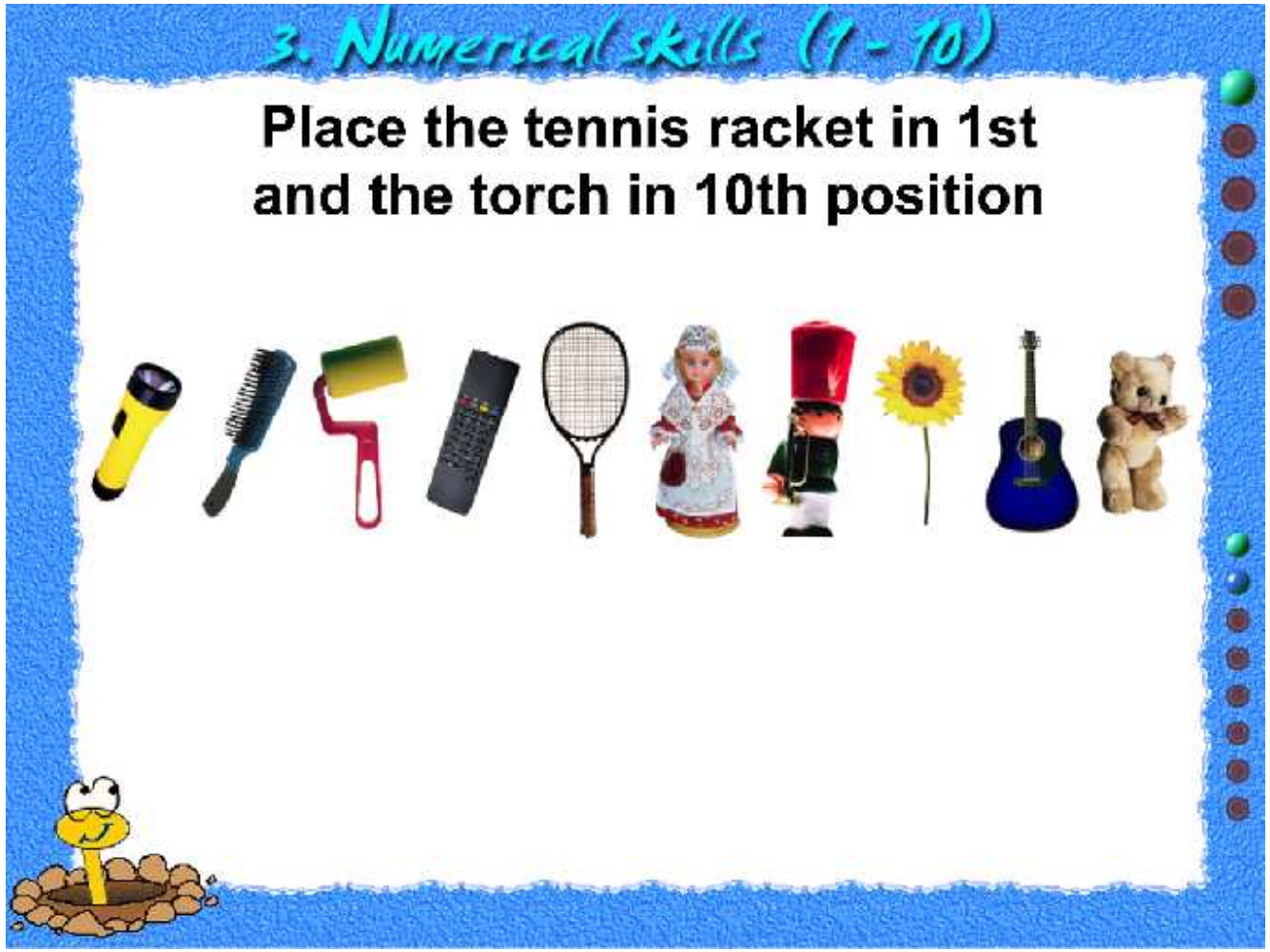


Then she will have to match an amount with its number. She is given a visual prompt of the number and the corresponding amount. In other activities she has to choose from the cards on display, which match the number, or, match quantity cards with a domino card.

Second Group – Work with numbers: 1 to 5 – build a "number ladder"; develops fast recall and mental calculation skills; automatic recall number of items; automatic recall represented number.

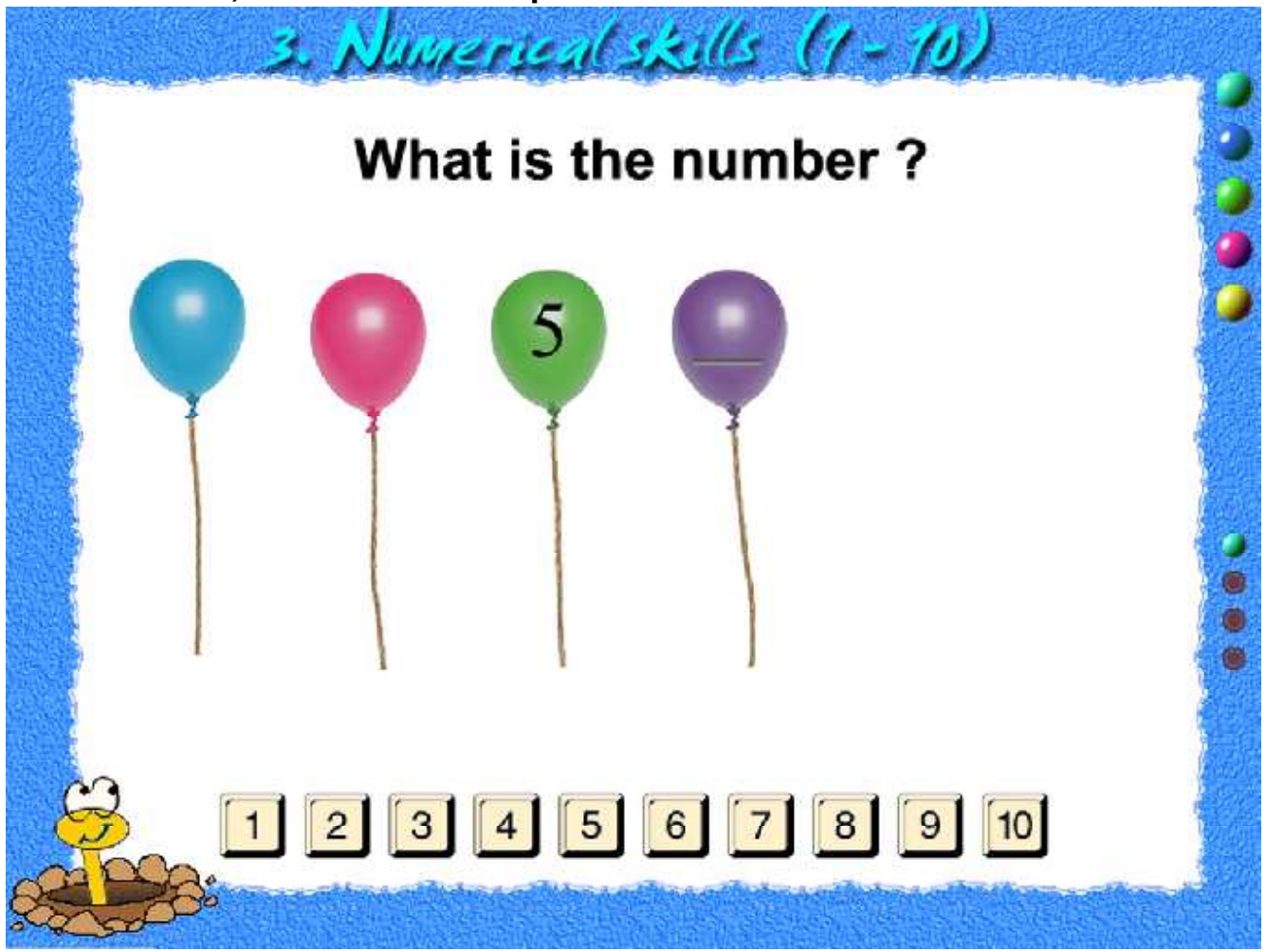
We present a number ladder with numerals, for the child to count up and down, when she counts up it could be from any other step other then the first one. Then the child has to choose from the numbers on display what are missing (one, two or tree numbers) to allow Mimocas to go up and down.
The child has to interpret simple number addition statements; she can start in any number up to five, and then has to go up 1 or 2 steps. Then she has to choose the number on the display to answer.
We also have the takeaway operation as the Mimocas moving down. It can go down 1 or 2 steps and then again the child has to choose the number it makes.

Third Group – Work with numbers: 1 to 10 – number naming; quantity (How many?"); identify groups of numbers; count forward and backward, understand one to one correspondence; combine equal quantities; understand "same quantity";



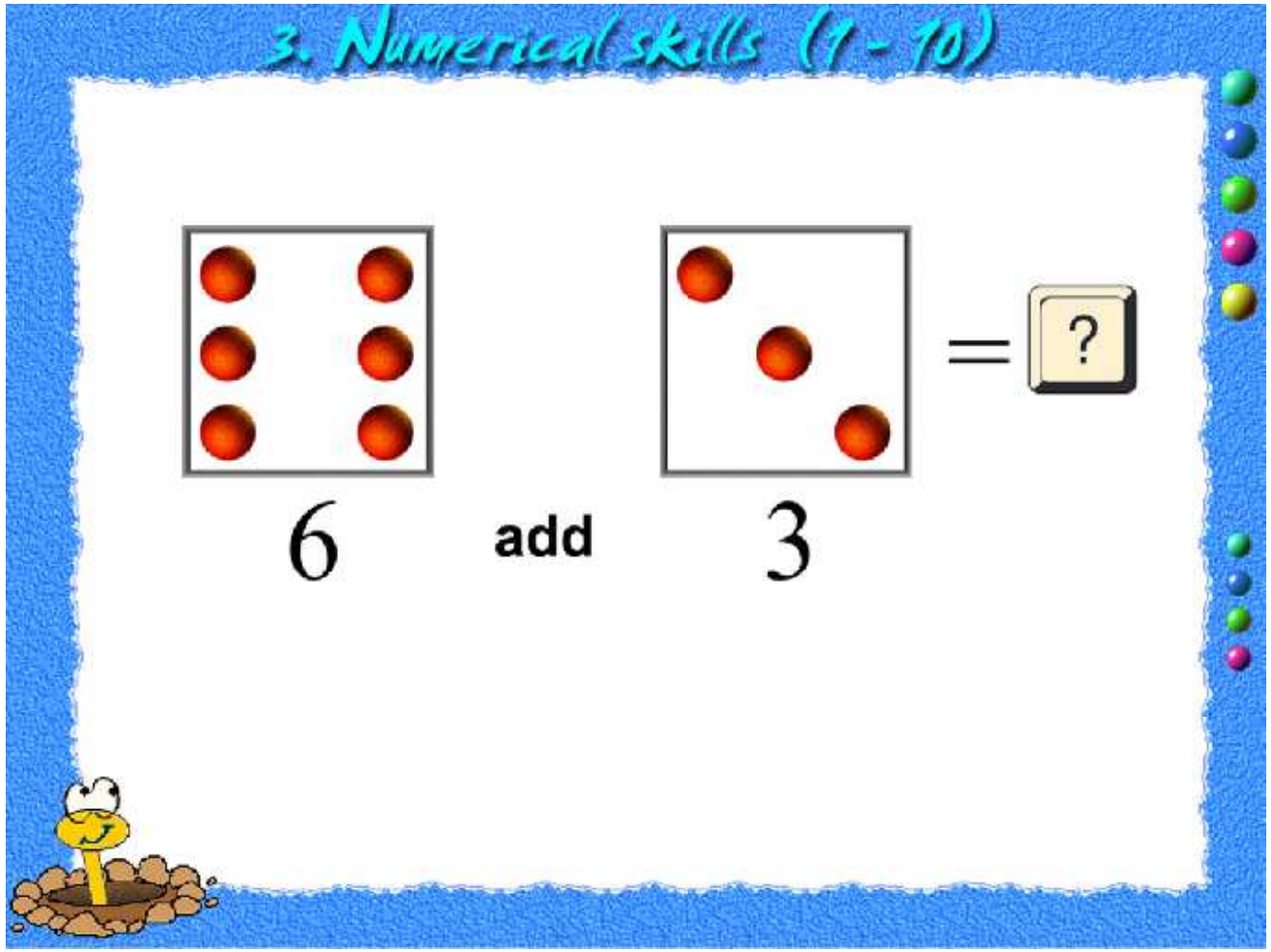
In this activity our propose is for the child to understand and use the words 'first', 'second', 'third', 'fourth', 'fifth', 'sixth', 'seventh', 'eighth', 'ninth', 'tenth' in a sequence of familiar objects. In this game we present a set of different items and the child has to say what the item that corresponds to that position is. In the second activity we present the familiar items but this time the child must decide what the correct position is by choosing the numeral on display.
On the last activity the child must change the order of items following the oral instruction.
We also have activities related to time.

Third Group – Work with numbers: 1 to 10 – number naming; quantity (How many?"); identify groups of numbers; count forward and backward, understand one to one correspondence; combine equal quantities; understand "same quantity"; understand the principles of addition and subtraction, understand "add one/two, how many altogether? "Take one/two, how many altogether?"; build a "number ladder"; develops fast recall and mental calculation skills; automatic recall number of items; automatic recall represented number.



We present a set of sequenced balloons, and the child must choose the next number within the sequence, without route counting. In other activities, the child has to count the balloons and decide what card with the number's name on the left, corresponds to the written number that's missing. The counting can start in any number up to five and could be missing 1 or 2 cards in any order in the sequence.

Third Group – Work with numbers: 1 to 10 – number naming; quantity (How many?"); identify groups of numbers; count forward and backward, understand one to one correspondence; combine equal quantities; understand "same quantity"; understand the principles of addition and subtraction, understand "add one/two, how many altogether? "Take one/two, how many altogether?"; build a "number ladder"; develops fast recall and mental calculation skills; automatic recall number of items; automatic recall represented number.



In this activity the child can perform simple number addition, and subtraction with visual help; we have the two cards with the quantities that must be add, or take.
The child must choose the number on display to state the result.