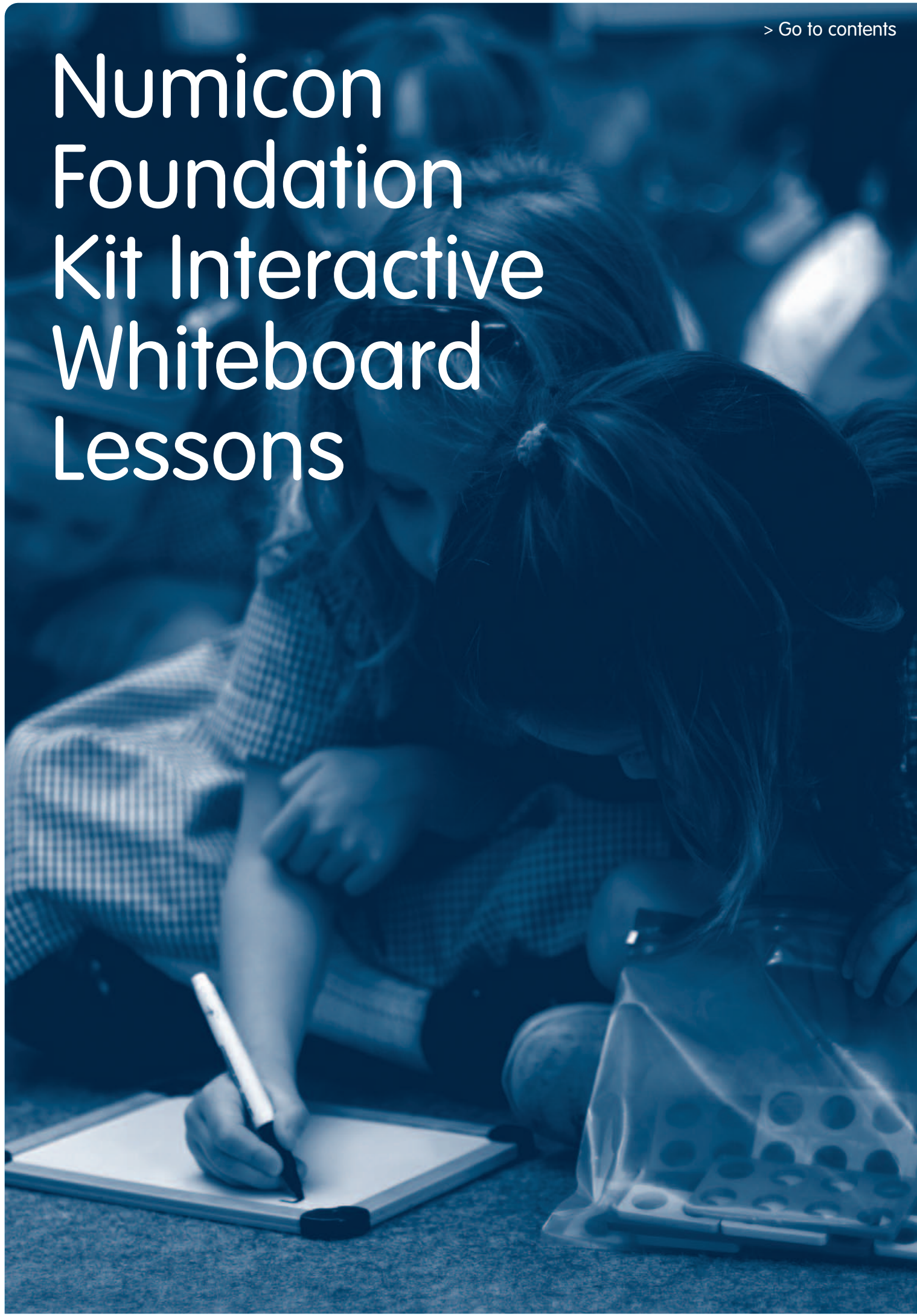


Numicon Foundation Kit Interactive Whiteboard Lessons



These lessons are designed to help teachers get started with using the Numicon images and models for maths interactive software. Numicon visual imagery is structured to represent number and number relationships. The lessons show how to use the images to give children a picture of arithmetic operations and mental arithmetic strategies.

The lessons address aspects of the English National Curriculum Foundation Stage Mathematical Development. These 10 Foundation Stage lessons are the first of three sets of ten lessons, Numicon Foundation, Numicon Kit 1 and Numicon Kit 2. The lessons are not designed as a complete teaching programme although there is progression in each set.

Each lesson uses Numicon images or number rods with other models to put across the main teaching points and to demonstrate practical activities. Pupils can then follow up the whiteboard lesson in practical work to maintain a multi-sensory approach.

How to use this document

This pdf is interactive and allows users to navigate through the document without scrolling. Use the links at the top of each page to move on to the next lesson, go back to the previous lesson and come back to this page. You can also go straight any lesson by using the links in the list below.

- [> Lesson 1](#) To match Numicon shapes
- [> Lesson 2](#) To sort and match Numicon shapes
- [> Lesson 3](#) To distinguish and recognise the patterns of Numicon shapes
- [> Lesson 4](#) To arrange the Numicon shapes in order by size
- [> Lesson 5](#) To reinforce ordering of Numicon shapes
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- [> Lesson 7](#) To match a numeral to each Numicon shape
- [> Lesson 8](#) To relate addition within 10 to combining two or more shapes; to use mathematical language involved in addition
- [> Lesson 9](#) To relate subtraction to taking away; to use the language involved in subtraction
- [> Lesson 10](#) To begin to understand the comparison and difference structure of subtraction

Aim: To match Numicon shapes

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: Spinners: Numicon shapes, coloured 1-5

Activity

- Click on the centre of the spinner to select a shape
- Ask children to find the matching shape, see figure 1
- Repeat and continue also using 6-10 coloured spinner.

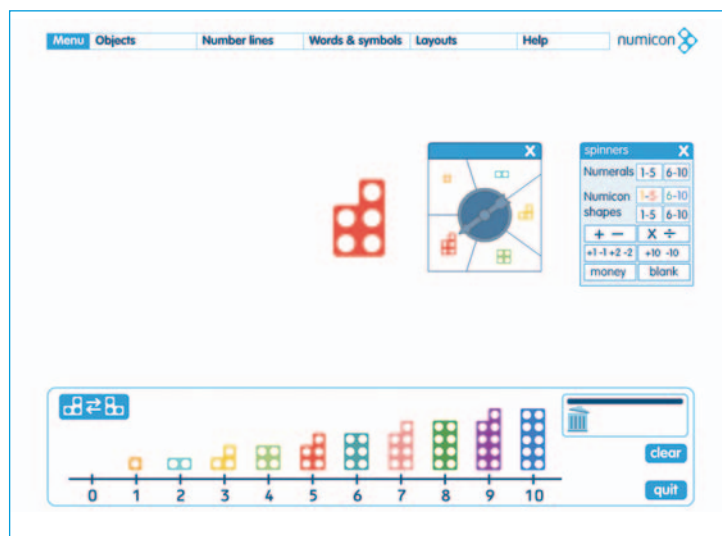


Figure 1

Lesson extension

Main screen with Numicon shapes

Select

Menu: Objects: Spinners: Numicon pattern 1-5 and 6-10

Activity

- Click on the centre of the spinner to select a pattern
- Ask children to find the Numicon shape, that has that pattern, see figure 2.

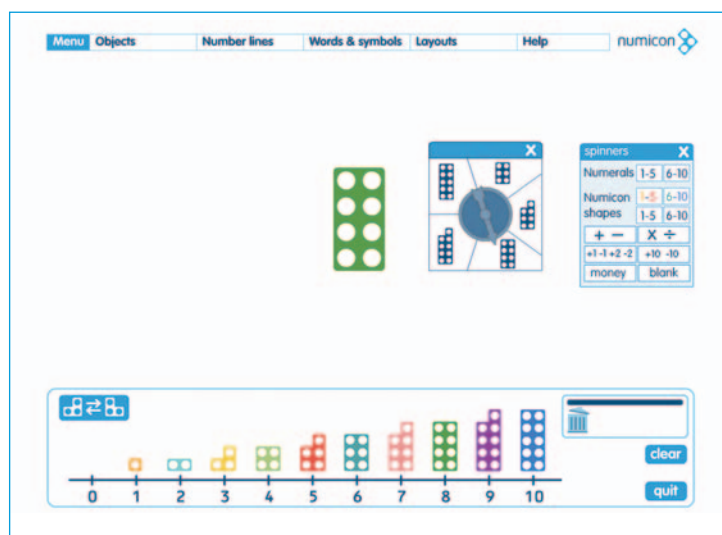


Figure 2

Mathematical language

Match, the same, pattern, bigger, smaller, the same as, different

Reference

For further ideas refer to Numicon Foundation Kit, Cards 1 and 2.

Aim: To sort and match Numicon shapes

Lesson

Main screen with Numicon shapes

Select

Menu: Layout: Hoops

Activity

- Select two large hoops
- Select three or four each of two Numicon shapes, see figure 1
- Put one shape in each hoop
- Ask children to sort the rest of the shapes into the hoops, see figure 2
- Repeat with different shapes.

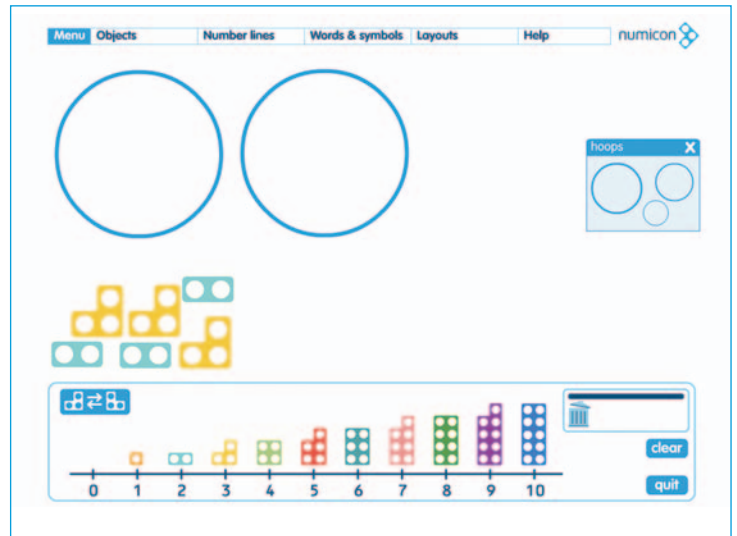


Figure 1

Lesson extension

Main screen with Numicon shapes

Select

Menu: Layout: Hoops

Activity

- Use 3 hoops
- Select a group of shapes which offer different criteria for sorting, for example:
Shapes with 'a bit sticking up', shapes with an 'even' top: shapes smaller than the red shape, shapes larger than the red shape, see figure 3.

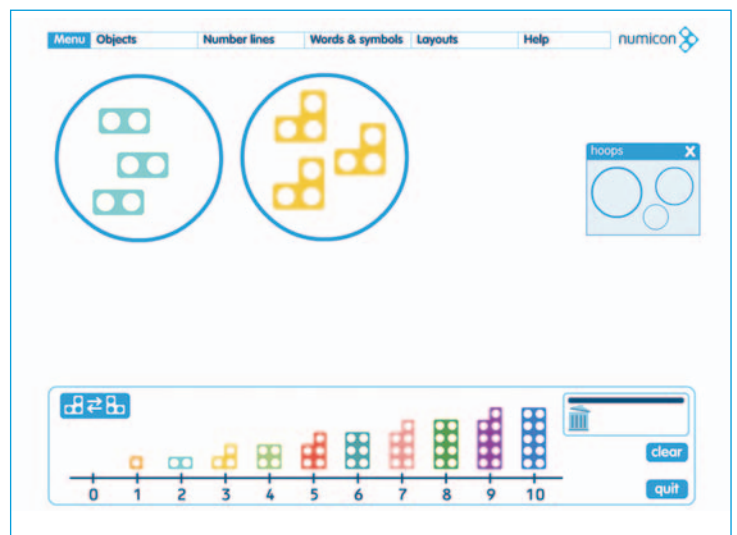


Figure 2

Mathematical language

Match, the same, colour names, bigger, smaller, the same as, different

Reference

For further ideas refer to Numicon Foundation Kit, Cards 1 and 2.

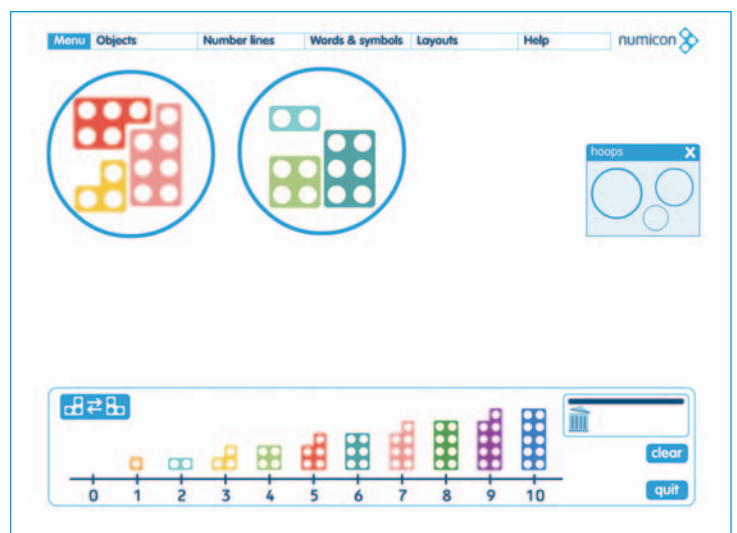


Figure 3

Aim: To distinguish and recognise the patterns of Numicon shapes

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: pegs

Menu: Layout: baseboard

Activity

- Select a number of pegs from 1-5
- Arrange pegs on the baseboard in the Numicon patterns, see figure 1
- Remind children that they do not need to count they are just recognising the pattern
- Ask children which shape matches this pattern, see figure 2
- Check by moving the matching shape over the top of the pattern, see figure 3
- Repeat for other numbers using different colours of pegs
- Increase the number of pegs to 5-10 as children grow in confidence.

Mathematical language

Pattern, copy, match, the same, too many, too few, enough, not enough

Reference

For further ideas refer to Numicon Foundation Kit, Cards 1 and 2.

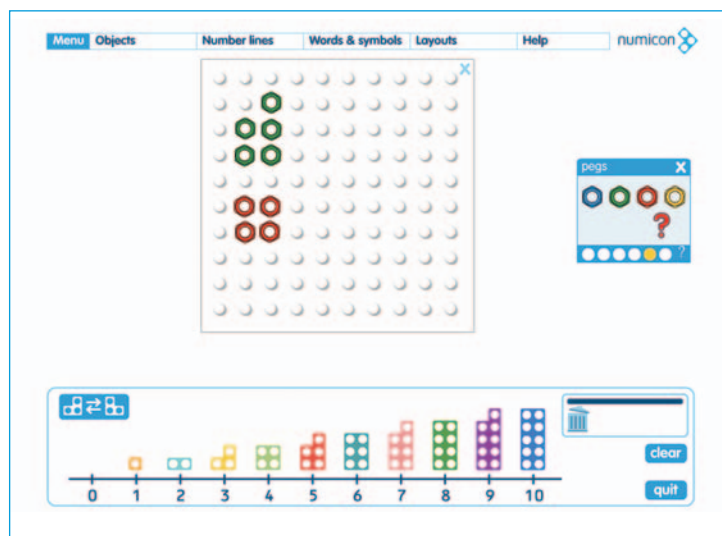


Figure 1

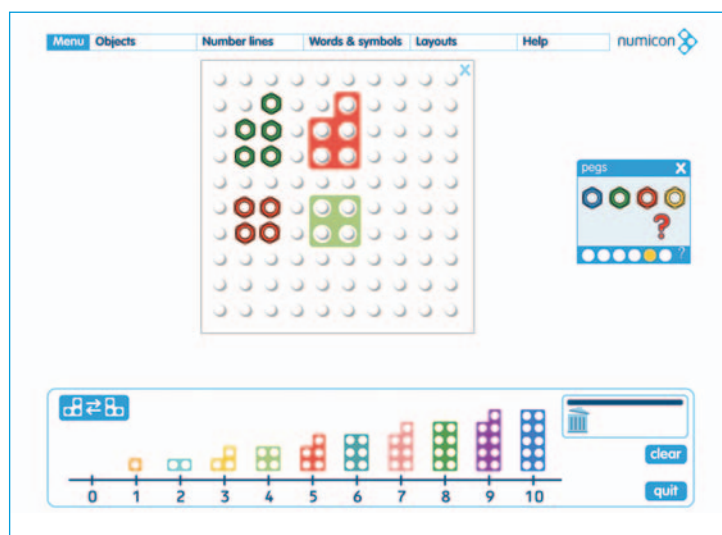


Figure 2

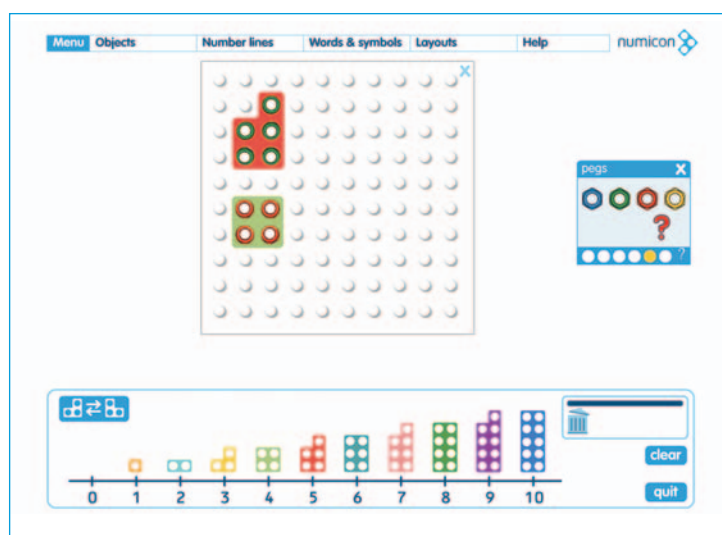


Figure 3

Aim: To arrange the Numicon shapes in order by size

Lesson

Main screen with Numicon shapes

Activity

- Select one of each shape from 1-5 in random order, see figure 1
- Ask children to look for the smallest shape
- Ask children to put the shapes in order one by one, see figure 2.

Lesson extension

Main screen with Numicon shapes

Activity

- Order all shapes 1-10
- Select one of each shape from 1-10 in random order
- Remove Numicon shapes and numerals from the bottom of the screen. (menu: objects: numicon shapes – click to remove)

Mathematical language

Use language of size – smaller, smallest, bigger, biggest, larger, largest

language of order – first, in front of, after, next, last, put in order

language of position – first, last, next, before, after, in between

Some children may spontaneously call the shapes by their number names but the emphasis will be on size and pattern for the majority.

Reference

For further ideas refer to Numicon Foundation Kit, Card 3.

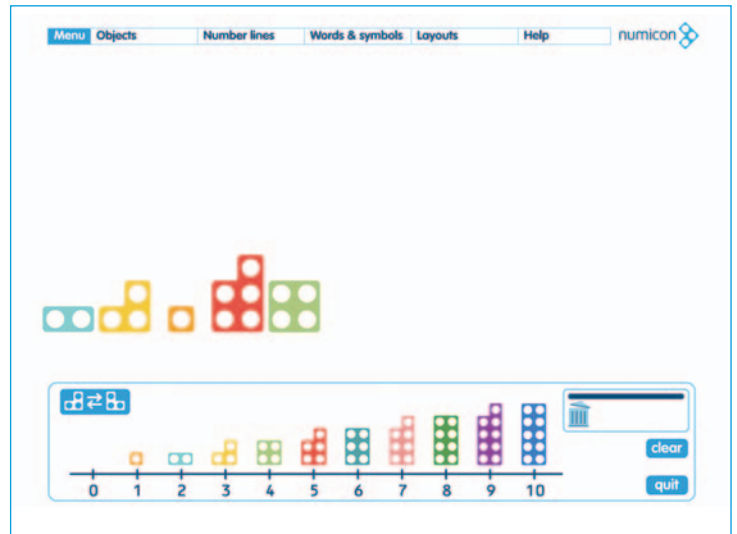


Figure 1

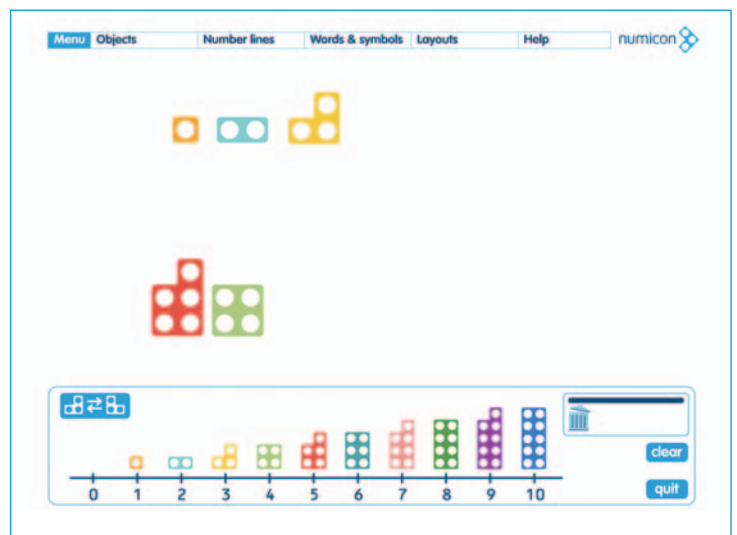


Figure 2

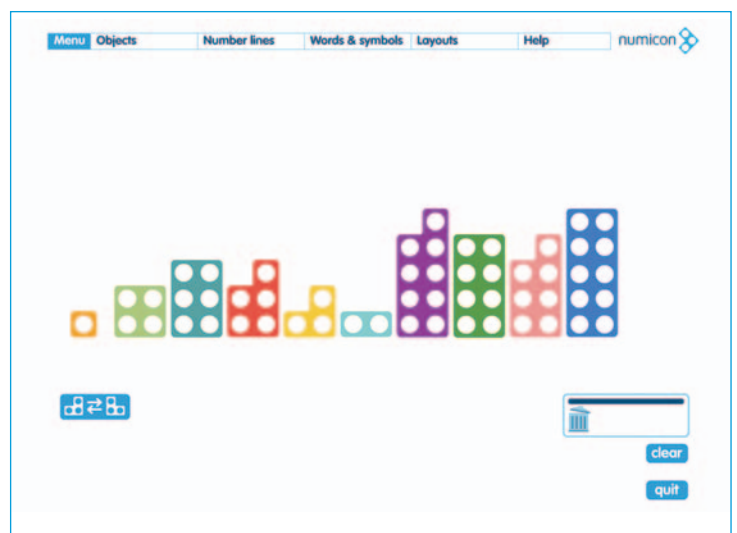


Figure 3

Aim: To reinforce ordering of Numicon shapes

Lesson

Main screen with Numicon shapes

Activity 1

- Select one of each shape from 1-10 in order
- Ask children to close their eyes, remove one shape, see figure 1
- Ask children to open their eyes and ask them to explain what has happened and how to put it right.

Activity 2

- Select one of each shape from 1-10 in order
- Ask children to close their eyes. Swap two shapes, see figure 2
- Ask children to open their eyes and ask them to explain what has happened and how to put it right.

Lesson extension

Main screen with Numicon shapes

Activity

- Extend Activity 2 by removing the Numicon shapes and numerals from the bottom of the screen.

Mathematical language

Language of size – smaller, smallest, bigger, biggest, larger, largest

language of order – first, in front of, after, next, last, put in order

Language of position – first, last, next, before, after, in between

Some children may spontaneously call the shapes by their number names but the emphasis will be on size and pattern for the majority.

Reference

For further ideas refer to Numicon Foundation Kit, Card 3.

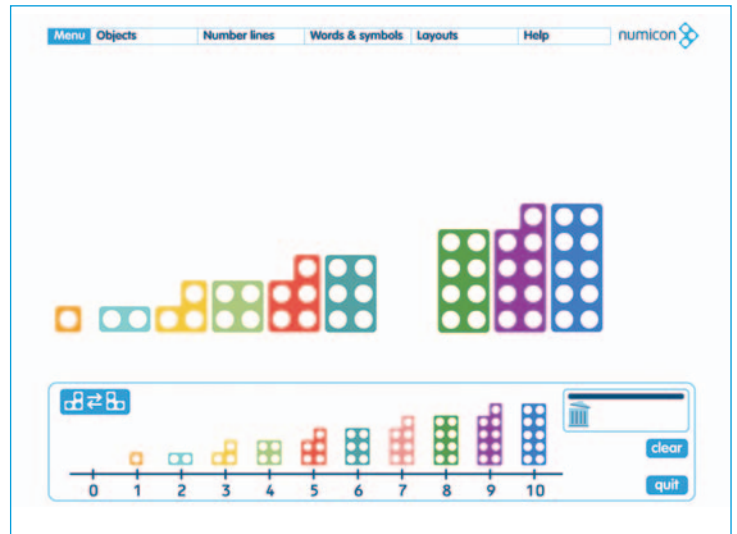


Figure 1

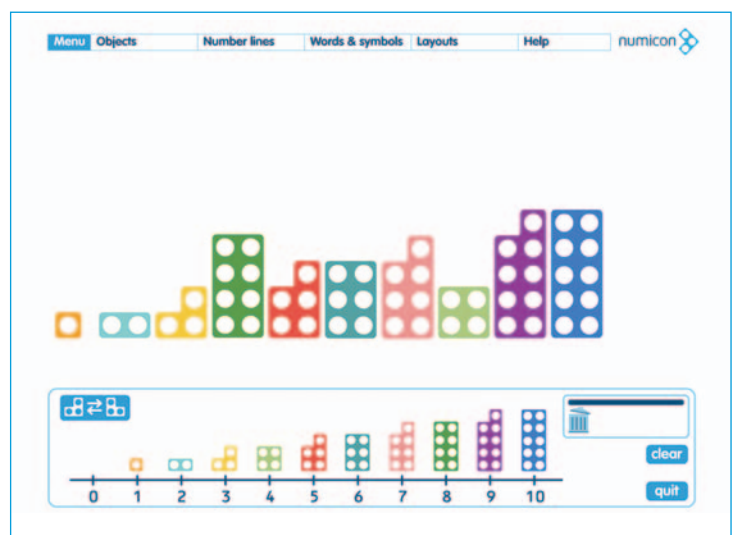


Figure 2

Aim: To match a numeral to each Numicon shape

Lesson

Main screen with Numicon shapes

Activity

- Select one of each shape from 1-10 and arrange randomly on screen
- Select all numerals 1-10, see figure 1
- Ask children to match each numeral to its shape, see figure 2.

Mathematical language

Number names, match, find, how many

Reference

For further ideas refer to Numicon Foundation Kit, Card 6.

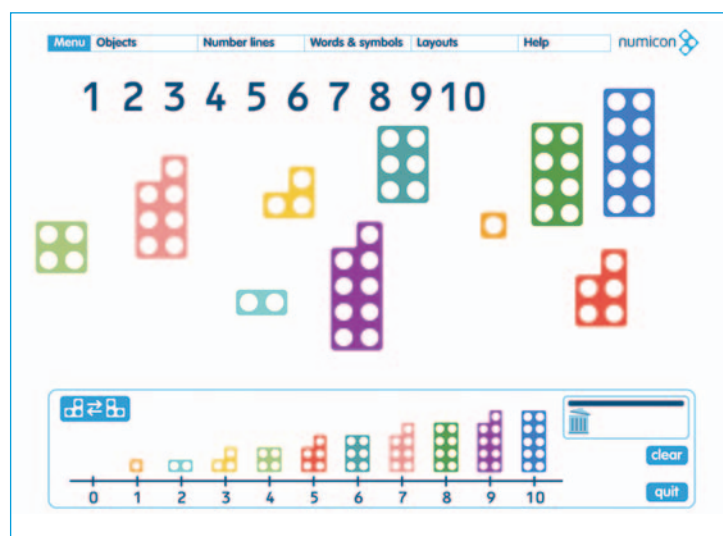


Figure 1

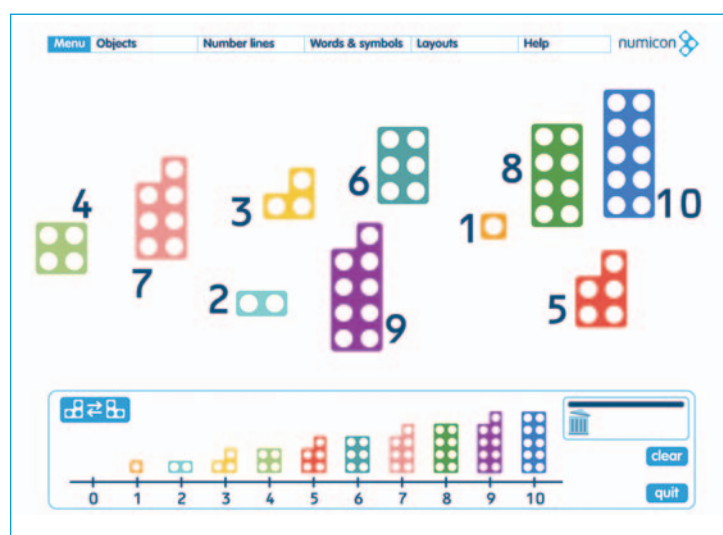


Figure 2

Aim: To match a numeral to each Numicon shape

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: Spinners: Numerals 1-5, 6-10

Activity

- Using one of the spinners, select a number
- Ask children to find the matching shape, see figure 1
- Repeat this activity several times with different shapes and numerals.

Lesson extension

Main screen with Numicon shapes

Select

Menu: Objects: Spinners: Numerals 1-5, 6-10

Activity

- Select one each of 1-10 shapes, arrange them to one side of the screen
- Remove the Numicon shapes and numerals from the bottom of the screen
- Using one of the spinners, select a number and ask children to find the matching shape, see figure 2
- Repeat this activity several times with different shapes and numerals.

Mathematical language

Number names, match, find, how many

Reference

For further ideas refer to Numicon Foundation Kit, Card 6.

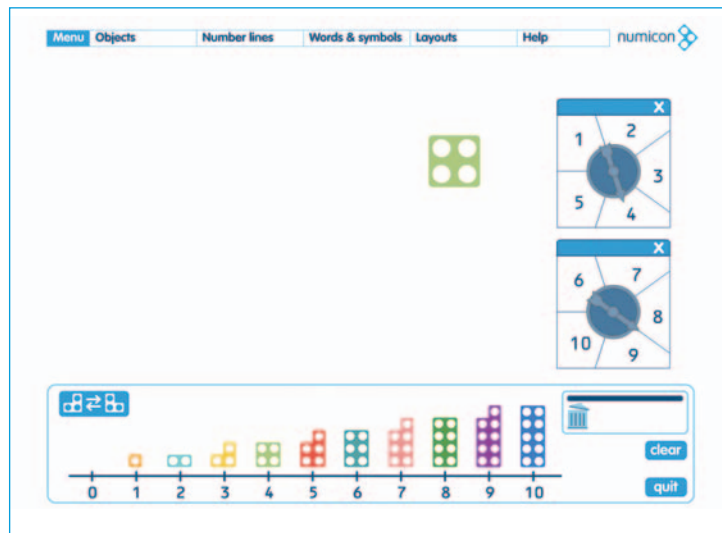


Figure 1

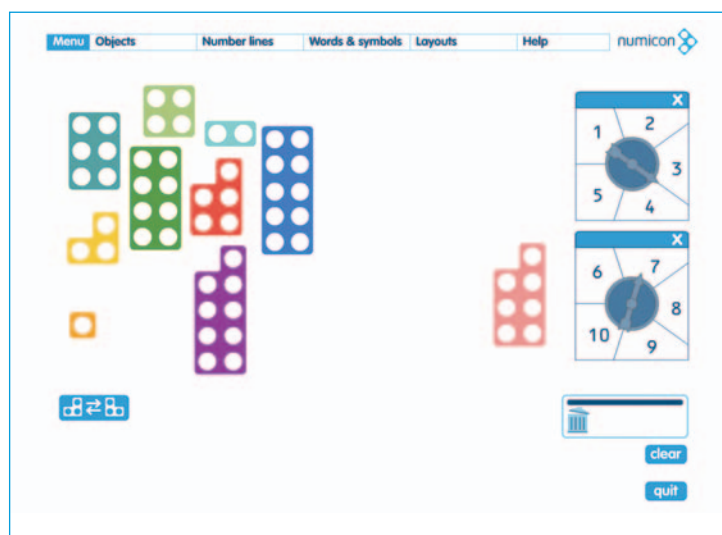


Figure 2

Aim: To relate addition within 10 to combining two or more shapes and to use the mathematical language involved in addition

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: Spinners: Numerals 1-5

Activity

- Using one of the spinners, select a number and ask the children to find the matching shape
- Using the spinner select another number and ask the children to find the matching shape
- Move the two shapes together to make a new shape
- Ask the children to find the shape that matches the new shape
- Model language of addition ("I am putting _ and _ together to make _")
- Emphasise to the children that they can see what has been made without counting
- Repeat this activity many times with different combinations.

Mathematical language

Put together, add, makes, equals, check, how many

Reference

For further ideas refer to Numicon Foundation Kit, Card 9.

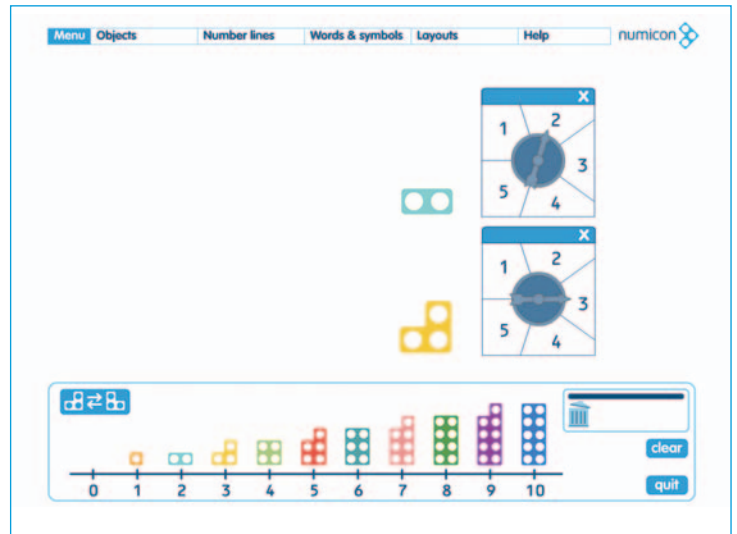


Figure 1

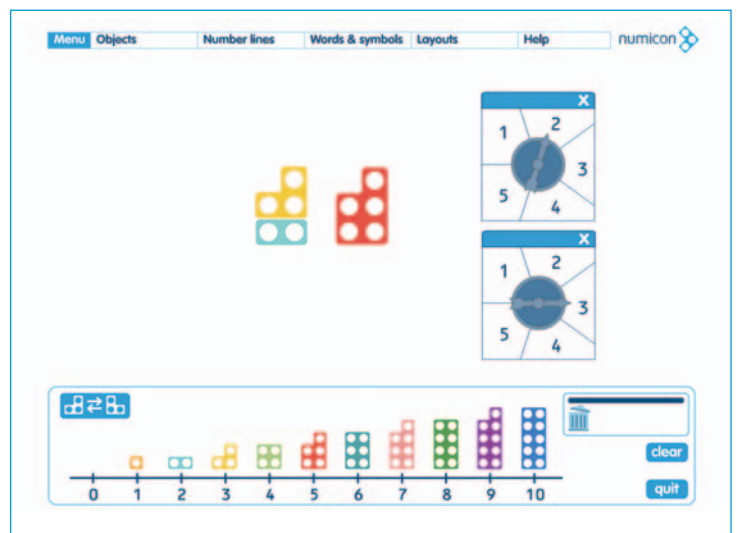


Figure 2

Aim: To relate subtraction to taking away and to use the language involved in subtraction

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: Cover

Activity

- Select any shape from 3-10
- Select from the cover the Numicon shape to be taken away, see figure 1
- Move the cover to conceal a part of the shape
- Ask the children what has been taken away
- Ask the children what is left
- Emphasise to the children that they can see how many are left without counting the holes by looking at the shape that is left, see figure 3
- Model the language of subtraction ("I had 7, I have taken away 2, I have 5 left")
- Repeat this activity using the 6-10 coloured spinner to select the initial shape.

Mathematical language

Less, take away, fewer, leaves, start with, equals, check, how many

Reference

For further ideas refer to Numicon Foundation Kit, Card 11.

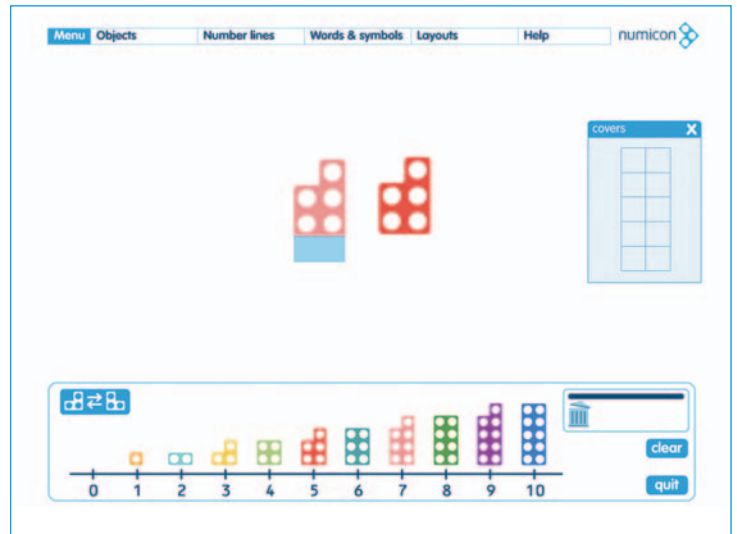


Figure 1

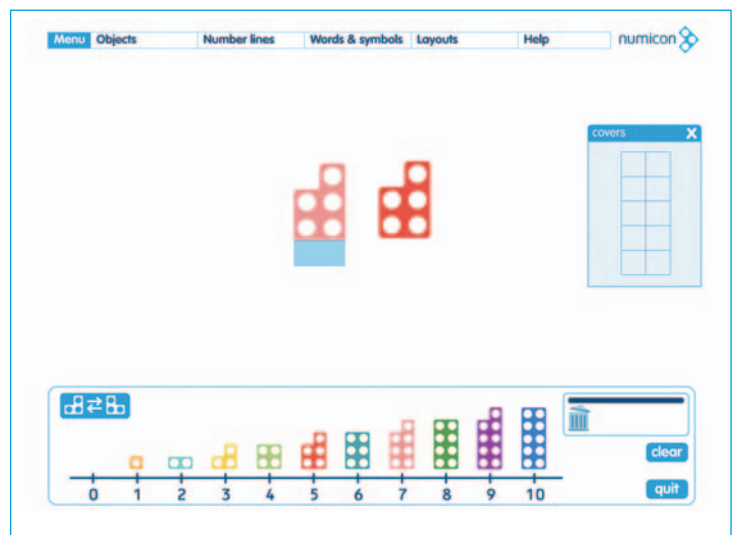


Figure 2

Aim: To begin to understand the comparison and difference structure of subtraction

Lesson

Main screen with Numicon shapes

Select

Menu: Objects: Spinners coloured Numicon shapes 1-5, 6-10

Activity

- Select a shape using the 6-10 spinner and place it in the centre of the whiteboard
- Select a shape using the 1-5 spinner and place it beside the first shape, see figure 1
- Compare the two shapes by putting the smaller one on top of the larger. Ask the children what they can see, see figure 2
- Model the language of the comparison and difference structure of subtraction ("I can see the difference between _ and _ is _")
- Explain to the children that they can check the difference by finding the shape that fits the difference, see figure 3
- Repeat many times with different examples.

Lesson extension

Main screen with Numicon shapes

Select

Menu: Objects: Spinners coloured Numicon shapes 1-5, 6-10

Activity

- Repeat the above activity and extend the language of subtraction to include "is more than" e.g. 5 is 3 more than 2, and "is less than", e.g. "3 is 2 less than 5".

Mathematical language

Match, the same, pattern, bigger, smaller, the same as, different

Reference

For further ideas refer to Numicon Foundation Kit Cards 1 and 2

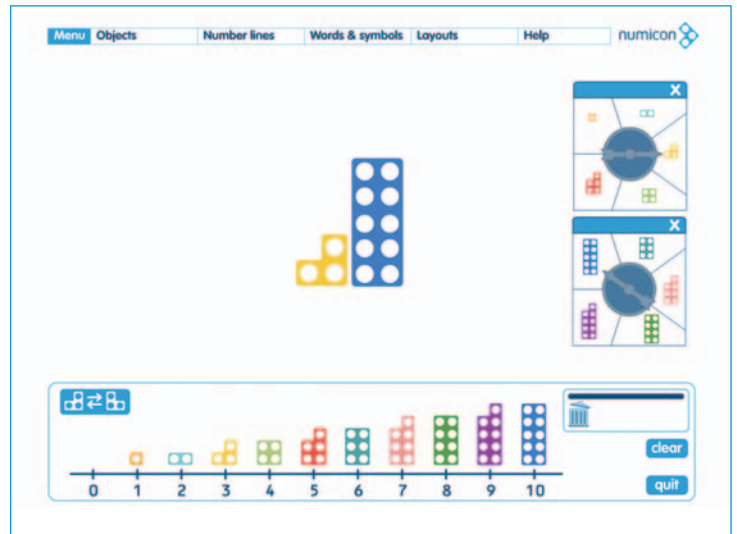


Figure 1

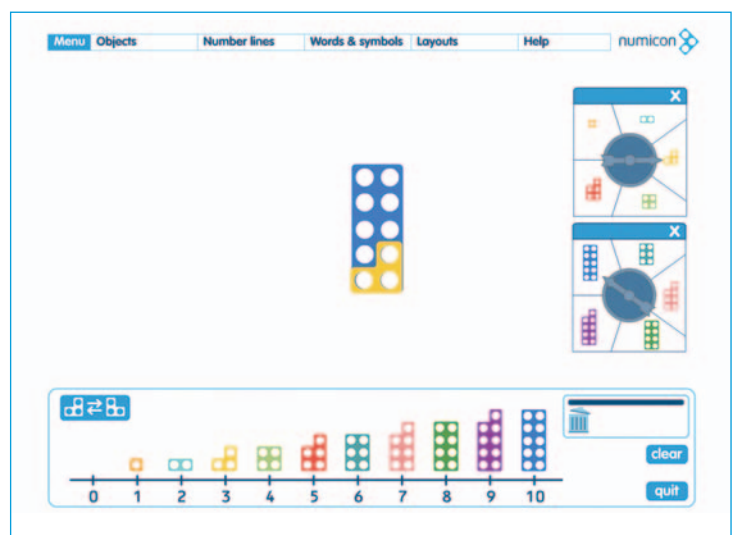


Figure 2

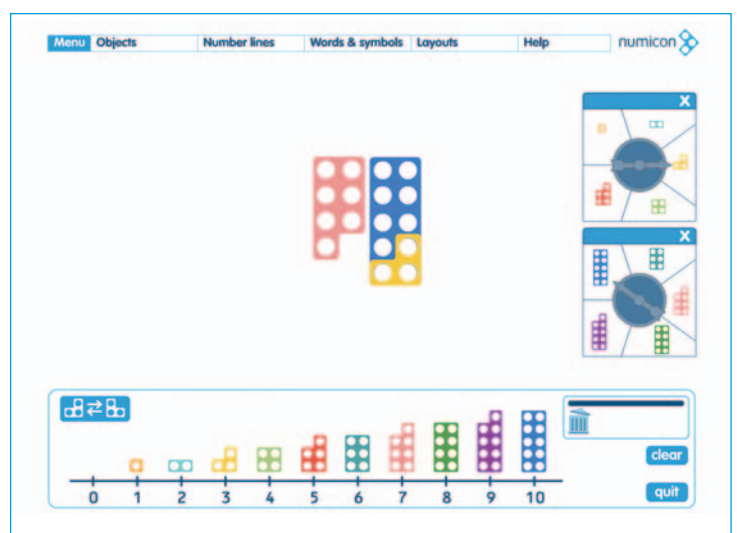


Figure 3