Holistic Learning Concepts
Preparatory skills in math and language, 2 years and up
- hearing stories, listening, describing actions, recognizing sequences, and re-counting
- learning, comparing, and sorting colors, shapes, and quantities
- a variety of materials for many play and learning opportunities

Basic math skills, 3 years and up
- communication of mathematical concepts such as quantities/counting, number sequences, division of numbers, immediate identification of quantities
- a variety of systematic materials allow holistic learning of basic mathematical skills

Online-Video
www.haba-education.com
Dear teachers,

Since its introduction in 2003, the holistic learning concept of Willy’s World of Numbers has become an integral component in the daily teaching curriculum of many kindergartens. The carefully designed and versatile materials in Willy’s World of Numbers let children see “their” numbers as trusted helpers when it comes to understanding, describing, and organizing the world. Children between the ages of four and six experience how exciting, fun, nice and interesting it can be to travel through the land of numbers with the mischievous goblin “Hodgey Podgey”. The fact that, in doing this, children learn basic mathematical skills while playing has been clearly demonstrated in two scientific studies.

Because children are already highly motivated to learn from birth on, and to give them an opportunity to playfully experience the orientation, structure, and aesthetics of mathematics, Willy now has a sister: Milly! This likeable animal keeper works in a zoo, where she experiences all sorts of fun and educational adventures with the adventurous penguin Dap-Dap. Milly’s Learning Zoo was developed for children between the ages of two and four.

The best part: all of the learning situations invite children to play actively together, to vary the play and thus gain their first experiences of the basic concepts of elementary mathematics in a highly creative and self-determined manner. Once their curiosity is aroused, Willy is also there to pick up on this spark and invite the children into his World of Numbers. Mathematics could hardly be more child-oriented.

Gerhard Friedrich, PhD

Milly and Willy, two clever siblings

Willy’s World of Numbers

More on page 10.

Milly’s Learning Zoo

The materials illustrate quantities, colors and shapes, and encourage linguistic expression.

More on the following pages.
Would you like to learn about Milly’s Learning Zoo in a seminar?
Dates and information www.numberland.net

Milly's Learning Zoo

A concept for development of preparatory skills in math and language

Children lay building blocks in a row, stack them into towers, or sort them by shape and color. They love to help with baking, cooking, or setting the table, and then count exactly to see if all ingredients are at hand and whether there are enough forks and napkins for all of the guests. Children love counting rhymes, and will often repeat them over and over again. In everyday situations such as these, children playfully learn to compare, organize, describe, and sort.

Math is always involved, as is language. With Milly’s Learning Zoo preparatory skills in these areas are encouraged and strengthened in play.
1. **LISTENING AND DESCRIBING**
These picture and read-aloud books serve as an introduction to this topic. At first the children simply learn to listen, to describe pictures, and to remember and recount the content verbally. The toy figures encourage characterization (e.g. the big, brown, funny bear). In the second step children learn to classify actions in space and time, and to understand and describe time sequences.

2. **DIFFERENTIATING QUANTITIES**
Even preschoolers are able to distinguish between small and large quantities. Milly’s Learning Zoo builds on the fact that they can differentiate between quantities of 1 to 3 versus the undefined quantity of “many.” Understanding quantities is the first step towards math skills. In the next step, the quantity can be linked to the number, thus expanding the understanding of mathematical concepts.

3. **RECOGNIZING SHAPES**
These flat shapes help children learn, name, compare, and sort basic geometric shapes (small, larger, largest, smaller than, etc.). These basic principles help children describe the surrounding world. At the same time, a connection is made between the basic geometric shapes and the numbers from 1 to 3: the circle has a center, so it belongs to the number 1, etc.

4. **RECOGNIZING COLORS**
Each animal is assigned a color and a shape. One of the goals is to recognize and distinguish between the primary colors. The play material contains flat shapes in a total of 6 colors, which can be used for different learning games.

5. **UNDERSTANDING SPATIAL RELATIONSHIPS**
By recreating the stories, children learn about spatial relationships. They learn spatial prepositions and use them to describe their play actions (e.g. Benno is on the roof).
Milly’s Learning Zoo consists of three animal enclosures, in which the bear Benno, the two lions Lea and Leo, and the three elephants Eddy, Ella, and Egon live. Each of the enclosures includes various materials for understanding quantities, colors, and shapes, and offers numerous stimuli for creative play as well as its educational use for working on mathematical concepts.

Animal Houses
Each of the three houses represents a number from 1 to 3. These numbers can be identified by the number of black plugs that can be inserted into the openings on the back wall. The assigned geometric shape and one of the three primary colors can also be seen.

Enclosure
The animal houses are set in colored enclosures that reflect the geometric shape shown on the back wall of each house. Circle (1 center), ellipse (2 focal points), and triangle (3 corners) symbolize the numbers from 1 to 3.

Toy Figures
The eight wooden figures invite children to recreate stories and are sure to experience many more adventures in creative play.
Flat Shapes
As well as circles, ellipses, and triangles, children also learn to recognize squares, pentagons and hexagons. Each flat shape comes in three sizes and six colors, which means that sorting principles can also be learned, e.g. small - larger - largest.

Colors
The primary colors red, yellow, and blue are each assigned to a story. The flat forms in a total of 6 colors can be used for various learning games.

Food Cards and Number Cards
Food cards and number cards can be assigned to the animals, houses, or enclosures. Depending on the age of the children, the tasks can be varied and the level of challenge can be increased.
Stories Come Alive
MATERIALS FOR RECREATING AND LEARNING

Milly’s Learning Zoo consists of three animal enclosures in which the bear Benno, the lions Leo and Lea, and the three elephants Eddy, Ella, and Egon live. The play material includes various flat shapes as well as food and number cards for learning quantities, colors, and shapes. As well as educational use for working on mathematical concepts, they also offer numerous stimuli for creative play. Various play ideas for math preparatory skills as well as language and motor skills development can be found in the accompanying teacher’s guide.

8 TOY FIGURES
The wooden figures come to life when the stories are recreated. The animal keeper Milly and the clumsy penguin Dap-Dap accompany the bear, lions, and elephants throughout all of the stories. All of the figures fit inside the houses and are ready for any adventures invented by the children too.
This circle matches Benno’s enclosure. Both are round.

Example: Benno – one bear
NUMBER: 1 – COLOR: red – SHAPE: circle

Benno’s house has one window and one door, through which the bear enters. It has one black plug and one red circle on the wall.

There is one bear in the zoo. His name is Benno.

Benno gets one pot of honey.

Benno’s enclosure is a circle. A circle is round.

Experience Milly’s Learning Zoo in a seminar – www.numberland.net
Enclosures:
become familiar with geometric shapes

Food cards
to assign quantities, shapes and colors

Colors:
distinguish the primary colors red, yellow and blue

Flat shapes
for sorting, assigning and distinguishing sizes

Figures
to recreate the stories

House
with matching geometric shape and associated number of pegs

comes with figures to recreate the stories
**Milly's Learning Zoo**

The stories in „Milly’s Learning Zoo“ are based on the holistic concept developed by PhD Gerhard Friedrich, which aims to let little brains learn preparatory mathematical skills at an early age. Differences in quantities, spatial terms and chronological sequences are explored both linguistically and visually. The Zoo Adventure with Dapdap the penguin and Milly the zookeeper invites children to play along with the related materials. Predetermined game ideas and free, experimental play introduces children to mathematical thinking.

„Milly’s Learning Zoo“ Set
Contains 3 beautifully illustrated picture books plus a large material set for acting out the stories. „Milly’s Learning Zoo“ books contain stories from everyday life at the zoo, told in three simple and beautifully designed picture books that let children learn the numbers one, two and three. The main characters are a bear, two lions and three elephants, whose experiences make quantities, spatial directions and time sequences easier to understand. The design of the books supports targeted work with the content. Each board book has 16 pages with colored illustrations. Format: A4. The materials set accompanying the 3 picture books helps children to internalize and re-enact the stories. Differentiation between numbers and quantities, spatial and positioning terms and time sequences are made tangible in play. The accompanying teacher’s guide contains background information about the concept and methods, as well as lots of play ideas for using the material to put the content into action. For example, 1, 2 or 3 plugs can be attached to each of the three houses, allowing children to experience quantities in a tactile manner. Contents: 3 houses, 3 gardens, 6 pegs, 8 figures, 108 shapes and 75 wooden feed cards.

**133861**
Numbers Come Alive

**Willy’s World of Numbers** is a holistic learning concept for the acquisition of solid math skills for basic numbers.

In Willy’s Number World mathematics is presented from the child’s perspective: what is more natural than to think of a land where animals, paths, houses, towers, and gardens are numbers. Luckily there is also a number fairy, because sometimes a number goblin causes trouble. A land in which numbers are at home and make their mathematical properties known in a personal way.

Children are fully involved in setup of Numberland, diverse play possibilities, and activities: with their heads, hearts, and hands. They experience the most important aspects of the numbers tangibly and playfully, and explore relationships within the number range from 0 to 10.

The children are also challenged and motivated to develop perception and concentration, social skills, perseverance, fine and gross motor skills, creativity, and musical and language abilities.

Gerhard Friedrich, PhD
Number Path
It makes the sequence of the numbers tangible and allows development of a mental image of a number sequences.

Number Gardens
They represent the number as a geometric shape.

Number Animals
Soft Number Animals made of fabric with features that match the number.

Number Towers
They illustrate division of numbers.

Number Meadow
The numerical ranges up to 5, 10, 20 and 100 are playfully explored on the Number Meadow.

Number Carpe
Children can slip into the role of numbers and take their place in the Number Gardens, or fill the fields with items that match the numbers.

Magnetic Game
The World of Numbers as a creative wall decoration.
This is where the numbers live!

The Number (World) Houses

Willy’s Number Houses familiarize children with numbers, because they make number ranges tangible. Each number lives in its own house. The Number Houses are wooden cubes with an attachable flag and round openings as „windows“.

The windows are arranged on the Number Houses like the eyes on a dice, and represent the counting aspect. Wooden plugs can be used to close or open the windows. The flags bring order to Numberland.

Each child represents a particular number and furnishes their house with the corresponding number of things. House 1 has one of everything, house 2 has two of everything, and so on. Animals with 4, 6, and 8 legs or structures with three, four, and five corners are put into the corresponding houses. Number Gardens (on page 14) can be used to expand the space around the houses. The children begin to divide numbers when they visit in their houses. 2 and 3, for example, can be combined to make 5.

How many windows are still open?
The windows of the houses can be closed and opened with the black plugs. This lets them make the counting aspect comprehensible. Calculating takes place incidentally, e.g. as children decide how many plugs they still need to remove. For simple subtraction tasks windows can be closed with natural colored plugs.

When the numbers grow ...
... the houses also get larger. To expand the number range up to 10, the houses from 1 to 5 receive an extension. A house with the number 5 is added. The number 6 consists of the houses 1 and 5, number 7 of 5 and 2, etc. In this way the “double houses” lead to addition of number combinations, which is made easy for children in this form, and which can be continued by counting on their fingers.
Willy’s World of Numbers Houses, Set

Illustrate the number range 1–10. 15 houses with 1–5 boreholes for the plugs and 1 house without a hole to represent 0. The numbers 6–10 are represented by either stacking two houses or by placing them next to each other (5 + 1, 5 + 2, 5 + 3 etc.). If you would prefer to represent the numbers from 6 as duplexes, please order 5 additional roofs. Contents: 16 houses (13 x 13 x 13 cm), 11 roofs (height: 7 cm), 11 chimneys, 11 flags, 55 black pegs, 10 natural wood pegs. Wood, all edges rounded, saliva-resistant varnish; flags made of fabric.

133931 114 pieces


Tip

Close the Window - a dice game for early addition

Replace the 6 with a 0 on two dice, and distribute the plugs evenly among the players. Children take turns to roll the dice, count the eyes together and „close“ the windows in the matching house with their plugs. Who will be the first to use all their plugs?

Variation: for 5 houses, play with one dice.
Willy’s Number Gardens

Every number has its own garden

The Number Gardens form the basis for Willy’s World of Numbers. What makes them so special is that they represent the numbers as a geometric shape; 3 as a triangle, 4 as a square, and so on. Like the Number Houses, they are a concrete representation of the number range in that every number from 1 to 10 has its own number garden. This means that children associate the numbers with the corresponding geometric shapes. First the gardens are laid out and filled: children place the number houses in the right Number Gardens - the flag shows the „house number“. The corners can each be marked with a cube from the Number Towers. In this way counting is practiced in connection with the quantity. Other objects can be added to the garden in the corresponding quantity (building blocks, marbles) or with matching aspects (three wheels, four legs).

Willy’s Number Gardens

10 geometric shapes with the respective number of corners for the numbers from 1 to 10. The higher the number, the bigger its garden. Material: green felt lawn with non-slip underside. Color: green. Size for comparison: circle diameter 75 cm, ellipse 100 x 60 cm.

133934 Set of 10
Willy’s Number Carpet

- with Number Gardens from 1 to 10
- represent the numbers as geometric shapes

Willy’s number Carpet

Matches the „Willy’s number world“ concept. One step is enough to take you to the middle of Numberland. The Number Gardens are waiting for you to visit. Children can slip into the role of numbers and take their place in the Number Gardens, or fill the fields with items that match the numbers. The carpet supports learning of the numbers up to 10. Material: 100% polyamide, cut loop pile (H 7 mm), with non-slip underside, bound edge. Ø 3 m.

067460
The Number Towers make many activities for playful number exploration possible, and are especially suitable for representing division of numbers. Each cube has a red, a blue, a yellow, and a green dot.

The Number Towers from 1 to 10 also illustrate larger/smaller relationships.
Comparing numbers

The cubes can be stacked on top of each other using a wood cylinder. This connecting element gives the Number Towers stability. The cubes can be turned easily by the children, so that a different color faces the front. The stacking system means that the Number Towers are quickly built or taken apart again.

Building, representing, and comparing numbers: with the Number Towers children can experiment on their own. Mathematically important concepts are explored almost automatically. Children learn, for example, what „smaller“ or „larger“ means in a mathematical context without the need for complicated explanations.

When the numbers are represented as heights or lengths with the help of the towers (4 is twice as high as 2), children also experience the dimensional aspect. Even early area and spatial awareness can be acquired with the cubes, for example in series of 2 x 2 x 2 cubes.

MINI NUMBER TOWER

on page 28.

Dividing numbers

With the Number Towers, children can visually explore the division of numbers. The four colored dots on the cubes have a striking effect: the 8 consists of 5 green and 3 red cubes (8 = 5 + 3) or of 4 yellow and 4 blue cubes (8 = 4 + 4, or 8 = 2 x 4).

The children can show even more complex divisions such as 10 = 3 + 2 + 4 + 1 or 8 + 2 x 3 + 2 with the help of the cubes. The ease of turning the cubes encourages spontaneous experimentation.

The Number Towers illustrate larger/smaller relationships:

1st discovery: the blue tower is smaller than the yellow one.
2nd discovery: 4 is smaller than 8 (mathematically: 4 < 8).
3rd discovery: 4 is 4 less than 8
4th discovery: 8 is two times as large as 4.

Children can demonstrate simple or complicated number combinations in a directly comprehensible way using Willy’s Number Towers.
Willy's Number Towers 1 – 10

Wooden cubes with dots in red, yellow, green and blue, as well as bore holes on two sides for pegs. Contents: Including instructions with play and exercise ideas. Multiplex birch, pegs made from beech wood, black lacquer. 6 x 6 x 6 cm; diameter of pegs: 3.4 cm. Set with 55 cubes and 55 pegs. Age: 3+

133911

With Willy's Number Towers addition and subtraction becomes child's play.

Calculating with numbers

The cubes can be used to teach children can be taught early calculation steps. Each cube corresponds to the numerical value of 1. In this way 3 cubes represent the number 3, 4 cubes the number 4, and so on. Each number represents the result of a mathematical connection, e.g. 2 + 3 = 5.

Tip

Stair race - a calculating game for early addition and subtraction

The first child rolls the dice and places a toy figure on the tower of the number that appears on the dice; e.g. on the tower of 5. Then the next child rolls the dice. Each toy figure is moved up or down the stairs according to the number on the dice. The player who reaches the agreed number with their move wins.

Initial trial and error is followed by forward thinking and then with calculation steps.

A plug can also be used instead of a play figure.
Willy’s Number Towers
Tabletop version of the number towers

Willy’s Number Towers
Sorting, counting, identifying quantities, dividing numbers

Has a system. The Number World Towers consist of wooden squares with four colored dots threaded onto wooden rods. They can be used in exactly the same way as their „big brothers“, the Number Towers. The Number World Towers can also be attached onto the chimneys of the Number World Houses on page 5. The larger the number, the higher the chimney reaches into the sky.

Willy’s World of Numbers Towers 0 – 10
The wooden squares have red, yellow, green and blue dots, and can be stacked on the wooden rods. Wooden rod (70 cm), 11 poles in 11 different lengths, 55 squares (4 x 4 x 2 cm), 11 little flags. Age: 3+

133932

To distinguish between odd and even numbers every second number tile can be turned around. Forward and backward moves on the Number Path can be used to represent addition and subtraction.

Willy’s Number Path  
Numbers Step by Step

Willy’s Number Path connects the world of numbers with kinesthetic experiences. It makes the order of numbers (= sequential aspect) something that can be experienced. By moving forward or backward, jumping or stepping on the number tiles the children learn the order of numbers in play. They recognize the numbers that come before and after a given number, and form a mental image of the number sequence.

In exercises the Number Path can be walked over while blindfolded and the children can from time to time be asked what number they are standing on. Willy’s number path offers a variety opportunities to learn about the appearance and order of numbers. Moving around on the Number Path can be supported by counting along loudly or softly, clapping, banging wooden blocks together, or by counting rhymes.
Jumping over numbers - a hopscotch game with addition and subtraction

Lay the number tiles from 1 to 9 out in a square. The first child throws a small bag onto a number and thinks of a problem that has this number as the result. Then the child “hops” the addition or subtraction on one leg. If the bag lands, for example, on a 7, the child calls out: “4 + 3 = 7” and tries to jump on the number tiles 4, 3, and 7. If a child calculates incorrectly, touches the wrong tile, or steps on the tile with both feet, it’s the next child’s turn.

Willy’s Number Path 0–20
The non-slip number boards are extra-large, so that children can easily stand or jump on them, even in pairs. They are printed with the numbers from 0 to 20. The numbers 0, 5, 10, 15 and 20 are in a different color to make orientation easier. Material: Felt, nonslip underside. 29 x 29 cm. Age: 3+
133074 21 tiles
Willy’s Number Animals
Clever numbers to cuddle

These Number Animals give every number from 0 to 10 its own unmistakable personality: the six is a curly snail, the seven a black and white zebra, etc. The shape of the stuffed animals corresponds to the shapes of the individual numbers. The respective number is also symbolized by distinctive features, e.g. dots or spikes. This makes Willy’s World of Numbers into a holistic experience. The Number Animals can be used for a variety of purposes. They can be made to talk and move, or they can be integrated into various children’s games. Another factor is the important emotional aspect: children love to cuddle with them. In combination with stories and songs, the Number Animals provide intensive access to the basic numbers in a playful manner.

The Original

1 curl

3 stripes

5 spikes

Willy’s Number Animals
The soft number animals made of fabric provide intense, emotional access to the basic numbers. Each animal has distinctive features that match the number. Foam with terry cloth cover. Washable at 30 °C. Number Animal "1", approx. 38 cm tall. Ø approx. 6.5 cm. Age: 1+

133929 11 pieces
Willy’s Wooden Numbers

Willy's Wooden Numbers 0 – 10
With features that match the number: for example the number 7 has 7 hearts and the 4 has 4 plaits. The Wooden Numbers can be plugged into the chimneys of the World of Numbers Houses (item no. 133931). Contents: 11 numbers with matching rods and bases made of wood. Height approx. 14 cm, wooden base 10 x 10 cm. Age: 5+

133930 11 pieces


Would you like to attend a Willy’s Numberland seminar?
More information on Numberland seminars and the Numberland handbook on
www.numberland.net

Let’s visit Numberland
An emotive, playful early math concept on numeracy+
Willy’s Basic Set

The set includes: Willy’s Number World Houses, Willy’s Number Path 0 - 20, Willy’s Number Towers, Willy’s Number Gardens 1 - 10, and Willy’s Wooden Numbers 0 - 10. Detailed descriptions of the individual products can be found on the previous pages.

133943 278 pieces

Willy’s World of Numbers Magnetic Game

Willy’s World of Numbers as great magnetic set for the wall. Two magnetic wall panels show the Number Gardens and are complemented with lovingly designed magnets featuring the Number Houses, Number Animals and many accessories. The mischievous goblin „What a muddle“, who always mixes things up, as well as the helpful numbers fairy „Forget me not“, are also there. Match the magnets with the relevant gardens and re-set the scene over and over again – a fun way to playfully familiarize children with the numbers up to ten. Panels are easy to mount on a wall and come with mounting material. Contents: 2 coated metal plates L 70 x W 50 cm, approx. 172 different magnets, mounting material. Age: from 3 years.

057909 174 pieces

Willy’s Number Meadow

Children can become familiar with the number range from 0 to 100 while playing on this giant Number Meadow. They learn the number ranges up to 5, 10 or 20 in the little garden beds. Flowers are industriously planted, picked and symmetrically mirrored. And when the cheeky goblin Hodgey Podgey interferes, the good fairy “Forget me not” has her hands full! The two cute figures accompany children’s first steps into the world of addition and subtraction, as well as recognition and naming of numbers and quantities. Attractive materials, with high-quality felt and colored printed wood, support the learning process. Short introductory stories help children remember what they’ve learned. Including instruction booklet with lots of game ideas. Players: 2–10. Age: from 3 years. Length of the game: from 5 minutes. Felt and wood. Number Meadow 55 x 55 cm, printed on both sides; flower beds 27.5 x 5.5 cm, printed on both sides.

068150

Willy’s Mini Number World

• for number division in math class.
• memory aid and play material
• for documenting the numbers learned for parents. In the foyer, for example, a Mini Number World can be set up on a table, which grows with each new number learned.

Willy’s Mini Numbers Set
Consists of 15 houses, small fabric flags with numbers from 1–10 and wooden pegs. W 7 x H 9.5 x D 6 cm (without flags). Number Path tiles 0–20 (0, 10, 15, 20 in blue, others with black print) and Number Gardens 1–10.
133523

Willy’s Mini Number Cubes
Contents: 55 cubes and pegs. Dimensions: cubes 3 x 3 x 3 cm.
133916
Would you like to attend a Willy’s Numberland seminar? More information on Numberland seminars and the Numberland handbook on www.numberland.net

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An emotive, playful early math concept on numeracy+

*** THIS MAKES THE MATERIALS UNIQUE ***

- long-lasting and child-friendly
- holistic concept with lots of freedom for development
- can be used anytime in creative play
- imaginative and highly motivating
- aesthetically appealing, with stimulating character
- systematic and coordinated

*** ADDITIONAL INFORMATION ONLINE ***

Online-Video
www.haba-education.com

Scientifically evaluated many times
Holistic Learning Concepts

Milly's Learning Zoo
A variety of materials for many play and learning opportunities

Willy's World of Numbers
A variety of systematic materials allow holistic learning of basic mathematical skills

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