

HABA



Building
Block System

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DEAR PARENTS,

Would you like your junior world explorer to get interested in building blocks? Are you looking for new challenges to present to already experienced stacking artists? With Clever-Up! you have made the right choice, because this building block system will keep you and your child pleasantly occupied for many hours.

Clear, simple shapes allow for many different combinations and inspire imagination and creativity. The building blocks, baseplates and slats can be used to bridge gaps as well as to add ramps and floors to the main structure. Children enjoy experimenting with the blocks, lining them up and stacking them on top of each other. They gradually learn how to create ever more complex architectural designs and take pride in producing realistic structures.

Aspiring master builders can be left to their own devices as they construct their very own version of the Eiffel Tower, or similar, in their bedroom or the living room. See how your child grows and develops in terms of ideas and projects. You can help out too, because it is so much more fun when family and friends join in.

Gravity, balance, momentum – what do they mean? Here you will find child-friendly explanations of simple physical and mathematical relationships. Playful tasks introduce children to the mental skills that are increasingly necessary in a digital world.

Have fun building, experimenting, playing and learning with the Clever-Up! building block system.

Your HABA team



Why is it good for children to play with wooden building blocks?

Building blocks combine the fun of building and playing with worthwhile learning experiences. They are toys that are essentially simple while at the same time complex, and they stimulate motor skills, cognitive capacity and creativity.

Building and understanding

The HABA building block system accompanies your child from basic discovery and experimentation in the baby months to an all-round understanding of construction principles. It does so by promoting their development in a playful manner. The variety of templates in the brochure inspire your child to design their own buildings. Give children time and space, and they will become absorbed by their very own projects, branching out in new directions, sometimes for days on end. In the process, they will develop their eye-hand coordination, fine motor skills, powers of concentration and endurance.

You will be amazed at all the things your child learns; ingenious stackers explore the length, height and depth of the given space. In this way, children learn basic physical laws such as statics, inertia, cause and effect as well as balance.

Learning through play

In free play with the building block system, your child learns how to plan independently and naturally acquires problem-solving skills. By integrating the building blocks into varied role-playing games, your child develops his or her dexterity and language skills. Your child learns how to process feelings, engage on a social level, deal with established procedures and devise his or her own rules of play.

INFO:

COMMUNICATING SUPPORT

Talk to your child about their ideas, offer encouragement and celebrate their successes. By answering their questions, you generate a constructive atmosphere. In this way, your child will feel understood and gain the confidence to keep trying.

CARVED FROM THE PERFECT WOOD



Diversity

You can build on HABA. Our wooden building blocks are made in Germany and are supplied either in their natural finish or colorfully varnished, and in all possible sizes and shapes. Whether cuboid, rectangular, triangular or round, they are easy to stack and can be combined again and again to create new, impressive buildings with attractive features.

Some of the blocks include a delightful acoustic effect – they ring, rattle and clatter. Others are shaped to resemble figures, allowing children to bring their very own themed play worlds to life. And of course, the vehicles for our explorers are another essential element. Our stacking, placement

and pegging games add a playful and creative variable to building fun.

Quality

Did you know that we at HABA are real devotees of wood? Since our company was founded in 1938, wooden toys have unsurprisingly featured strongly in our product range. After all, wood is one of the most natural and beautiful raw materials there is.

We want to preserve its wonderful properties at all costs. During production in our workshops as well as at our suppliers, we therefore always insist on the highest quality. Because we constantly monitor these



standards, we can be confident of remaining true to our guiding principle, namely that any toy is only as good as the material and workmanship that went into it.

Since 2010, our products have been PEFC certified, thereby confirming that we do not make empty promises. PEFC certification shows that we use timber from sustainable forestry in Germany. The beech and birch wood comes from forests located within a 150km radius of the HABA production facility. Plywoods that are imported from abroad are also sourced exclusively from controlled cultivation.



By buying HABA building blocks, you are not only giving your children pleasure, but you are also making a significant contribution to the sustainable harvesting of forest timber and to responsible forestry all around the world.

HABA building blocks – a thoroughly versatile toy!

Safety

All HABA toys for young children – whether made of wood, plastic, fabric or other materials – go through our strict in-house quality assurance as well as various external testing procedures performed by TÜV Rheinland.

We use only solvent-free, water-based varnishes and stains for our HABA wooden toys. This makes them sweat- and saliva-proof. You can therefore allow your baby or toddler to explore our wooden toys with their mouths without any safety concerns.



The mechanical safety tests are particularly important: they ensure that there is no risk of small parts being swallowed. Our products are subjected to the most rigorous impact and drop tests to ensure their suitability for everyday use.

So, as you can see, our toys must withstand a lot and prove themselves to be flawless before they arrive in the homes of our little customers.



BRICK BY BRICK

CHILDREN DISCOVER BUILDING

First impressions

As early as the sixth month of life, your child begins to explore our building blocks with all five senses. What do they taste of, and what sounds do they make? Shape, size, weight – everything is thoroughly checked out. And suddenly your child makes a wonderful discovery: these building blocks can be stacked on top of each other!



Knocking building blocks against each other makes a fascinating sound and is good for eye-hand coordination.

Twelve months and upwards

Your child can experiment with the building blocks to his or her heart's content. They can be picked up and shaken about, or knocked and rubbed against each other. By means of play, your child masters the first stage of placing one block on the floor and a second one on top without letting go of it.

Simple geometrical shapes appeal most to the early childhood desire to discover and help to develop your child's eye-hand coordination and fine motor skills via the medium of play.



Two years and upwards

Your child now begins to stack the building blocks and form long rows of them, both horizontally and vertically. When stacking them high, your child uses both hands to place them where they are to go. By letting go of the building blocks and studying them in their new position, your child masters the next step of construction. He or she comes to see each building block as an independent object in a spatial relationship with others. The first time a child stacks building blocks, baseplates and slats on top of each other, they master a new constructional skill, namely bridging.

Three years and upwards

Your child begins to stack the blocks with even greater purpose, building basic house and tower structures. The first attempts may still be crooked and wobbly, but they gradually become higher and more stable. Not long after, your child will move on to produce fantastic block structures with gaps and bridges. The strong desire to ensure stability is an incentive to acquire an empirical understanding of statics.

The building blocks support children in their efforts to imitate what they see around them in the adult world and to understand the concept of construction. In free play, they develop their imagination by building the structures that they have thought up for themselves. Increasingly, your child will also integrate the building blocks into simple role-playing games.



Children gather up the building blocks with both arms into a tight configuration.

INFO:

NATURAL BUILDING BLOCKS WITH PLAIN AND SIMPLE FORMS

Simple building blocks in a plain wood finish are particularly suitable for first exploration. Their natural material, wood, is easy to grasp, even for the smallest hands. This allows children to fully concentrate on exploring the shapes of the building blocks.

FLOOR BY FLOOR

MASTERING THE THIRD DIMENSION

Age 3 to 6

Children become even more interested in three-dimensional construction. They enjoy the creative challenge of designing their own structures and begin to think in spatial terms. Bridging becomes a more complex operation, and construction proceeds more methodically. Through constant repetition and trial and error, junior architects acquire an empirical understanding of static laws as well as simple mathematical and physical relationships.

Building blocks help to familiarize your child with the adult world. Depending on age and level of creativity, the building blocks, baseplates and slats can be used to produce stage settings for entertaining role-play games.



Age 6 to 8

Your child can now build complex static structures on their own. While working on their first experimental structures, they learn the basic laws of physics via the medium of play.

For children in this age bracket, the building blocks lend themselves to integration into learning games. The rules of mathematics are illustrated in a child-friendly way, and physical relationships can be explored by means of experimentation – making homework fun too!

The building blocks also offer your child something else worthwhile – they introduce him or her to basic digital thinking in a playful way. In this way, you motivate your child to think logically and in abstract terms, thereby expanding his or her cognitive abilities.

6-8



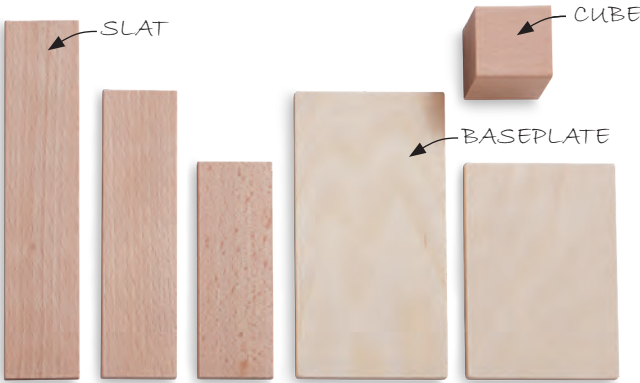
CLEVER-UP! 1.0 TO 4.0

BUILDING WITH SYSTEM

As junior architects grow, so do their buildings. Simply adapt the number and variety of shapes of the building blocks to the age your child has attained.

Clever-Up! 1.0

Cubes, baseplates and slats are the basic elements used in construction, bridging and the addition of ramps and floors. Younger children study the available blocks before lining them up and stacking them. Later on, they create more complex patterns and even more grandiose buildings.



Clever-Up! 2.0

Accomplished stacking artists use cubes, baseplates, slats and rectangular blocks to build higher and bigger, thinking in more ambitious terms and sometimes coming up with ingenious solutions. In creating imaginative patterns and buildings, they explore the third dimension and discover new scope for play.



Clever-Up! 3.0

The basic cube is doubled to form a large rectangular block, halved to form a small rectangular block and halved again to make a square rod shape. Creative minds vary their building techniques, comparing quantities and sizes and doing their sums. Digital thought processes are also stimulated; this is exactly creative learning works!



Clever-Up! 4.0

Perforated slats and brightly-colored spherical blocks bring new building ideas to life. The triangular prism allows for more complex construction – even roof designs can be re-interpreted. Construction, creative learning and digital thinking – a new building block universe opens up!



UNDERSTANDING THE ADULT WORLD IN MINIATURE

BUILDING MEANS LEARNING

Building blocks help children to fulfill two natural needs: imitating the grown-ups and constructing things. This is how children familiarize themselves with the adult world.

Children use the building blocks to playfully shape the space around them and at the same time begin to grasp the concept of the third dimension. Through constant repetition and trial and error, they also acquire an empirical understanding of the laws of physics.



Onwards and upwards, junior builders!

Admittedly, your child's tower may not stand up straight at the first attempt. But that doesn't matter, because it's all about trial and error. First build it, then knock it down – and start all over again! When your child is still small, he or she will just want to push piles of blocks over and rearrange them. The skills associated with building are acquired more gradually. Your child will want to experiment: how many blocks can I stack and which shall I use?

Stacking is the first step on the way to learning the principles of construction. The tower may still be a bit wobbly, but it will soon grow higher and higher. Be careful, it could come tumbling down at any moment!

The older your child gets, the more he or she builds according to plan, with an idea beforehand of what's to be built and how. Amazing how ingenious your junior architect turns out to be!



INFO:

IMAGINATION NEEDS ROOM TO MANEUVER

Sitting, kneeling, reaching out – your child's whole body is in motion when building. The best way for you to help your child develop their building skills is to clear a large space on the floor.



Placing one block on the floor and holding a second one on top of it without letting go – the first step on the way to becoming a junior builder.

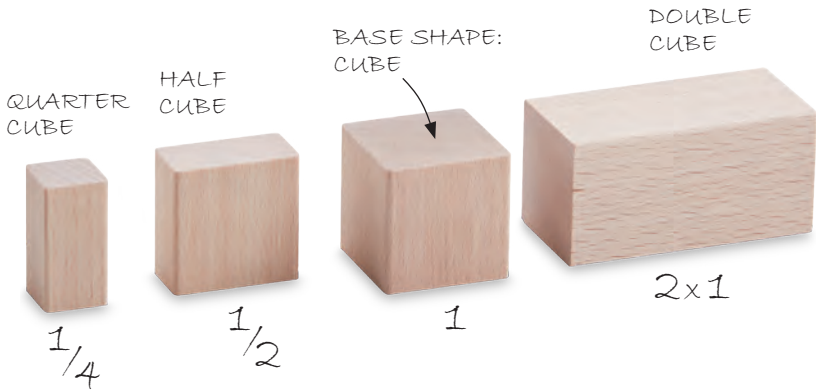


In the second year of life, your child will begin to lay blocks out in rows.

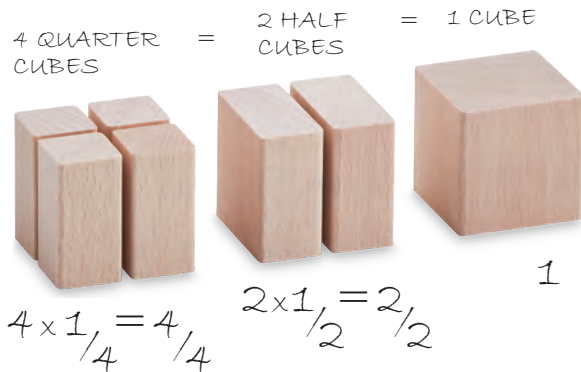
MATHEMATICS? EASY AS PIE!

How can you distinguish a perfect cube from any other rectangular block? And in what ways do the two shapes not only differ but also resemble each other? With these building blocks, you can explain geometric shapes to your child and stimulate his or her spatial imagination. You can also use them to illustrate mathematical relationships such as division and multiplication.

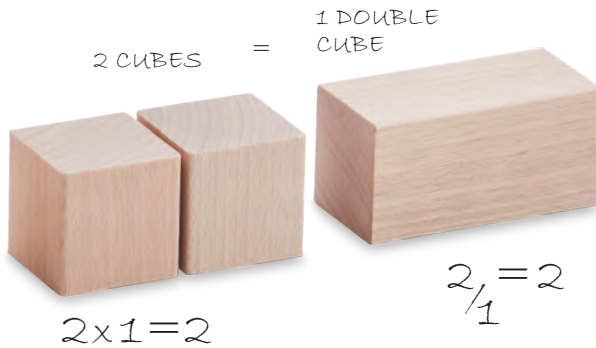
The cube is the basic element of the set. It is doubled in size to make a large rectangular block, split in two to make a small rectangular block and quartered to make a rod. Mathematics becomes child's play!



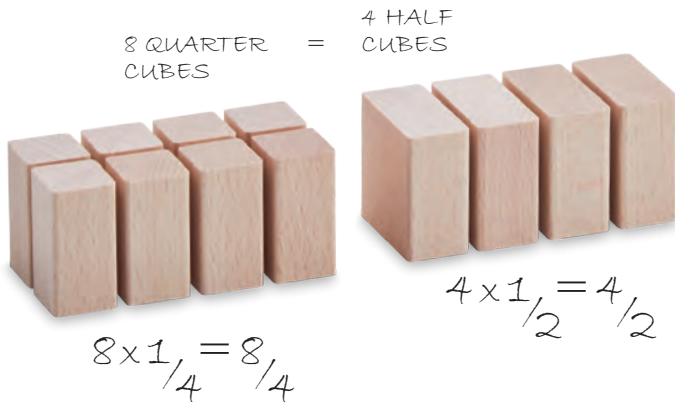
The cube is halved and quartered.



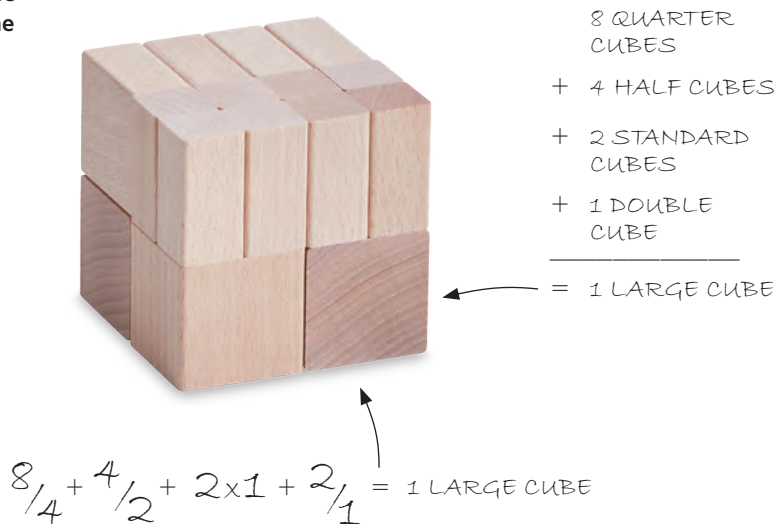
The cube is doubled in size.



The double cube is divided into quarters and eighths.



By combining these blocks, you get one large cube.



HMM, LOGICAL...

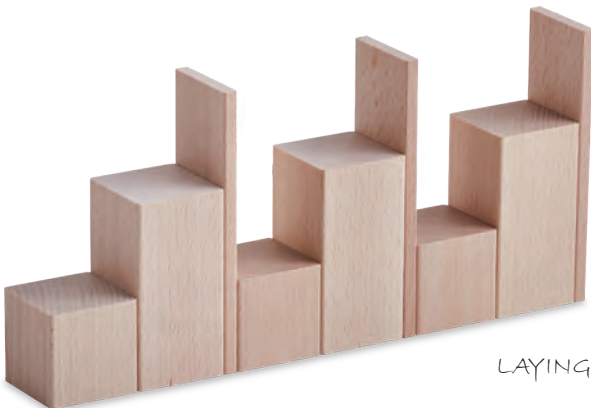
NEW PATTERNS OF THOUGHT



CROSS 1 - MIRRORING



CROSS 2 - SYMMETRY



LAYING OUT IN ROWS

Your child can use the building blocks and slats to form symmetrical shapes. When constructing the first of the two crosses shown here, the cube below the slat is mirrored by the one on top. The symmetrical construction of cross shape 2 is a bit trickier. Your child needs slightly more dexterity to place the cubes precisely. But with concentration and patience, he or she will get there.

Building blocks help to develop fine motor skills as well as cognitive abilities. The recognition of repetitions and regularities trains a child in logical thinking.

Square, rectangular or flat, it requires skill and is a source of fun to continue the pattern of a sequence as often as desired. In order for your child to recognize patterns, sequences of building blocks should be repeated at least once. If you want to increase the level of difficulty, then simply sneak an incorrect block into a sequence of at least four repetitions and ask your child: "What's gone wrong here?"

Symmetry and mirroring as a means to stimulate learning

It's amazing what you can put together using only cubes, rectangular blocks, rods, slats and baseplates! As soon as children recognize a pattern, they immediately want to copy it. In doing so, they learn to think "outside the box". They are also free to create their own structures or even artistically designed mosaics. In this way, they playfully master pattern recognition and learn how to solve problems independently.



PATTERNS AND MOSAICS



BUILDING WITH DEXTERITY

A REAL BALANCING ACT

Your child will have an incredible amount of fun stacking the building blocks, baseplates, slats and spheres as high as possible. But it's not so easy to copy the structures as shown while keeping them balanced under the influence of gravity plus inertia. Or is it? Take a deep breath, place the sphere, block or baseplate very gently, and... whoopee, the flimsy-looking construction is still holding firm! Via the medium of play, your child playfully grasps the first laws of physics and graduates from master builder to balancing artist.



FIRST, WOBBLY
STACKING ATTEMPTS



STRAIGHT
AND REGULAR

To keep the simple cube scales in balance, your child will need to carefully load both ends of the slat with a cube at the same time.

When constructing the advanced scales with cubes and sphere, even experienced stackers will need to think long and hard about how they intend to approach the task. With careful, balancing movements, the “weights” on the scale steadily grow higher and higher. How many rods does it take to balance out a cube? And who can manage to balance two of the small rectangular blocks on top of each pile?

INFO:

ANYONE CAN BALANCE, CAN'T THEY?

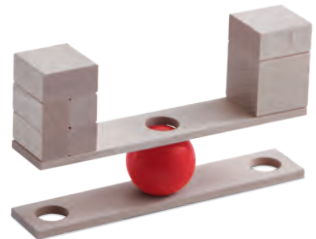
As a parent, you should try to reproduce one of these seemingly elementary structures block by block. You will soon realize what an achievement they are for your child!



SIMPLE SCALES
WITH CUBES



MORE
AMBITIOUS
SCALES
WITH CUBES



ADVANCED SCALES
WITH CUBES

TALLER BUILDINGS AND GREATER SKILLS

IT'S A MATTER OF STATICS



STAGGERED
BLOCKS
TO CREATE
STEPS

Over time, your child will learn where the blocks that go into a building project need to be supported and how to do it. The laws of statics are naturally incorporated into construction techniques. Your child is now confident enough to use slats and base-plates to lay down stable floors and install flat roofs on multi-story buildings.

More than just a façade

Your child builds more airy and more open structures, making new discoveries in the process. What happens when the blocks are staggered as the structure increases in height? Wow, we have a mini pyramid!

And if the building blocks are stacked up to form columns and a flat roof is placed on top? This is starting to look like a temple.



The higher, broader and more complex the buildings, the more in-depth understanding of building methods your child will acquire – also great for developing fine motor skills!

SLATS BECOME
ROOFS.



Nice and angular

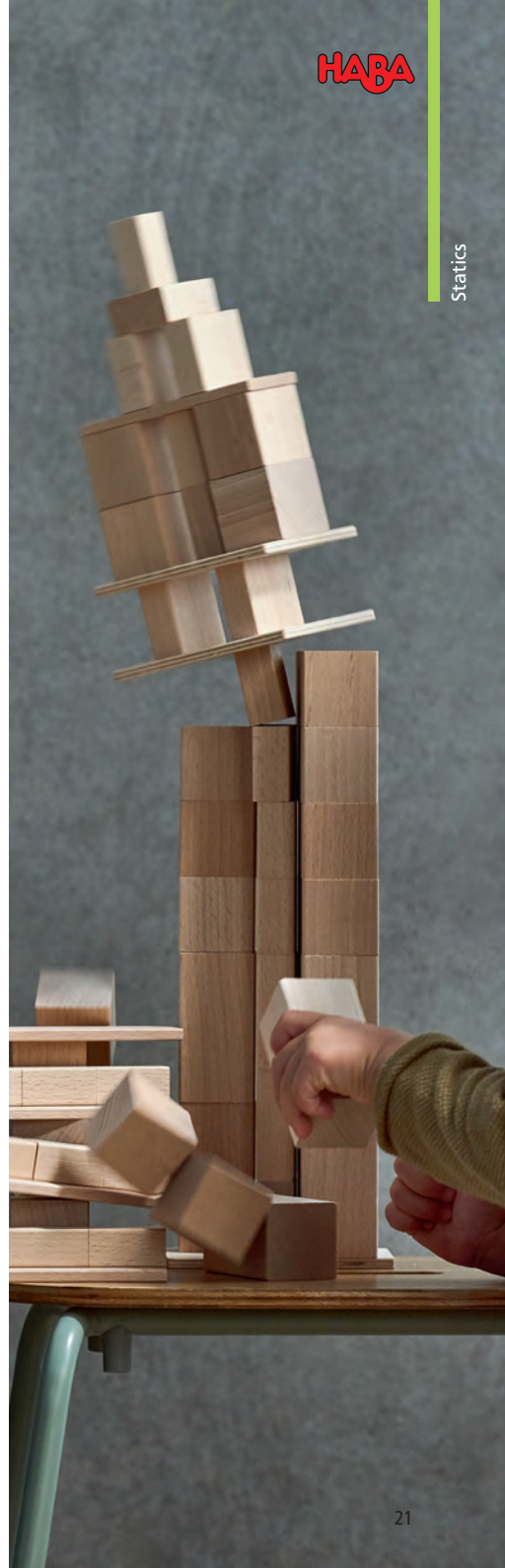
The baseplates and slats are placed at an angle to form driveways or elementary roofs. In this way, children discover the inclined plane and integrate it more and more into their buildings. With each attempt, their spatial and logical thinking develops.

Upstairs, downstairs

Forces in balance: The lower staircase is connected with cubes and a slat. The staircase to the top left rests on a support pillar. And the staircase to the top right opens out into the room.



Building is also a test of patience. The staircase, the house or the tower is almost finished, and then everything falls down. This is also an important experience: your child learns to deal with failure and how to control his or her own frustration.



WOBBLY AT FIRST, BUT THEN STABLE

BRIDGING THE GAP

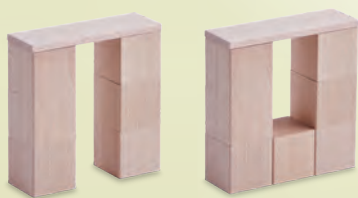
In the early stages of learning how to build, your child will stack building blocks on top of each other in rows and without gaps. This is called compact construction.



Hole in the wall

Your child adopts more adventurous strategies, and the distance between the blocks gradually increases. This is the open construction method.





Bridges that connect

Doors, windows or even tunnels – when leaving a gap in a wall, it is best to size up the distance between the two sides. The more accurately the lintel is placed, the better the building will hold.



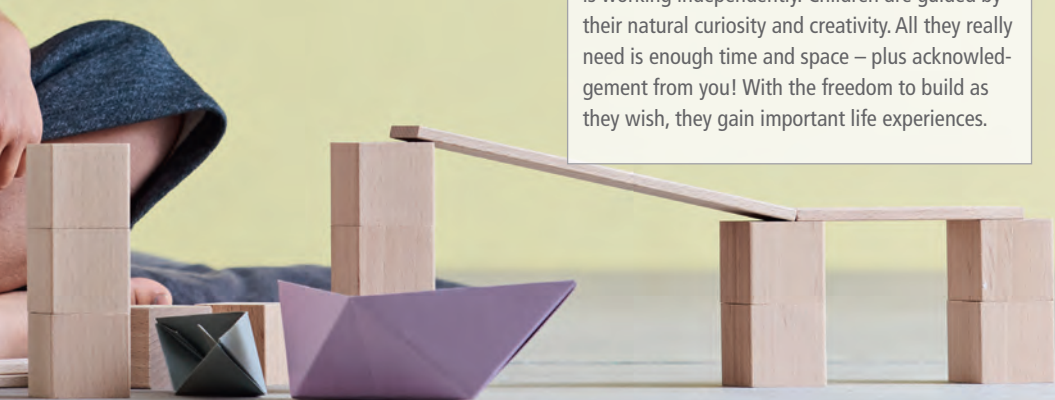
Applying logic and manual dexterity, your child will learn how to build upwards from gaps in the wall. Later on, he or she will discover how to bridge two blocks with a third one and how to incorporate baseplates and slats into the architectural design. Bridging binds structures together, though at first it may make them less stable. And when the deck of the bridge is complete, the little boats can pass underneath.



INFO:

IF AT FIRST YOU DON'T SUCCEED...

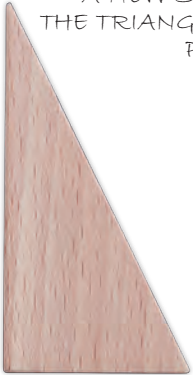
The best way for your child to learn how to build is working independently. Children are guided by their natural curiosity and creativity. All they really need is enough time and space – plus acknowledgement from you! With the freedom to build as they wish, they gain important life experiences.



INTO THE THIRD DIMENSION

EVERYTHING IN ITS PLACE

A NEW SHAPE:
THE TRIANGULAR
PRISM



Your child discovered the concept of length early on and has now ventured into the heights. In the next stage of construction, he or she will be designing three-dimensional structures. And once again, new physical insights will be gained.

Roofs make houses

The triangular prism allows for a more complex, holistic construction method. In combination with the baseplates and slats, your child is now able to construct roofs and come up with new variations. Whether gable or hipped, every shape of roof can be assembled with the parts supplied.

THIS IS HOW TO MAKE
A GABLE ROOF.





PRACTICAL:
A SMALL CARPORT

BEAUTIFUL
SIGHT: THE
TOWN HOUSE



INGENIOUS:
BALCONY AND
GARAGE



Extensions are always popular

Carport, garage and balcony – now your child is adding interesting extensions. And the new roof designs with gables and dormers on multi-story houses are simply great!

Construction techniques adapt to the demands of more complex designs, and new spaces are created in which creative role play can take place. Your child builds new play worlds for him or herself. The more complex the details, the greater the need for fine motor skills and forward thinking.

INTRICATE:
DORMERS AND GABLES



Color comes into its own

Wow! By incorporating other colorful building blocks from HABA into the project, your child can make already imaginative buildings look even more individual. The varied colors and shapes stimulate creativity. The discovery blocks in particular surprise and delight with their amusing acoustic effects and inspire junior architects to experiment with new ideas. Because HABA blocks are uniform in size, the blocks are very easy to combine.

Whether children are looking to add stairs, columns, parapets or balustrades, these colorful blocks will bring extra enjoyment to the planning process. The finishing touches details give their miniature houses a lively, cheerful character. Each building is unique, and some even qualify as impressive works of art.



INFO:

“ROME WASN'T BUILT IN A DAY!”

Encourage your junior builder to work on a his or her personal construction site over several days. In this way, you will teach your child the virtue of perseverance as well as develop his or her ability to plan larger (building) projects. So, don't tidy everything away – leave the buildings standing!

IMAGINARY BUILDINGS BECOME...

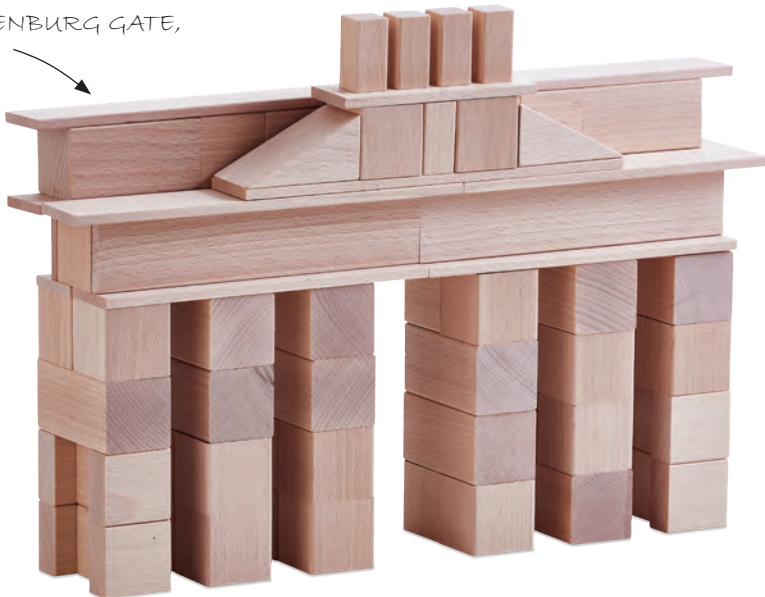
FAMOUS LANDMARKS

When your junior stacking artist gets the urge to replicate famous buildings, he or she is now well on the way to becoming an aspiring architect. There are plenty of models to choose from, for example the Empire State Building or the Brandenburg Gate, each of which represent quite a challenge. They require a steady hand and a logical approach. It is the perfect way for your child to develop his or her skills in three-dimensional thinking and design. The result will most certainly be something to be proud of.

EMPIRE STATE BUILDING,
NEW YORK



BRANDENBURG GATE,
BERLIN



EIFFEL TOWER,
PARIS



Building skills taken to the next level

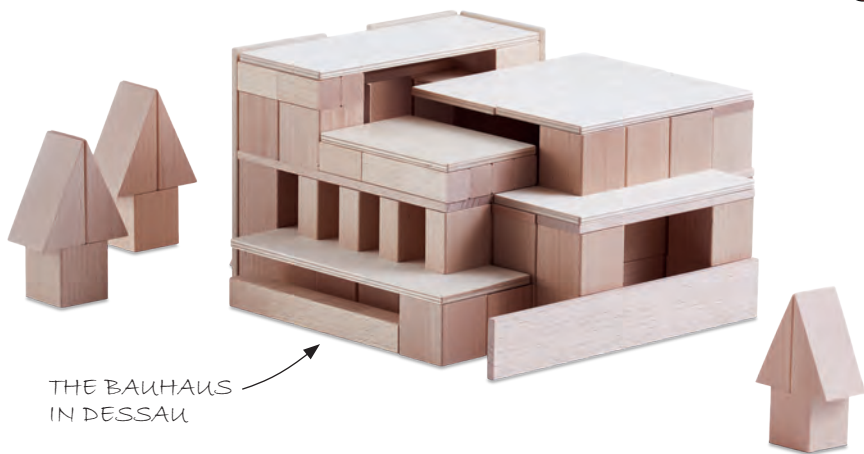
It doesn't get any better than this – the Eiffel Tower, the Vasco da Gama Bridge and the Bauhaus in Dessau are feats of construction that made history and have won world acclaim.

These complex, multi-level structures require a methodical approach and meticulous construction. The baseplates are essential components of these tall, open structures. The challenges they pose take children to the next conceptual level. With patience and perseverance, your child can carry on laying and stacking blocks ever higher.

You too will feel genuine pride as you watch your child develop his or her fine motor skills and cognitive abilities. The lessons learned here will serve children well for many years to come and in many different situations, as life makes increasing demands in terms of constructive thinking and creativity.

VASCO DA GAMA BRIDGE,
LISBON





THE BAUHAUS
IN DESSAU





306251
Building Block
System
Clever-Up! 4.0



EXPERIMENTING WITH COLORED BALLS

INCORPORATING SPHERICAL SHAPES

The spherical blocks bring color into play and inspire new ideas. They slot neatly onto the perforated slats, which ensures that they don't simply roll off onto the floor. Your child now has the opportunity to create even more imaginative architectural designs, using the spheres to balance other items on and to try out other ambitious ideas.

Experimenting on an inclined plane is particularly exciting. It helps your child to understand the relationship between distance, inclination and speed via the medium of play. Children learn hands-on that the steeper the angle of inclination, the faster the ball rolls downhill. And if there is a second ball at the bottom of the incline, the impact will push it along in front. In this way, your child discovers momentum and the domino effect.



LOGIC GAMES AND DIGITAL THINKING

FROM HAND TO HEAD

Your child has already progressed through a number of important cognitive stages with the Clever-Up! building block system. The brainteasers and tests of dexterity on the next few pages take the concepts developed so far and expand on them in fascinating mathematical and physical contexts.

While working out simple algorithms and deciphering binary and 3D codes, your child will also develop his or her cognitive knowledge into precursor skills for digital competences. It's fun, and it stimulates the grey matter!



LOGICAL DEDUCTION

WHO CAN SOLVE THESE PUZZLES?

The following brainteasers, arranging exercises and building games are really challenging. They develop cognitive skills via the medium of play, but they also call for dexterity. We recommend that you discuss each exercise step by step with your child and then leave him or her to get on with it. In the solutions section marked in green, you can see if your child prodigy has got it right. Let's go:

What do you need to make this shape?

Task 1: Using **either** cubes, or small rectangular blocks or rods, can you assemble this large rectangular shape. How many blocks do you need, and how do you arrange them?

Task 2: How many individual blocks do you need to assemble this large rectangular shape, making sure that you use all three shapes – cubes, rectangular blocks **and** rods?

TO ASSEMBLE THE LARGE RECTANGULAR BLOCK, YOU NEED...

HOW MANY CUBES?

HOW MANY SMALL RECTANGULAR BLOCKS?

HOW MANY RODS?

HOW MANY OF THE DIFFERENT SHAPES?

INFO:

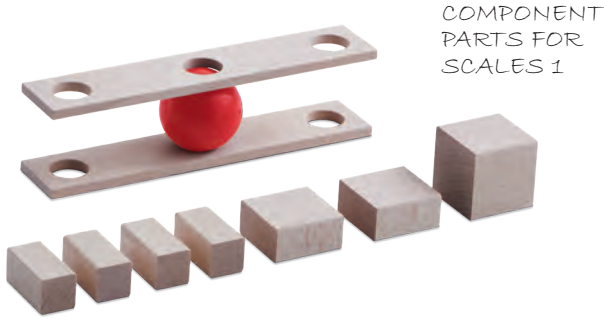
HELPS TO DEVELOP:

- Understanding of shapes, quantities and numbers
- Fine motor skills

How to build these two sets of scales?

First pick out the parts you will need for both scales as shown here. The basic structure of each set of scales consists of 2 slats and a sphere.

Task 3: How can you stack the building blocks up on scales 1 and 2 so that they remain balanced?



This intermediate step will help:

Remove the upper perforated slats from each of the scales and place them on a level surface (preferably a table).

Stack the blocks on the perforated slats. Then carefully place the slats with their stacked blocks back on the scales.

This is where it gets interesting: Do the scales keep their balance? And can the scales be constructed differently?



Solution for Task 1

The large rectangular shape can be assembled from: 2 cubes or 4 small rectangular blocks or 8 rods



Solution for Task 3

This is what the two sets of scales could look like



Solution for Task 2

The large rectangular shape can be assembled from: 1 cube + 1 small rectangular block + 2 rods

Other combinations are also possible.

HIGH-LEVEL ARRANGING TASKS

MIRROR AXES – AHHA!

Help your child to cut out a 16 x 16 cm template made of paper or cardboard. Draw a grid of 4 x 4 cm boxes on it. Draw a **blue line** down the center from top to bottom (**vertical mirror axis**). Draw a **red line** across the center from left to right (**horizontal mirror axis**).

INFO:

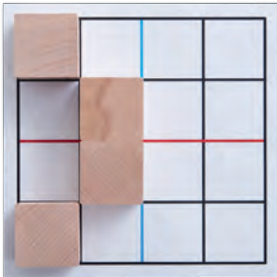
HELPS TO DEVELOP:

- Understanding of symmetry
- Spatial perception
- Fine motor skills

INFO:

WHAT IS A MIRROR AXIS, AND WHAT IS SYMMETRY?

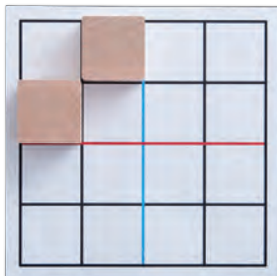
A mirror axis is the line that divides a figure into two equal parts, so that if you fold one side over, it fits exactly on top of the other. The two parts are described as congruent or alternatively as symmetrical around a single axis. The mirror axis is also called the axis of symmetry.



COMPONENTS
FOR TASK 1

Vertical axis symmetry

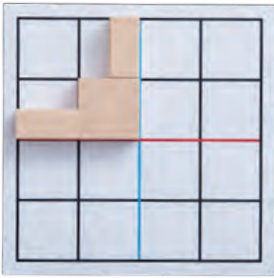
Task 1: Get 8 cubes ready. First lay out the pattern with 4 cubes as shown. This pattern is then to be mirrored on the vertical axis of symmetry (blue). Where on the grid are the 4 remaining shapes to be placed?



COMPONENTS
FOR TASK 2

Vertical and horizontal axis symmetry

Task 2: Get 8 cubes ready. First lay out the pattern with 2 cubes as shown. This pattern is then to be mirrored on both the vertical axis of symmetry (blue) and the horizontal (red) axis of symmetry. Where on the grid are the 6 remaining shapes to be placed?



COMPONENTS FOR TASK 3

Mirroring different shapes on two axes of symmetry

Task 3: Get 4 cubes and 8 small rectangular blocks ready. First lay out the pattern consisting of one cube and 2 small rectangular blocks as shown. This pattern is then to be mirrored on both the vertical axis of symmetry (blue) and the horizontal (red) axis of symmetry. Where on the grid are the 9 remaining shapes to be placed?



COMPONENTS FOR TASK 4

Mirroring three-dimensional patterns on the vertical axis of symmetry

Task 4: Get 2 large rectangular blocks and 8 rods ready. First lay out the pattern with one large rectangular block and 4 rods as shown. This pattern is then to be mirrored on the vertical axis of symmetry (blue). Where on the grid are the 5 remaining shapes to be placed?

Solution for Task 1



Solution for Task 2



Solution for Task 3



Solution for Task 4



3D VIEW OF TASK 4



COMPUTATIONAL THINKING

FROM ALGORITHM TO ANALYSIS

Algorithms control almost every aspect of modern life. Logic games are a way of explaining them to children. They help children to develop computational thinking skills step by step.

Computational thinking is more than just for operating digital devices or programming. Your child is acquiring valuable mental strategies to master future cognitive challenges. Solving problems independently, analyzing information, communicating and working on creative ideas with others – these are important skills that children need for learning.

INFO:

HELPS TO DEVELOP:

- Understanding of algorithms and analytical skills
- Fine motor skills
- Problem solving skills
- Powers of concentration

INFO:

WHAT ARE ALGORITHMS?

Computers work with algorithms. They are essentially instructions for solving tasks. These instructions can be broken down into sub-instructions that are executed in sequence.



INSTRUCTIONS FOR TASK 1

Creating elementary algorithms with logic games

Cut out a 16 x 16 cm template and draw a 4 x 4 cm grid. Take 11 or 12 cubes plus a couple of figures like the ones shown here, and use them to form the patterns displayed. The aim is to direct the fire brigade to the conflagration as quickly as possible. Your child will find it quite easy to break down this action into individual steps by using arrows to create an algorithm.



INSTRUCTIONS FOR TASK 2

Draw the arrows on sticky notes. Each arrow represents an "action step".

The Up arrow means "Move forward one space".
 The Left and Right arrows indicate a 90-degree turn.
 The Up arrow is also used to mean "Go". Your child now places the arrows in the right sequence.

Tasks 1 and 2: Which action steps does the fire brigade take, and in which order? How many action steps are there in all?

Our recommendation: Vary the logic game by using other paths and figures as well as different start and finish points. Begin with short, easy paths and gradually increase the complexity.

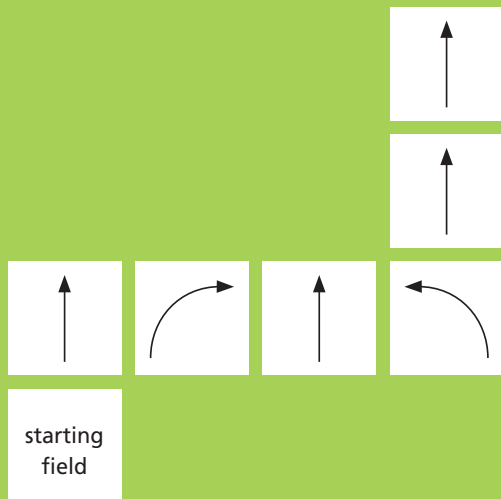
Solution for Task 1

There are 3 steps, all of them straight ahead.



Solution for Task 2

There are 6 steps in this sequence



MENTAL JOGGING WITH ADDED FUN FACTOR

BINARY THINKING AND CODING



Laptops, tablets and smartphones – they all work with binary numbers. 0 or 1, on or off – the information in apps, music or films is converted into long chains of zeros and ones.

The following arranging tasks illustrate the binary code. For this, you will need three 16 x 16 cm templates made of paper or cardboard, each with a grid of 4 x 4 cm boxes.

INFO:

HELPS TO DEVELOP:

- Deciphering and executing codes
- Fine motor skills
- Problem solving skills

INFO:



WHAT IS BINARY CODE?

Computers work with codes that are input by a programmer. These codes are used to encode information. The word "binary" is derived from the Latin "bi" meaning "two". A binary code is therefore a code made up of only two characters, the binary numbers zero and one.

0	1	1	0
1	1	1	1
1	1	1	1
0	1	1	0

BINARY CODE FOR TASK 1

Binary code for beginners: Deciphering the "secret code"

Task 1: Get 12 cubes ready. First write the binary code with the numbers 0 and 1 on the squares of the grid as shown. This binary code is the key to a pattern of building blocks. What does the decoded pattern of blocks look like if every field with a 0 remains empty and a cube is placed on every field with a 1?

0	0	0	0
1	<u>1</u>	<u>1</u>	1
0	0	0	0
0	0	0	0

BINARY CODE WITH ADDITIONAL INFO FOR TASK 2

Binary code with additional info: Juggling numbers and blocks

Task 2: Get 4 cubes and one slat (16 cm) ready. First write the binary code consisting of the numbers 0, 1 and 1 on the squares of the grid as shown. Any field with a 0 remains empty. Place a cube on each field with a 1. The blocks on the fields with 1 go on top of the bridging slat. What does the decoded pattern of blocks look like?

3	2	1	0
2	1	0	1
1	0	1	2
0	1	2	3

3D CODE FOR TASK 3

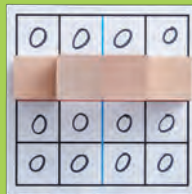
3D coding: The art of building taken to the next level

Task 3: Get 20 cubes ready. First write the numbers 0, 1, 2 and 3 on the grid as shown. In order to decipher the code, multiple cubes must be stacked on the respective grid squares according to the numbers displayed. What does the decoded pattern of blocks look like?

Solution for Task 1



Solution for Task 2



Solution for Task 3



3D VIEW OF TASKS 2 AND 3



FUN IN 4 SIZES

SOMETHING FOR ALL AGES



306251
Building Block
System
Clever-Up! 4.0



306250
Building Block
System
Clever-Up! 3.0



306249
Building Block
System
Clever-Up! 2.0



306248
Building Block
System
Clever-Up! 1.0



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