HUBELiNO®
Learning Games


*Prof. Kortenkamp's Learning Blocks*

# Number Pyramids

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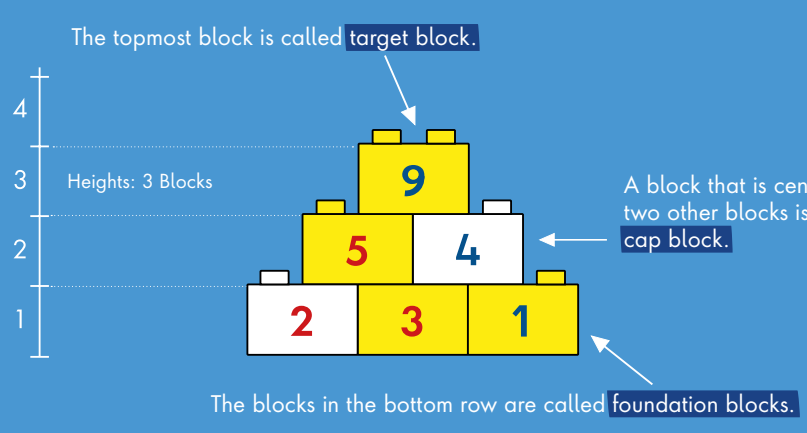
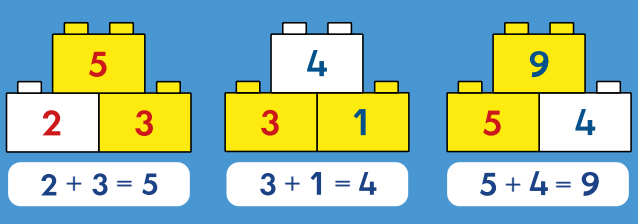
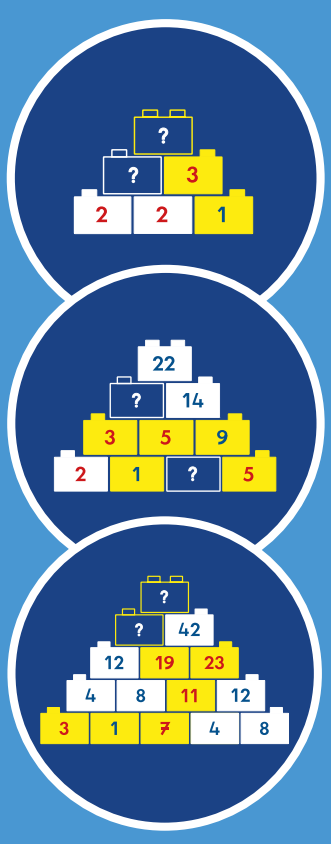
With Prof. Kortenkamp's learning blocks, elementary school students can build real number pyramids, which they previously only knew on paper in their textbooks. There is a simple principle: The numbers of two blocks next to each other add uup to the result on the block above.

## How do number pyramids work?




The sum rule applies everywhere.





## How can I integrate number pyramids into elementary school math lessons?

Number pyramids have proven to be a productive task format in elementary school math classes. Prof. Kortenkamp's unique learning blocks open up a new dimension to this proven learning concept, they give children the opportunity to actually build number pyramids themselves instead of filling in blanks on paper. In interactive use, addition and subtraction can be practiced in a playful way. The different colors of the bricks make it easy to experience, discover and explore mathematical relationships and calculation rules.

The research assignments in the practical book offer a variety of ideas for dealing with number pyramids, provide insights into mathematical phenomena and also promote process-related skills – discovering, explaining, inventing, researching, arguing and communicating.

For the use of the building blocks in class, 23 different researcher tasks offer the possibility to explore mathematical relationships with the number pyramids in individual, partner or group work. Of course, the challenging nature of the blocks also invites students to develop their own tasks.

The researcher tasks are based for the most part on the proven format of number pyramids. These became popular in Germany, especially through the Handbook of Productive Arithmetic Exercises by Wittmann and Müller (1990), and it is now impossible to imagine elementary school mathematics classes without them. There are detailed practical hints on how number pyramids can be used sensibly.

The principle is easy to explain: A number pyramid consists of staggered building blocks that are labeled with numbers. The sum rule must be observed: The number on a block that is sitting centrally on two others is always the sum of the numbers on the two lower blocks. Thus, two given numbers are sufficient to reveal another number via their sum or their difference. For this reason, number pyramids can be used very well for practicing addition and subtraction.

The real power of this format lies in the fact that the mathematical connections hidden in the structure can be grasped by students of all grades. This makes a cross-grade dialogue about mathematics possible in a unique way. The multi-layered structure of the number pyramid offers enough space to promote and challenge process-related skills. These abilities and skills are taken into account in the researcher tasks. Also, in the interactive classroom setting, students are encouraged to express and write down their own conjectures, strategies, and reasoning, and to share them in conversation. In the comments on the researcher tasks, reference is made at the appropriate point to the opportunities for discovery learning.

Made in Germany

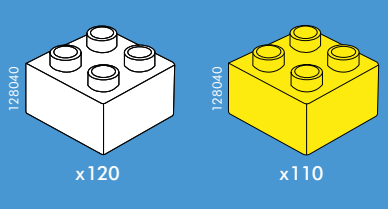


## What features do the building blocks have?

All building blocks are printed with a number from 0 to 128. The quantity of blocks is such that most number pyramids can be built up to a height of 6 blocks. If individual numbers are missing, they can be filled in on the back of the blocks with a water-soluble marker.

The different colors of the blocks are both an orientation aid and a structuring feature: even numbers are printed on white blocks and odd numbers on yellow blocks. This structuring feature comes into play in the researcher tasks and helps students find numbers and connections. For example, the odd number 7 cannot be on a white block.

The prime numbers printed in red are another structuring feature. Two researcher tasks are dedicated to these special numbers and support the students with targeted questions to independently find out what is special about these numbers. In class, it is therefore not necessary to initially point out the definition of prime numbers.




Compatible with building blocks from other manufacturers



info@hubelino.de | www.hubelino.de