

Manual for adults



NUMBER TOWN

teaching aid



Dear teachers, parents, grandparents or other adults,

you're holding a teaching aid called Number Town. We could easily call it a "game", because that is its main purpose: to build a bridge between the child's world and the world of mathematics in a playful way.

All of us have memories from math classes and they shape our attitudes towards the subject itself. It is positive at times, but more often than not quite negative. Many adults claim to never have liked mathematics, saying that it simply isn't in their blood and that it was their least favorite and most feared subject at school. We, however, have befriended the world of math, we know it well and we know that it's beautiful, playful, full of secrets, discoveries and adventures. And we want your children to see it too! We want them to feel comfortable with it and actually look forward to math classes. The foundations of this attitude are not laid at school, but much earlier, in the way that we, adults, communicate with children.

Number Town is a game that will help you subtly and enjoyably lead children towards basic mathematical concepts. Through their conversations with you, they will slowly get to know numbers in all their forms; they will familiarize themselves with basic mathematical operations, learn to take in stories and bring them into the world of math. Maybe it doesn't seem to be enough, maybe it seems to be too much, but these are the main skills on which your children will be able to build their mathematical success in elementary school and beyond.

Number Town is also a wonderful tool for you, dear teachers in kindergartens and elementary schools. Children will immediately befriend math, because they will understand what you are teaching them.

[Zuzana & Peter Bero](#)

What is important to know at the beginning?

Become a child once again.

Communication

When a child is playing, they need a partner willing to give them their full attention, listen to everything that they're saying, talk to them and be interested in their opinions. These shoes can be filled by a parent, grandparent or any other adult.

➤ In school, this role is played by the teacher and ideally a friend or classmate.

Mistake

Using play in the process of learning math provides the child with a safe environment. They don't feel the pressure of evaluation and are not afraid to make mistakes. They are learning to view mistakes as tools for self-improvement. If they ever make a mistake, don't shout at them or resort to irony. Remain calm and use questions to guide the child through the right process or answer.

➤ In school, activity should not be evaluated by grades. Grading is the enemy of experimentation and discovery. Number Town activities are the best prerequisite for a solid understanding of mathematics.

Time

Children simply know when they need more time for a certain activity. They will try again and again, until their heads won't signal to them: "And now you know!" Once children are able to handle an activity in such a way, their self-confidence grows and next time when it's time to play the game again, they will enjoy it.

➤ In school, it is not always possible to give children the time that they need. That is why

they should have access to Number Town even during recess or the after-school program.

Language

Children don't speak our adult language. They often can't understand what we are trying to communicate to them about math. Try to adapt your language to their level.

➤ In school, it would be ideal if children talked among themselves. They can explain concepts to each other in a language that is familiar and easy to understand. The language doesn't even have to be mathematically accurate. The accuracy of mathematical expression will materialize as they age.

Why is it important for mathematics to be active?

Understanding math is a journey that the child sets out on from an early age. Children perceive people and things around them and gradually weave mathematical ideas and relations into their perception of the world. Once they start going to school, this process is concentrated and systematically focused on different areas of mathematics. Be it in school or outside of it, the principles of learning are universal.

Learning process

The child must go through several levels of the learning process. If we skip or do not give enough attention to even one of them, we won't notice immediately, but it will eventually catch up with the child.

The first and perhaps the most important level of learning is manipulation with objects. Children are familiarizing themselves with

the world of math by manipulating objects, counting them, ordering them and assigning numbers to them. In order to be able to answer questions, they need to see things, touch them and visualize what they're learning by moving objects. Only then will they be able to answer our mathematical question.

A higher level of the learning process is the level of drawing and depiction, when abstract thinking starts forming in the child's psyche. At this point, they are happy to draw pictures and visualize connections. They draw lines instead of apples and know that each line represents an apple. Instead of 20€, they draw a circle with the number 20 and in their mind, it represents the 20€. Images help them capture connections that we talk about and answer our mathematical questions.

If we walked alongside the child on the journey of manipulation with objects and drawing, we have prepared a firm foundation in his psyche for thinking in abstract terms, which includes numbers and connections between them. Without those, a child perceives a number only as a vague concept and cannot use it well. At this point, we see the emergence of problems in learning math and aversion for this otherwise fun and exciting field of human knowledge.

That is why it's important to give the child a game that provides an opportunity for active manipulation with objects, depicts connections and gradually connects them with numbers.

Understanding in mathematics

A concept is only created in the child's mind once the child encounters it in many different situations. These experiences gradually connect, bonds form between them and once

there's enough of them and the network of connections is dense enough, the child begins to understand the concept.

Let's take the number 3 as an example. We shouldn't make the mistake of thinking that if a child knows the number three, it means that he or she understands what it is. The child has to create many groups of three items and has to see and create many other groups of items of which there are certainly not three. The child has to know how to count to three – using fingers, abacus, or a tower made out of three blocks. The child needs to see what it means that three things are added or subtracted. Once these (and many other) experiences fuse together, then we say that the child knows what the number three really is.

That is why it's important to choose a game that will give the child a chance to perceive mathematical concepts and connections between them as actively as possible – using all five senses. The more senses we engage, the more connections are made in the child's psyche.

Language and thinking

It is important for learning to be accompanied by a verbal description of what the child is doing. The child needs to be able to formulate their thoughts and experiences using their own words. Speech is an essential developmental and learning tool. There's synergy between speech and knowledge. Development in one supports progress in the other. Play is the most natural environment for the child. That is when the child is able to communicate easily and doesn't feel the need to worry.

That's why it's important to give the child space for playing and communication.

Three great tips on how to work with Number Town at home

1. Set aside everything else. Your child is what is most important right now. They need a parent who is only focused on them at that moment. The parent gives them their full attention, listens to everything they say, talks to them, is interested in their opinions and does nothing else. Number Town can help you with that!
2. Pick a spot that both you and your child enjoy and plunge right into play. It would be good if you could always play at the same pleasant spot. Children like rituals; they provide the reassurance that they need so much.
3. Try to let your child guide the whole activity. If they feel like spending more time doing a particular activity, let them.

► Three great tips on how to work with Number Town at school

1. Children are active. They work independently, ideally in pairs. A child is never active if they are just sitting and listening to what the teacher is saying. It is important that the child is actively manipulating with objects, drawing or counting, either by themselves or in cooperation with others.
2. Show children an activity and then let them repeat it in different variations. *You can find tips for activities on www.number-town.com.*
3. Children need to communicate with each other. Let them come up with their own assignments and discuss solutions and their thought processes. You should be available only when they ask for your help.

How to proceed?

Step 1

Take all the cards out of the box, look through them and talk about the pictures drawn on the cards.

► Don't skip this introductory step at school. It is important because it helps children not get distracted throughout the following activities by discussing what they found on the cards.

*The game also contains cards with digits 0-9, tens 10-100 and mathematical symbols (+, -, *, :, <, >, =). If the children haven't yet learned about digits, numbers and mathematical symbols (or you are teaching kindergarteners) and they are not interested in these cards, set them aside. If the child becomes interested, explain that they are symbols that we use to write down numbers and work with them when we learn about mathematics, and that over the course of the game they will find out what the symbols mean.*

Step 2

Begin: *Tell children a simple story: "Two cats were playing in the garden. Then another three cats joined them." Children will visualize the story on the playing board. They will point to the bigger group of cats. Later on, they can count them, add or remove cats... or work with other stories and situations...*

Find inspiration for activities at www.number-town.com. Discover videos and tips for activities that you can use both in school and at home.

Activities were designed by Zuzana Berová and Peter Bero – creators of Number Town and experienced authors of math textbooks for elementary schools.

Step 3

Don't be afraid to carry out activities that you and especially your children will come up with!

When is the right time to open Number Town?

Anytime a child is struggling with a task or problem, let them visualize it on the playing board using cards.



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The Joy of Learning

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