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educo

Instructions

MATH BOX 6

493.000

Objective:

With Math box 6, children can learn the following in a playful way:

- Comparing quantities (more - less, equals, one more, one less).
- Working with the comparison block and accessories.
- Working with the comparison strips: counting up to and including 1 and 10.
- Working with the number strips.
- Working with the numbers 1-10.
- Making simple comparisons with symbols: more (>), less (<), and equals (=).

Contents Math box 6:

- A box with a lid. The lid has a green playfield for comparison games.
- Comparison block.
- 2 x 10 blocks for the comparison block.
- 2 x 10 half rods from small to big.
- 1 cover, which can be used to cover the blocks.
- 40 chips: 20 red and 20 yellow.
- 10 geese.
- 10 houses.
- 10 people.
- 10 trees.
- 4 comparison strips of 5.
- 2 numbers strips: 1-5 and 6-10.
- 20 dotted cards: one up to and including 10, structured.
- 20 dotted cards: one up to and including 10, unstructured.
- 20 numbers cards: one up to and including 10, twice.
- 4 “>” symbols.
- 4 “=” symbols.
- 3 comparison cards, printed on both sides.
- 4 assignments cards, printed on both sides.

Methods:

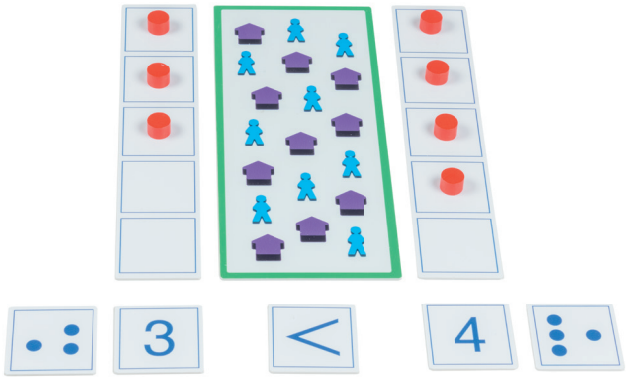
The goal of Math box 6 is clear, yet it can be reached in many different ways. Math box 6 can be used as playing materials, developmental materials, and learning materials. In fact, there is no fixed order. There is a balance between the extent to which children can make their own choices and the support from the teacher. Make sure that the children always respect the materials. The materials should remain appealing and last a long time.

Playing materials

Children can experiment freely and in their own way with Math box 6. It also offers many opportunities to work and play together. Note that Math box 6 consists of different parts.

- Let the children experiment and play with the comparison block, the blocks, and the chipped strips and chips.
- Children can also play and experiment with the comparison strips and the shapes.
- Finally, children can count and play with the number strips, the dotted cards, and the numbers.

Support the children by playing together with them, showing them how to play, or by setting a good example. The teacher can also introduce his or her own creative ideas in the game.



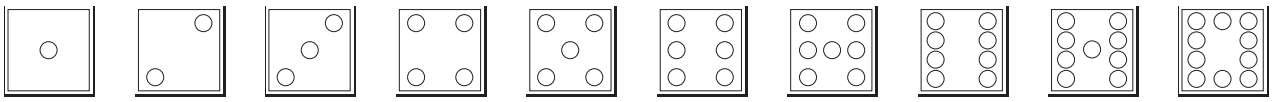
Developmental materials

Let the children learn independently. They can take the materials out of the cupboard themselves and order the materials. If necessary, designate a specific part of the box (see game materials). Try to limit your advice to a minimum.

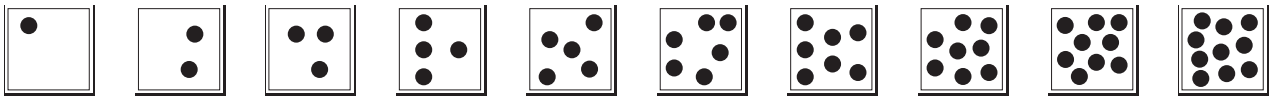
Support the child when necessary or when he or she asks for it. You can point out the characteristics or patterns: different ways to indicate numbers, comparing in chunks of 5 or 10, or using the comparison strips and comparison block. Accompany assignments that children can carry out themselves with a clear explanation.

1 Counting with the dotted cards

There are two series of dotted cards:



- One series has white dots from 1 up to and including 10. These cards are structured.



- Another series has black dots from 1 up to including 10. These cards feature unstructured, scattered dots.

The teacher asks the child to take the cards with the white dots (if necessary, only the cards 1 to 5). The child can then try to count the dots on the cards and, using the objects in the box, place the same number of objects next to or under each card. Children who can do so successfully, may also arrange the cards and objects from 1 to 5 or from 1 to 10.

The children can do the same assignment using the cards with black dots. Counting may be more difficult now, since the dots are not structured.

2 Working with the numbers 1-10

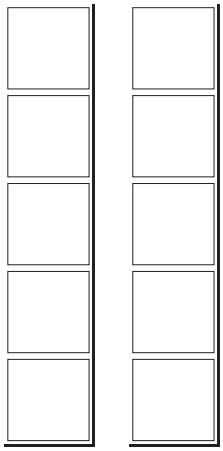
A similar assignment can be done with the numbers 1 up to and including 10. Challenge the children to switch between dots and numbers, and vice versa.

Counting with the numerical strips

Various assignments are possible with the numerical strips. Depending on the children's skill level, they can either use one strip (1-5) or both strips (1-10). The sequence of the numbers on these strips is fixed. With the strips, children can do the following:

- Sort the objects (also possible with objects that are not found in the box).
- Place dotted cards next to the strips.
- Look for the same number cards.

Comparing with the comparison strips



Ask a child to place the comparison strips side by side. Take any number of objects out of the box that represent 2 different shapes (e.g., houses and people). Let a child place the shapes on the comparison strips. For example, place the houses on one strip and the people on the other strip. The child can now directly see whether there are more objects of one shape than the other, or whether there are an equal number of objects of both. The child can also place the dotted cards above the comparison strips, place the objects in the correct quantities on the strips, and then learn what "more" and "less" mean.

3 Playing and learning with the comparison block

The comparison block offers a variety of opportunities to play with the numbers 1 through 10 (e.g., a competition who can complete a number first). It can prepare children for mathematics with numbers up to and including 10. Use the green playfield to signal that the game has started. You can motivate children in many ways to place the blocks in the slots. This does not only stimulate counting skills, but also children's motor skills. This game can also be played with other players or even spectators: 2 players and cheering spectators for extra fun!

You can also use the chips and chipped strips. With these materials, children can learn to estimate how many blocks are on the strip or how many blocks are required to count from 1 to 10. Being able to estimate is of great importance for mathematics later on. In the game, children can place 1-10 blocks and then "calculate" how many blocks are required to completely fill the slot.

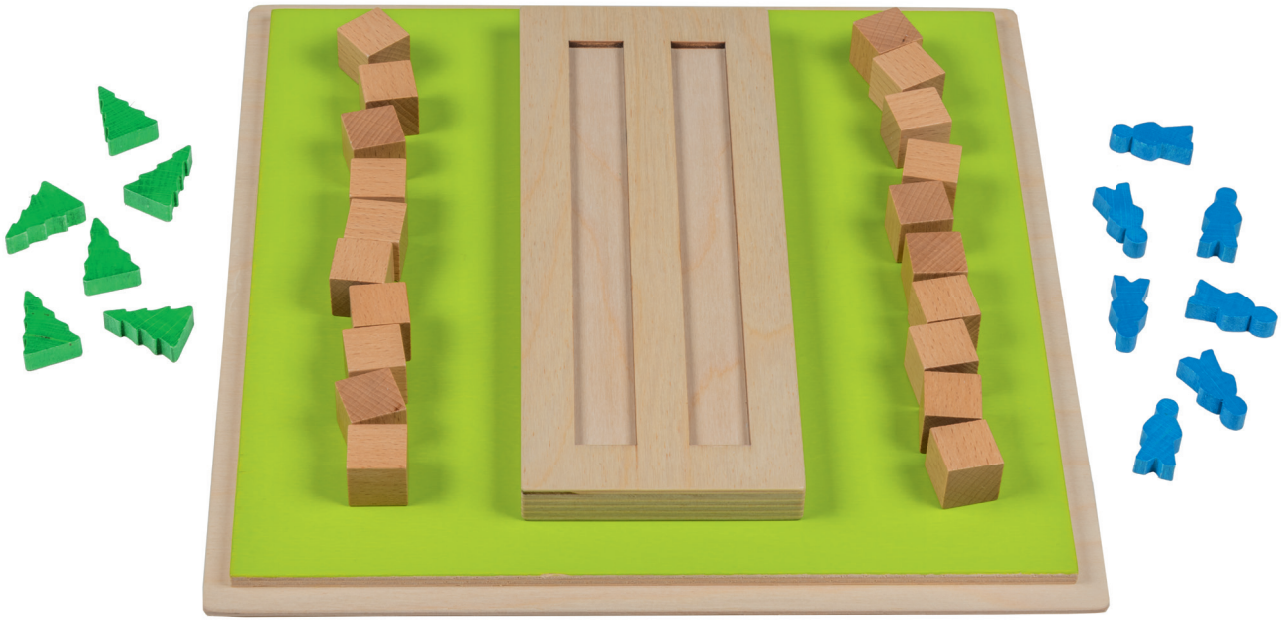
You can also place chips, dotted cards, or numbers next to the materials. Place the corresponding number of blocks in the slot and compare what is "more", "less", and "equal". Then place the blocks in the chipped strips and compare.

Like true researchers, children can try to predict how many blocks can be placed on the strip or how many blocks are missing. Then, the children can use the chips and chipped strips to "prove" that their prediction was correct. The children can also use the covers.

You can measure how long the children take. You can use a smartphone or tablet, for example. How long does it take you to complete 6 blocks and how long for 9 blocks?

Cover

- The children can use the cover to predict how many blocks are underneath it. They can lift the cover to check their answers.

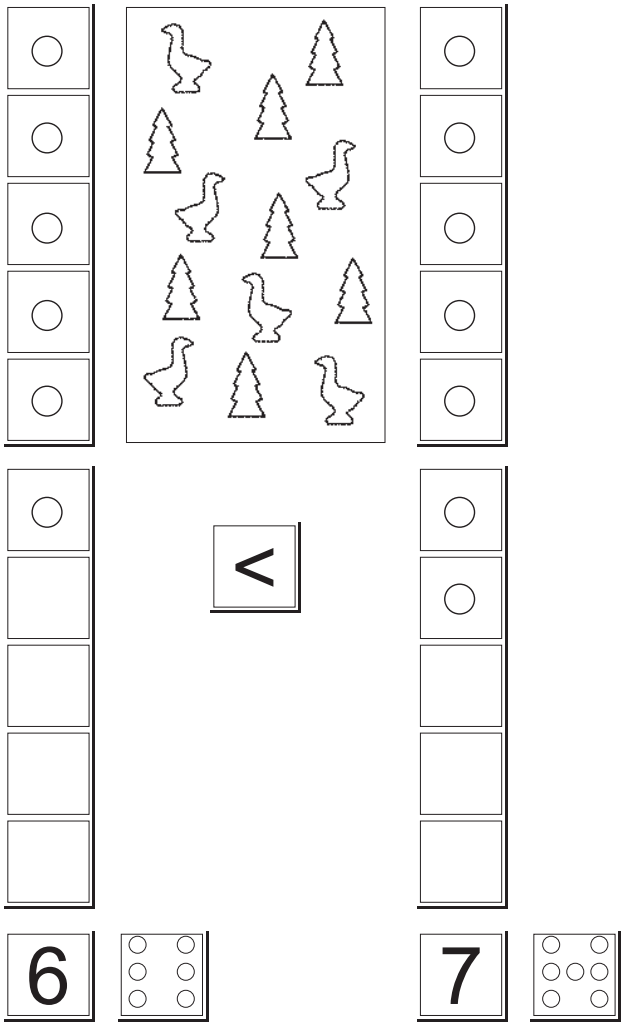


4 Working and cooperating with the comparison cards

The comparison cards feature images of objects in different quantities. For example, one card features 7 trees and 8 geese. Place the comparison strips on the sides of the card. The child can now learn about indirect comparison. By placing the chips, the children can abstractly represent the real objects.

Take the red and yellow chips from the box. The assignment is as follows: "Place a red chip on every tree and a yellow chip on every goose." Subsequently, the children place the red chips on the comparison strips on one side and the yellow chips on the comparison strips on the other side. Put the comparison card back in the box and count the number of chips.

- How many red chips do you see?
- How many yellow chips do you see?
- Of which are there more, and of which less? You can use the symbols, namely ">" for more and "<" for less. You can place the correct symbol between the comparison strips. Additionally, you can use number and dotted cards to indicate the quantity.



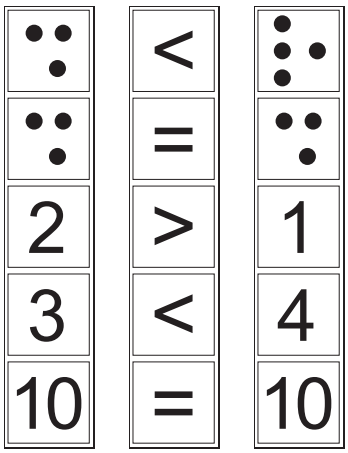
After this assignment, the child can try the other assignment cards without supervision. The "more-less" symbol has two sides: the more ">" side and the less "<" side. Ask the child which comparison strip contains more. Now place the "more" side of the symbol in the direction of this comparison strip. When both comparison strips contain the same number, then you can use the "=" symbol.

5 Working and cooperating with the comparison strips

It is also possible to use the comparison strips without the cards. The children can place dots or numbers under the comparison strips and use the "=", "<", and ">" symbols. This is a perfect opportunity for children to work together.

- Ask one child to put a dotted card under both comparison strips, such as "6" and "8". Let another child compare the numbers. Then, the children can check together whether the answer is correct.
- Ask one child to put a number under both comparison strips, such as "6" and "7". Let another child compare the numbers. Then, the children can check together whether the answer is correct.

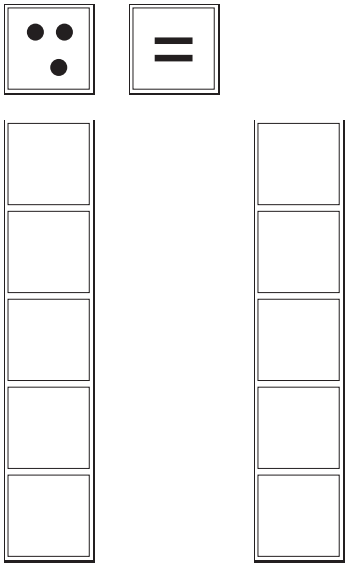
You can follow up on this assignment in many ways, such as with the symbols "=", "<", and ">".



Children can also make their own comparisons or even come up with their own assignments. What's intriguing about this game, is that a sum, such as "4 < 5", can be explained with the comparison strips, but you can also remove an element, such as the "4". What could replace the "4"? Of course, you could place a "4" again, but another number is also possible. At the very least, it has to be a number that's smaller than "5". In other words, it could also be "3", "2", or "1". It is easy to think of many more possibilities.

A more abstract example

Below, we provide a more abstract example. When you place a "=" symbol between the comparison strips, then there should be an equal number of objects on both strips. For example, both strips could contain 3 objects. The children learn to "read" this language.



6 Possibilities

Playing and working together

As mentioned before, we believe that Math box 6 offers an abundance of possibilities to play and work together. Working together is of great importance, not only because children enjoy it, but also because children can learn much from it. For example, children can learn to:

- Work with the comparison block and accessories
- Work with the comparison strips and the comparison cards
- Work with the comparison strips.

Let the children tell each other what they are doing.

Working behind a screen

The lid of Math box 6 is designed to also function as a screen. Let the children come up with their own assignments, such as:
"I put 3 dotted cards next to each other: 3, 5, 6. Look closely, what do you see?"
"I put 5 dotted cards next to each other: 3, 5, 6, 7, 8. Look closely, what do you see?"
"I put 7 dotted cards next to each other: 4, 5, 6, 7, 6, 5, 4. Look closely, what do you see?"
"I put 5 dotted cards next to each other: 9, 7, 5, 3, 1. Look closely, what do you see?" (The numbers decrease gradually.)
"Place 4 comparison strips next to each other. Put a card with 2 dots on the first strip, a card with 3 dots on the second, a card with 4 dots on the third, and a card with 5 dots on the fourth. Check whether you did so correctly. Now, where would you place the "<" and ">" symbols?" Play a number of variations of this game. Focus on the logic behind the numbers and symbols.

Challenging assignments

Ask the children to search for solutions together. Stimulate them to articulate their actions. Below, we give an example of how children can create challenging assignments. Start by placing an assignment on the comparison strips. For example, you can decide on "5 < 6". Now remove 1 of the 3 elements, such as "5". Every number below 6 is now a correct solution. The other child has to find a correct answer.

Combinations with other boxes

Use the other Math boxes to create sequences. You can then place a number next to every sequence. Place a dotted card on the table, such as "5", and use f.e. Math box 2 or 3 to make a sequence.
Do the same with Math box 4, but now with more than 5 dots. Make sure that the differences in the sequence remain constant.
Place a number, such as "7", and create a sequence with Math box 5. Make sure that the differences in the sequence remain constant, namely 2 different colours.
Place a number from Math box 6, such as "8". Now try to find all the sequences with eight objects. Make sure the differences in the sequence remain constant. Are the sequences identitcal? And with which one did you start?

Learning materials

The teacher shows how the game can be played and the child imitates the teacher. This teaches the child about the characteristics of the materials and how it is organized. The latter is especially important for children who find it difficult to work independently and take initiative.

Support: Show how an activity can be done, possibly even do it together with one of the children, and articulate what the child does and what you do yourself.

- Place the materials in front of the child. Use the correct terms, although the child does not have to know these him or herself: "This is a comparison block. Here, I can put 10 blocks. And here, I can put another 10 blocks. Now I can now compare them. I'll show you. Can you remove the blocks again?"
- Can you copy what I did?
- Now I will do something special. Pay attention: I will put down blocks again, but less this time. See, there is a different number of blocks in both slots. On which side do you see more blocks? Can you do this as well? How would you start? Or do you want me to show you again? Is this row of blocks longer than this one? And on which side do you see more blocks?
  Let the child imitate your actions and articulate what he or she does: "This row is longer; there are more blocks here; this one is shorter; it has fewer blocks."
- "Let's check together whether your answer is correct. Which row contain more blocks, and which less? Can you take the blocks out and then place them back as quickly as possible?" (This prepares children for other games that require fine motor skills.)
- Repeat the assignments and ensure variation.

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