TRIGONOS

Build on your imagination with Trígonos!

A creative game using building for children aged 4-10, and for those over 10, 20, 40...and 80.

☐ **TRÍGONOS START:**
(3-5 years old special)
6 blocks
6 pentagons
10 semi-short sticks
20 short sticks

☐ **TRÍGONOS KERNEL:**
7 blocks
7 pentagons
12 long sticks
4 medium sticks
8 semi-short sticks
6 pieces of fabric

☐ **TRÍGONOS FAMILY:**
10 blocks
10 pentagons
12 long sticks
10 medium sticks
10 semi-short sticks
10 short sticks
17 pieces of fabric

☐ **TRÍGONOS MAXI:**
20 blocks
20 pentagons
20 long sticks
20 medium sticks
20 semi-short sticks
20 short sticks
30 pieces of fabric

It's easy and fun!

Just assemble the wooden blocks and sticks and you'll create a cabin, a castle, a shop, a ship, a table… a huge amount of hiding places and magical nooks and crannies to play in.

When you finish playing, you can put everything back in order inside the box.

Have you ever played at geometry?

Did you know how many triangles, rectangles and squares are in an octagon?

Discover Pythagoras' theorem:
$l^2 + l^2 = h^2$

APPLICATIONS

Trígonos stimulates the curiosity, creativity and concentration of children and adults. It's important to be methodical but also imaginative when building with Trígonos.

The game involves joining sticks of varying lengths with two different kinds of blocks to create straight sections, right angles or 45-degree angles in different directions.

Players work with flat shapes, parallels and perpendiculars, regularity, symmetries, geometric shapes (squares, rectangles, triangles, rhombuses and octagons), fractions (quarter, third, half, double or triple), distances, angles and mathematical calculations... all while having fun!

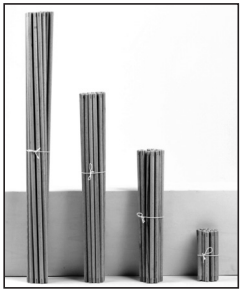
Trígonos also helps younger players strengthen their hand-eye coordination. Players can start with flat shapes and end up building huts, ships, bridges, castles, forts, trees... It's quite common for the game to become symbolic and show the various roles within a family, for example.

BLOCKS AND PENTAGONS

The blocks and pentagons don't automatically present all the construction possibilities straight away. This means that children need to use their imagination and try different directions, inclinations and angles to achieve a specific objective and so overcome a particular challenge.

The dimensions and weight of the blocks and pentagons, which are made of pine, are designed to make it easy for small hands to handle them without difficulty.

STICKS



There are two different lengths of sticks (Start), or three lengths (Kernel) or four lengths (Family/Maxi) and each stick bears a crisscross cut at each end so they fit easily into the blocks and pentagons. The sticks are made of beech wood to make them lighter, more flexible and harder.

FABRIC (except for Start)

There are three different shapes of fabric included in each Trígonos set: squares, rectangles and long strips (no long strips in Kernel). There are two kinds of rectangle: those that have loops to hold the sticks along the long sides, and those that have the loops along the short sides.

By combining the sticks with the pieces of fabric, children can build huts, castles and many other fun spaces. The fact that assembly needs to

be tackled from the vertical or horizontal sides creates another challenge that children will need to overcome.

EDUCATIONAL ASPECTS

Trígonos is a game that encourages the acquisition of the basics of geometry, physics and technology.

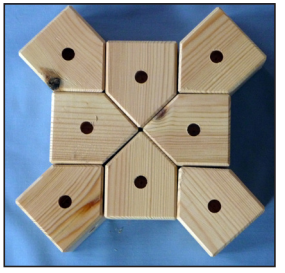
The fact that children are able to enter into their own creative processes helps them understand the concepts of space, form and volume.

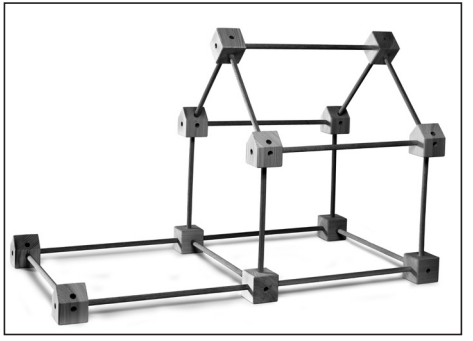
When they play, they can see mathematical relationships (quarter, third, half, double, triple, etc.) as well as distances and angles. Later on, this will help in visualising the square, cube or square root of a number, and even check the accuracy of Pythagoras' Theorem.

The fabric makes it possible to define limits and so create volume. The fabric also provides chromatic diversity that also helps encourage artistic expression.

When played in a group, Trígonos helps promote cooperation between players because they need to think together about the shapes they want to construct and reach agreements about what to build together. The scientific principle of trial and error applies constantly to Trígonos because players recognise that the best thing to do is put their ideas into practice to see if they are feasible or not. The application of ideas in a real setting makes it easier to accept their validity.

When Trígonos is played on an individual basis, while sharing materials with other people, this often calls for the need to reach agreements when it comes to swapping pieces.





TRÍGONOS PROMOTES A RANGE OF DIFFERENT SKILLS

Communication and negotiation: children need to discuss and come up with counter arguments when building a structure together. In order to proceed, they need to argue their case and then decide which solution they find the best.

Artistic: Trígonos is a game that promotes creativity, imagination and a sense of colour.

Geometry, physics and technology: when playing with Trígonos, children create shapes and volume and assimilate a number of basic notions (such as how to move from a two-dimensional to a threedimensional image). Based on what they experience, it is easier for children to move on to geometric abstraction and, later, to notions about physics and technology. Because Trígonos is a construction game, players need to do calculations and conduct mathematical reasoning.

There is also an **element of anticipation** when playing with Trígonos:

players need to plan which process to follow. They then need to check forany obstacles along the way, before evaluating the result.

Autonomy and personal initiative: although Trígonos can be played in a group, it's a good idea for children to first gain enough confidence in both using the pieces and in themselves, in order to be able to contributetheir own ideas to the group.

Knowledge of and interaction with one's surroundings: in this respect, it can be noted that Trígonos invites children to observe their surroundings, to ask questions and to put forward hypotheses about what they see. This is the kind of reasoning that using Trígonos helps to promote inasmuch as children can observe, two-dimensionally, what they want to build and then think of the best way to add volume. They can also come up with hypotheses about the various combinations of the sticks and the fabric so the construction is stable and acquires the desired volume.

Social and civic learning using Trígonos in a group, at home, in a public space or at school helps children discover how best to relate to other members of the group; they also learn which attitudes help promote a peaceful and harmonious environment.

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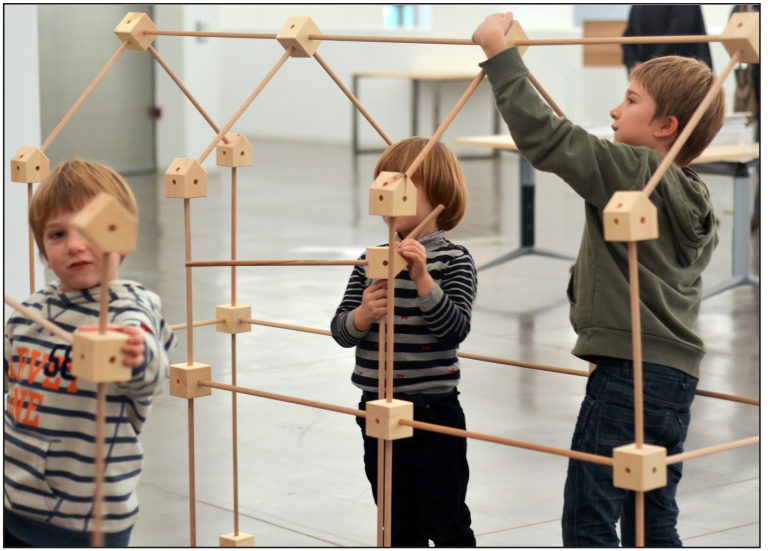

FOR PARENTS AND EDUCATORS

Play Trígonos with your children/students and watch how they learn, build and use their imagination.It's clear that our daily lives are full of numbers: telling the time, the weight and volume of the food we eat, when we have a birthday, the distance between the mountains and the sea, and when sharing things out, etc.

They are all related to mathematics and learning how to do them will help children solve the problems they will be faced with as they grow up.
However, there is another, very important discipline involved: that of geometric shapes how to represent them and organise them in a specific space. This can be just as important as numbers are in our daily lives.

Think about how useful it is to be able to see in your mind's eye different ways of arranging furniture in a living room, for example, or simply how to put books on a bookshelf, clothes in a wardrobe, or find space for kitchen utensils, etc. Or, even better, how to introduce order into our thought processes, how to have clear ideas, in other words...to know what we want!

The resources offered by Trígonos makes all this possible!

INSTRUCTIONS:

- Trígonos is not designed for climbing. The kits offer greater stability indoors and when used on flat surfaces.
- In order to assemble the pieces, apply light pressure when inserting sticks into the blocks. Sticks should be inserted fully into the blocks to prevent the end of the sticks from breaking and to ensure the correct tension of the fabric.
- Joins can only be made in straight lines or at 45º, 90º and 135º angles. Other angles would create excessive pressure on the joins and cause the sticks to break.
- When Trígonos is used for the first time, expansion of the wood may make it slightly more difficult to insert the sticks into the blocks. However, this should become easier after a short time. It is advisable for an adult to help the child the first few times the material is used.
- However, given the fact that wood is a natural product, stick ends may contract after repeated use due to the pressure they are put under when fitted into the blocks. This may result in some of the joins becoming loose. If this happens, simply dip the first 2 or 3 cm. of each stick end into water for ten seconds and then let the stick dry for 24 hours. This will help maintain them in perfect condition and ready for use.
- Should you wash the pieces of fabric, do not wash above 30ºC / 85º F.
- This game is not suitable for under 3 years old.
- WARNING: Keep away from fire!

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Trígonos is a hand-made, educational game that is produced in a manner that is respectful of the environment. Made in Catalonia, European Union. Ctra. de la Bisbal, 32 43712 Llorenç del Penedès.
Compliant with Standard EN 71. and Directives 2009/48/CE and 1907/2006/CE