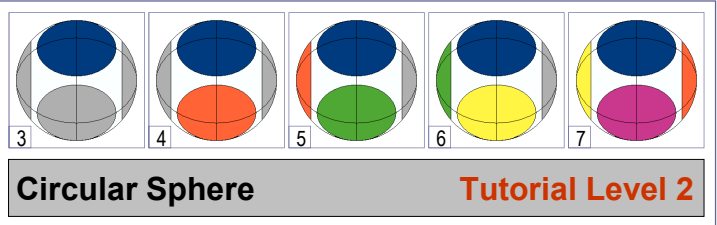


MARUSENKO SPHERE DESCRIPTION

A 3D rotational and sequential spheric puzzle, *Designed, Engineered and Manufactured* with **100% European Quality**. During the assembling process, no glue nor any metallic element such as springs, screws or washers are used. Actually, all of its 54 pieces are built with high quality and 100 % recyclable plastic. New, original, quiet and well defined movements, with the guarantee of a longwearing product. Surface of the Marusenko sphere has 24 triangles (arranged in 6 poles) and 8 stars (leaving a total of **32 moving pieces**). Its 2,279,626,699,712,199,018,518,937,600,000 positions (around 2.3×10^{30}) and all of its potential color configuration led us to present the sphere in 5 different designs, offering different levels of creativity and complexity. We hope that this challenge will be to your liking and we sincerely appreciate your purchase.



Circular Sphere

Tutorial Level 2

Standard Method Summary:

We solve the sphere from North to South through the following steps:

- 1.-Learn basic skills for sphere movements and orientation: North Pole and Front Pole.
- 2.-Learn how to bring a triangle to the Front Pole: aux. step, previous to solve North Pole
- 3.-Solve the 1st pole in **blue**, viewing this pole as our North Pole.
- 4.-Solve the 2nd pole: select-orient another unsolved pole as a North Pole and solve it in 4 **orange** triangles. **Important:** We'll always view as the Front Pole any unsolved pole.
- 5.-Solve the rest of the three remaining Side Poles. **repeat Step #4** for each one of them. Logically the pole n° 6 will be automatically solved.

The circular sphere represents level 2 among the 5 levels that Marusenko offers to the market. This method is not unique nor the fastest one but it is a step-by-step approach in order to solve the sphere from any of its 135.277.941.853.080 ($1,4 \times 10^{14}$) possible positions. In this sample we will solve firstly the North Pole in blue, then Front Pole in orange, Right Pole in green, Back Pole in yellow and Left Pole in pink. South Pole will be automatically solved in red colour. After this first contact with this standard method, you will soon come up with your own trick and shortcuts, which leads to your own fast and smart solution.

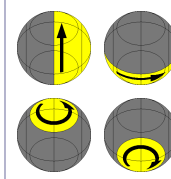
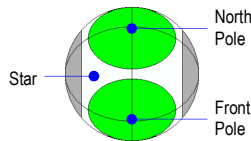
STEP #1: Orient the Sphere: decide the North Pole and Frontal Pole.

It's important to get used to identify, for each resolution step, which one is our **"North Pole"** as well as which one our **"Front Pole"** (both shown in green).

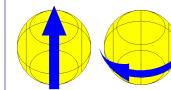
Each time, we will choose a single **"pole to be solved"** and **"the color"** for that pole to be resolved with. We will view the chosen pole as the North Pole. At this stage, the Pole that we decide to view as the Front Pole has to be an unsolved one.

Our strategy will be based on transferring the selected color triangles from the Front to the North Pole while keeping the remaining poles untouched.

Important: in order to be able to transfer the desired triangles to the North Pole, we firstly need to view them in the Front Pole. If we don't manage to view the desired triangle in the Front Pole we will follow the auxiliary step described in **Step #2**. The possibility of requiring this auxiliary step is represented in this manual with a yellow box as the one shown on the right:



Movements: Half Right, Equatorial, or Polar movements mean 90°, 180° or 270° twists



Complete sphere **Re-orientation**. It is rotated in our hands without any relative movements between its components.

NOTE: Components in **"clear grey color"** mean any color piece during that specific resolution step. We don't pay attention to these components during such resolution step.

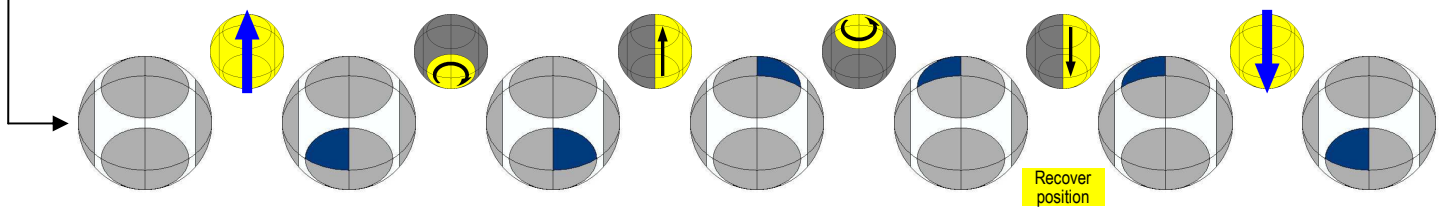
STEP #2: Learning to bring a triangle to the Front Pole. (AUXILIARY STEP: useful when executing 3rd and subsequent steps).

Next steps, when we are solving the North Pole in one color, triangles of this color should rest in the Front Pole before placing them in their position in the North Pole (Step #3 and following ones). Therefore we will now learn this **auxiliary step**, that is to bring any triangle to our Front Pole without undoing the position of the stars already resolved. Two situations can take place:

1.- Bring a triangle to the **"Front Pole"** from **"any Side Pole"** (1)^{*}

2.- Bring a triangle to the **"Front Pole"** from the **"South Pole"**

Not all the intermediate steps are always necessary.



STEP #3 Solving the North Pole:

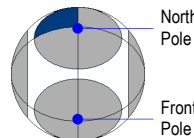
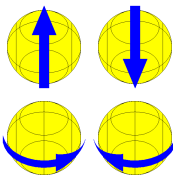
Place the **"4 blue-triangles"** in the pole we decide to view as the initial **"North Pole"**.

1st choose as the North Pole any pole already containing one or more blue-triangles. Here we will solve the particular case where the North Pole contains just one blue- triangle.

2nd, 3rd and 4th we transfer blue-triangles one by one from the **"Front Pole"** to the **"North Pole"**.

Not all the intermediate steps are always necessary.

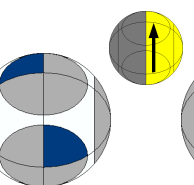
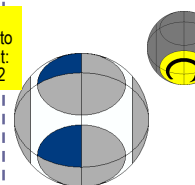
1st blue triangle to the **"North Pole"**



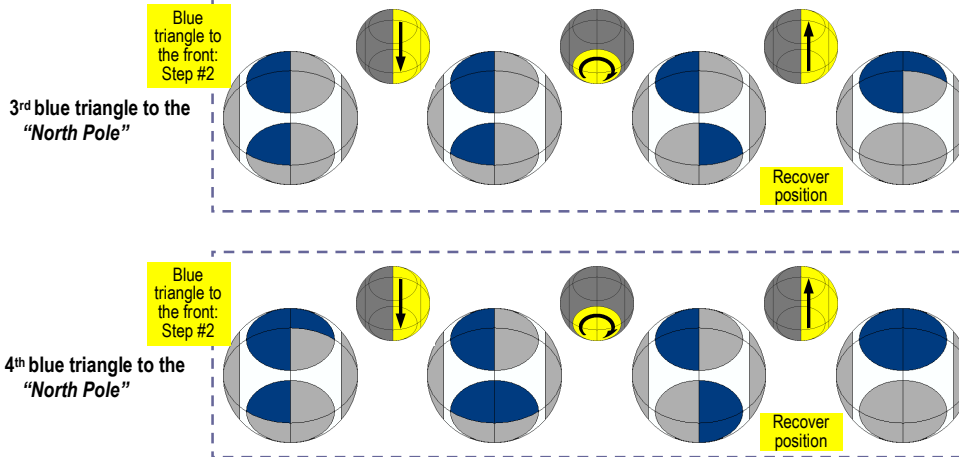
Orient and hold the sphere leaving a blue-triangle in the left-upper part of the North Pole, as show in the picture in the left.

2nd blue triangle to the **"North Pole"**

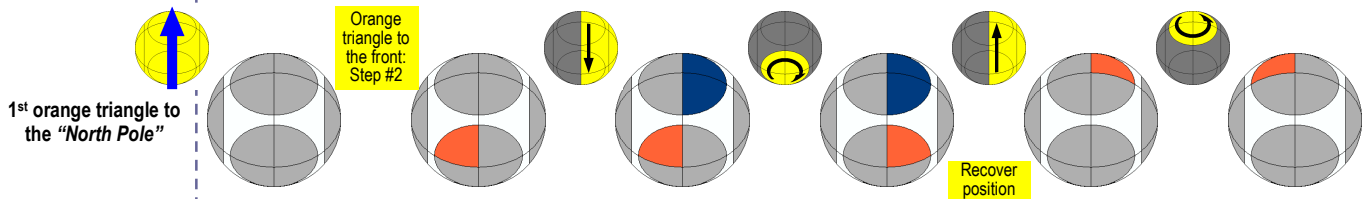
Blue triangle to the front: Step #2



Recover position



STEP #4 Solve 1st Side Pole



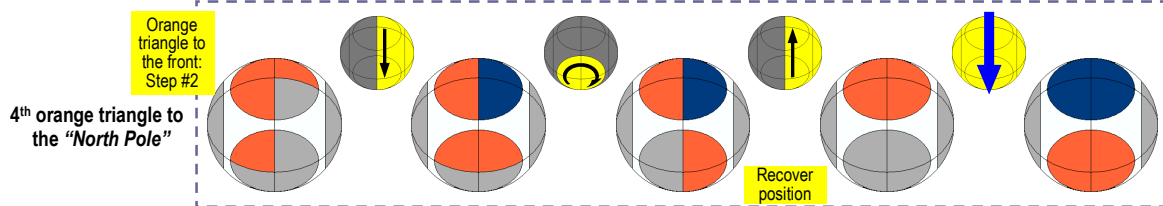
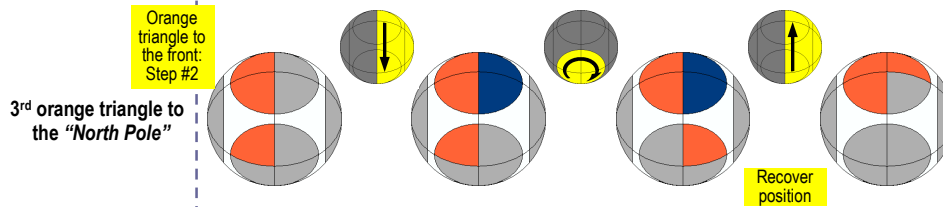
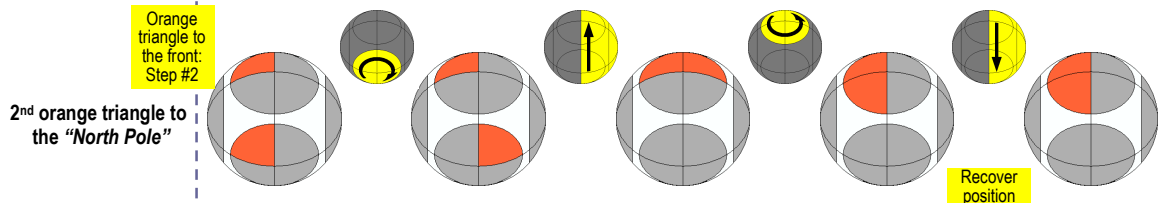
(1)* Any of the 4 poles beside to the already solved blue North Pole are named as Side Poles: Front, Left, Right and Back Pole.

We decide to solve any of the Side Poles, in this case we will do it in orange color.

- First of all orient the Sphere to view as new **North Pole** the one Side Pole we have decided to solve in orange. **Notice** that after reorientation you will be now seeing the opposite-antipode pole to the solved Blue Pole one as the new Front Pole.

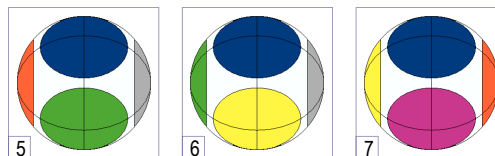
- In our example we have chosen one pole with no orange triangle as the new North Pole as the one to be solve in orange.

- 1st, 2nd, 3rd and 4th: We bring orange triangles one by one from the one we are viewing as the "Front Pole" to the one we are viewing as the "North Pole".



STEP #5 Solve the remaining 3 Side Poles:

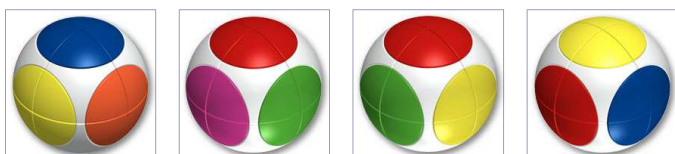
Repeat **Step #4** for the remaining unsolved 3 Side Poles. **Remember** that the Pole you will be watching as North Pole is the one to be solved and **remain also** that the pole you will be watching as Front Pole should be the opposite-antipode of the Blue Pole (the one we resolved in the **Step #3**). Once the last Side Pole is solved, the "South Pole" will have been automatically solved.



In the Fig. nº 7 Back Pole is solved in green and the South Pole will have been automatically solved in red.

OTHER SOLUTIONS

Tray to obtain the following Solutions an to develop your own tricks and shortcuts



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