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Step 3: Permuting the Last 3 Centers



Step 4: Orienting the Last Corners

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Step 1: Placing 3 Centers

Author: [primorial#soup](#)

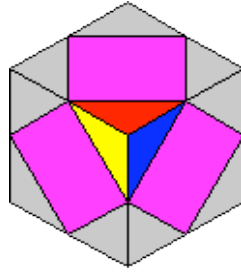
As you may have noticed, a Skewb twists much differently than a normal Rubik's Cube. This difference is a direct result of the construction of the two puzzles. In a Rubik's Cube, the center piece of each face is attached to the spindle, which means they can twist, but they can't move anywhere. In a Skewb, it is the corner pieces which are attached to the spindle. To give you a better idea of what I mean, the following image depicts a disassembled Skewb:



Those corners ain't going nowhere. For this reason, choosing a center piece and attempting to place the corners around it isn't all that good of an idea. It makes a lot more sense to choose a corner and place the centers around it, which is exactly what we will be doing.

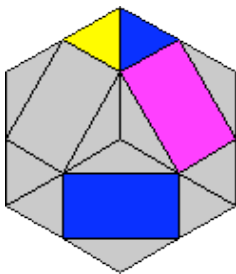
Step 1: Placing Three Centers

Choose a corner, for example the Blue-Yellow-Red corner. As I eluded to above, our first step will be to match three centers around this corner. That is, to place the correct three centers in the pink shaded regions:



If you're familiar with how the pieces move when you make a twist, this step shouldn't give you much trouble. In fact, each center should only take one or two twists. The basic strategy is to place a center 'below' its target region, and then to use the correct twist to move it into place. For example

for this:

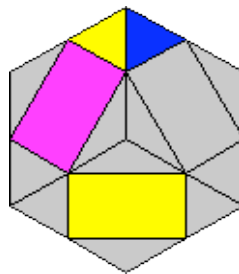


use

this:



and for this:



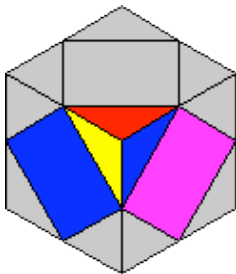
use

this:



Pretty easy, eh? With a little practice, this should become quite intuitive. There is a special case, however. Namely when the target center piece is already positioned next to our chosen corner, but in the wrong spot. Not to worry though, this is also resolved fairly easily.

for this:

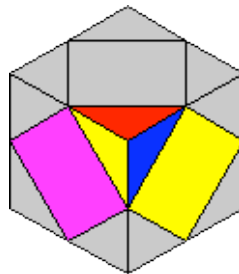


use

this:



and for this:

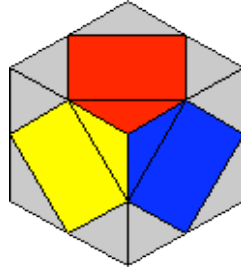


use

this:



The hardest thing about solving a Skewb is figuring out how to twist the darn thing. Keep practicing this step until it's clear how the different pieces move during a twist. Once you've got a good handle of it, and you can make your Skewb look like this every time:



then you're ready to move on to [Step 2](#).

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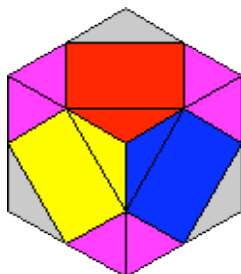
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Step 2: Placing 3 Corners

Author: [primorial#soup](#)

In this step, we're going to be placing the three corners which are directly adjacent to our original corner, while at the same time, keeping the centers from step 1 intact. Or graphically stated, we're going to be solving the corners in the pink shaded regions:

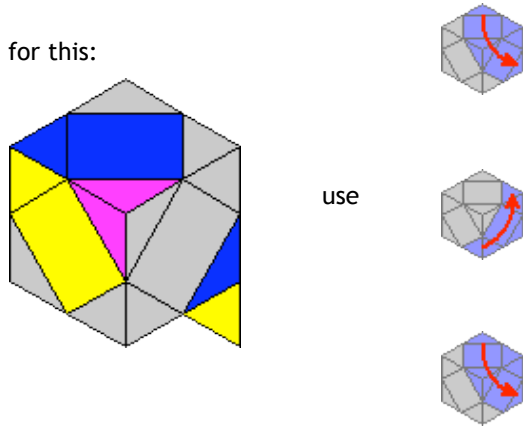


One very nice thing about this step, is that after you have correctly placed two of the corners, the third one is *automatically* in the correct location, although most likely not oriented correctly. If this isn't the case, it means that the last time your skewb fell apart (which, if your skewb is like mine, happens a lot), it was put back together in an unsolvable state. So we will break this step up into two sub-steps: first, placing the first two corners, and second, orienting the remaining corner if necessary.

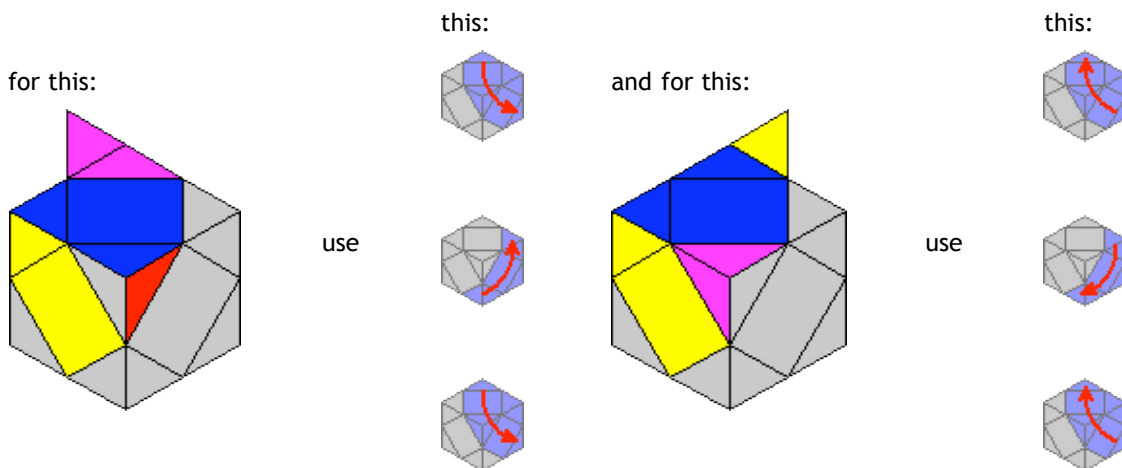
Sub-Step 2a: Placing the First Two Corners

First, locate the corner exactly opposite of your original corner. If you were to draw a straight line between the two, it would go diagonally through the center of the skewb. Take a look at that corner. Seventy-five percent of the time, it will be one of the corners that you need to place. Also notice that you can twist this corner directly without messing up the centers from step 1. If it is one of your target corners, it can be solved in the following manner:

this:



You shouldn't have to memorize this pattern. Instead, as you're performing the pattern, watch how the pieces move into place. After a while it should become relatively natural. If the opposite corner wasn't one of the corners you needed, then you got unlucky. Fortunately, there's still something we can do. If one of the corners we need has a color matching one of the centers from step 1, then we can place that corner relatively easily. For example

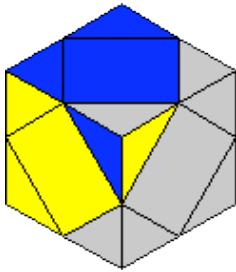


If the opposite corner wasn't one of the corners you needed, and none of the corners matched one of your centers, then you got *really* unlucky. The best thing to do in this situation is to place a random corner in one of the slots using the first pattern, and try again. After you've placed one corner correctly, repeat this step again for the second corner.

Sub-Step 2b: Orienting the Third Corner

As mentioned above, after correctly placing two corners, the third one will also be in the correct spot. However, most of the time it will need to be oriented (meaning it needs to be turned either clockwise or counter-clockwise). The following patterns solve the resulting two cases:

for this:



use

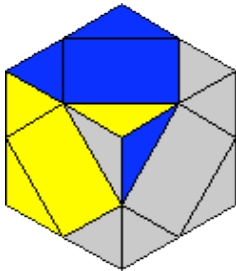
this:



this:

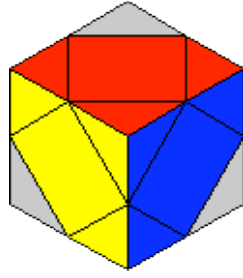


and for this:



use

Now that wasn't so bad, was it? This is admittedly the hardest step of the whole solution. So if you got it right away, then you're doing great! If not, don't be discouraged. Keep practicing and be sure to watch the pieces as you do the different patterns. When you feel comfortable with this step, and making your Skewb look like this...



...then it's onwards to [Step 3](#)

User Comments

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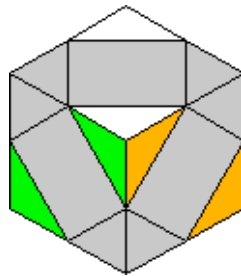
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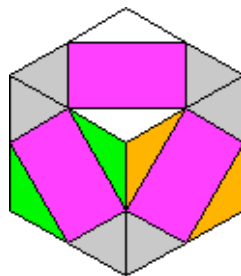
Step 3: Permuting the Last 3 Centers

Author: [primorial#soup](#)

In this step, we're going to be permuting the last three centers. That means simply to move them around into their correct location. But before we do this, we need to do one small thing. We need to make sure that the corner opposite of our original corner is positioned correctly. Look directly at that corner. You should see something like this:



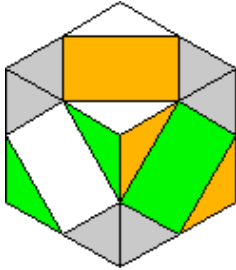
Notice that all three colors on that corner line up with the corners across from them. If that isn't the case, simply twist the corner clockwise or counter-clockwise so that it is. Once that's done, we can take a look at the remaining three centers, which are found in the pink shaded regions:



All three centers will need to be moved around in either a clockwise or a counter-clockwise fashion. There are no other possibilities. If you find that only two centers need to be switched around, then your skewb is in an unsolvable state. Both of these cases can be solved with a single algorithm.

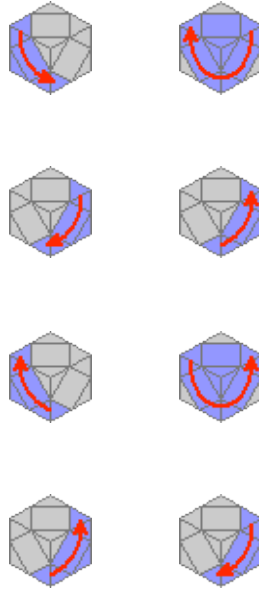
If the centers need to be moved around **clockwise**, use the following pattern:

for this:



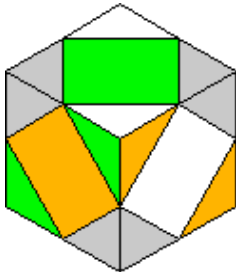
use

this:



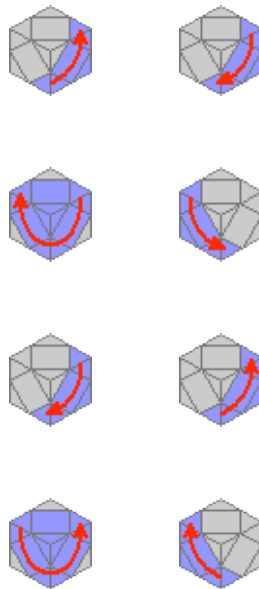
If the centers need to be moved around **counter-clockwise**, use this pattern:

for this:

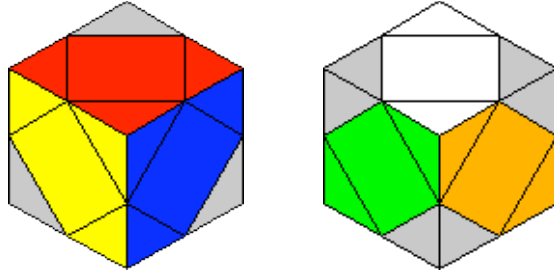


use

this:



That's it for this step. Unfortunately though, these patterns aren't all that intuitive, which means that in order to be able to solve a skewb without aid, you will need to memorize them. The good news is that there's only two of them, and they are both relatively short. Your skewb should now look something like this:



which means we're ready to move on to [the last step](#).

User Comments

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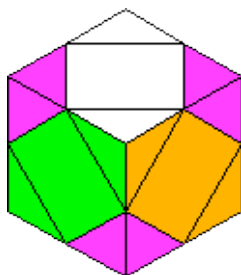
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Step 4: Orienting the Last Corners

Author: [primorial#soup](#)

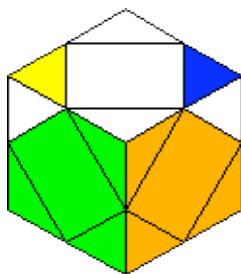
At this point, we don't have much left to do. In fact everything is solved except for three corner pieces. Namely, the ones in the pink shaded regions:



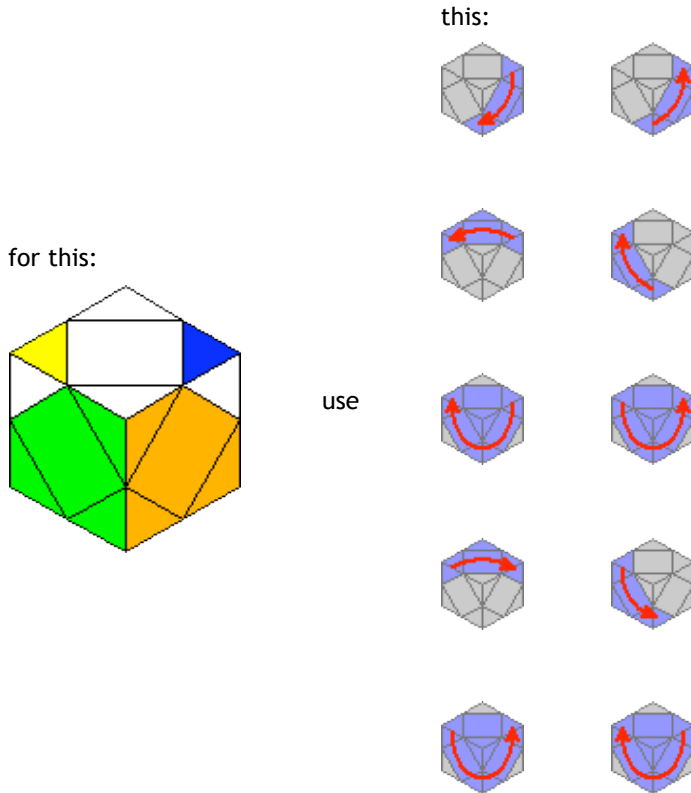
One thing you may have noticed already, is that all of the three remaining corners are in the correct location. If you haven't noticed this, take a moment to do that now. Each corner just needs to be twisted either clockwise, or counter-clockwise, a process that we will call orienting. They should not need to be switched with another corner (if this isn't the case, your skewb is once again unsolvable). Additionally, we have only three cases; either only two corners need to be oriented, all three need to be oriented, or none. Having only two misoriented corners is what happens most (67%) of the time. The three corner situation happens 22% of the time, and the remaining 11% we don't need to do anything at all.

Orienting Two Corners

Do this step if you only have two misoriented corners. If you have three, jump to the next part. Your skewb should look something like this:



Notice how the skewb is positioned. The two misoriented corners are at the top of the skewb, and the sides that face toward you are both the same color, in the above example, white. If they're a different color, just turn the skewb around 180° and it will be right. Now, use this algorithm:



This pattern is rather long, but I guarantee that it's the shortest one there is. Fortunately though, it's the only one for this case.

Orienting Three Corners

There are two approaches for handling this case. One involves using the same pattern as we used for two corners, and the other approach is to learn two new patterns. The advantage of using the pattern above is that you won't have to learn any more patterns, but it has the disadvantage that it is slower, because will always need to do it twice. The advantage to learning the two new patterns is that you can always solve this step in one pattern, which is of course faster. Either method is reasonable, depending upon your goals.

Using the Above Pattern

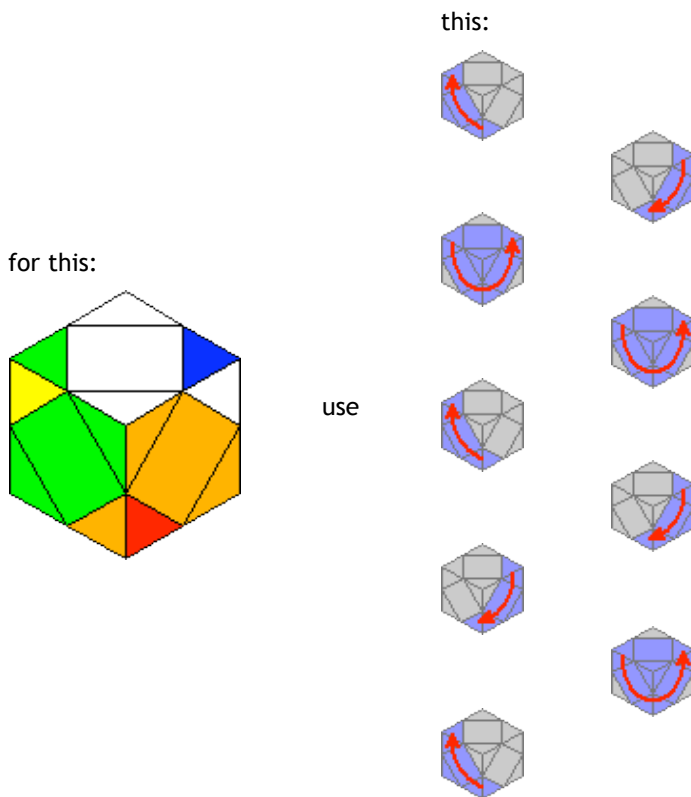
Apply the above pattern to any two of the three unsolved corners. Afterwards, you'll only have two corners left to solve.

Then, use the algorithm again to solve the remaining two corners.

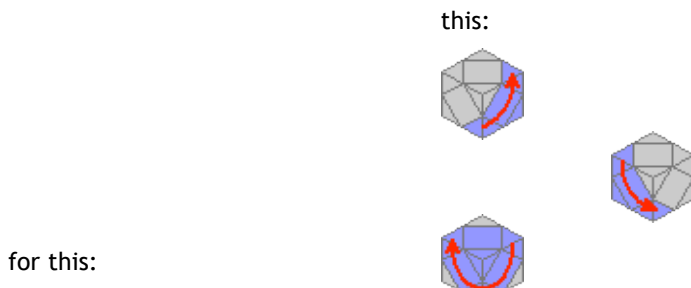
Using Two New Patterns

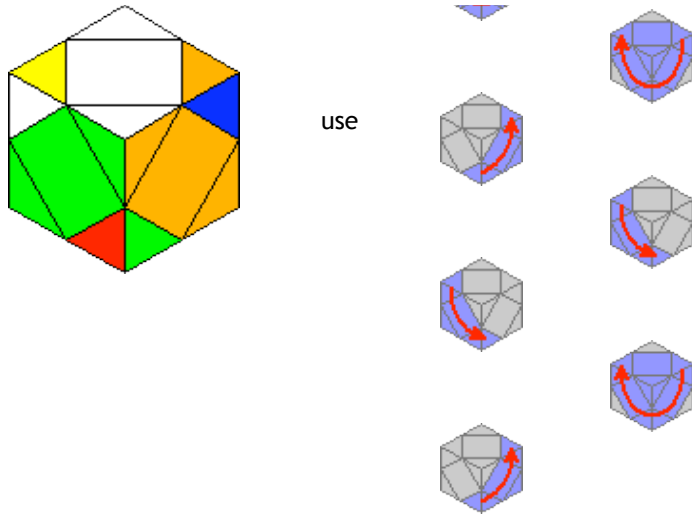
Two new patterns? There's actually two separate cases: either all three corners need to be oriented clockwise, or all three corners need to be oriented counter-clockwise. In order to determine which one you have, just look at any one of the corners, and figure out which way it needs to be twisted.

If the corners need to be twisted **clockwise**, use the following pattern:

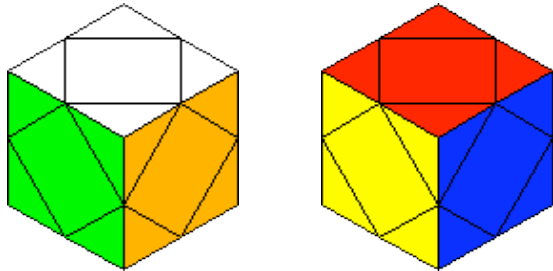


If the corners need to be twisted **counter-clockwise**, use the following pattern:





That's it, we're done! Now it's time to scramble it and try again. Or at least, that's what I usually do.



If you're interesting in learning a faster solution, my three step speed-skewbing solution can be found at my website, www.acubist.com. This beginner's solution has been designed to lead into the advanced solution, and many concepts and algorithms can be carried over directly.

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