VR SPACE STRUCTURE

1. Hint panel:
   a. Right side: 2D image of faces that exist in the pattern and still need to be placed. Those faces will be indentified with a number. The # of a face type (i.e. count) that still needs to be placed will also be shown.
   b. Left side: a 2D image of the pattern, which has identified number suppressed on the top of the pattern
2. Pattern space
3. Work space. Unplaced cubes are placed on the right hand side
Placement of the 1st Cube

1. If top face of the cube match any face type that exist in the pattern, a cube with the same face will turn dark, and the I.D. number will be removed as a confirmation of correct placement.

2. If the top face is wrong, two methods can be applied: 1) when participant try to move the tips away from the cube and reach to the other cube. The tip will be pulled to the cube. Participant will need to continue to work on the cube. Or 2) this cube return to the original place.
PLACE BLOCK THAT HAS MULTIPLE DESTINATION

1. The participants place the cube down and rotate it. Once an edge of cube is parallel with the table and the top face match one of the required face types. The hint panel will highlight both the matching face type, and its potential position.

2. Upon the visual augmentation info, participant may chose move the cube near the 1st cube.
   a. If the position of the 2nd cube is higher than the height of the cube. No force will be applied.
   b. Once the cube is within a certain distance from 1st cube, and is lower than the height of cube, it will be drag to the nearest position or the "optima position" which minimize the possible interference of following steps.
If the position is wrong, a resistant force will force the subject to lift the block.

Wrong position is defined in such way, that no direct link between the bottom face center and possible position center can be build.

If participant move a block with a wrong face, it will be pushed back.

If participant intent to leave this block and intend to work with other block, 1) tips will be drag back to the block or 2) the block will return to the original place.
Once a face is placed correctly, similar to the first block, hint panel will have a cube turn dark.

If one type of faces are all placed, the face type hint will fade away the finished face type.
1. If a direct connection can be built then a drag force will be activated.
2. If a direct connection can't be built and $d<h$, a resistant force will be applied. To avoid such force, participant can either lift the block or move it around until fell the drag force.
Or from the destination spot, shoot possible track in to space. Once the object attach to any of the track, it will be drag to the destination.

Step 5 Alternative
If only one destination can be found

A space that a direct ray can be defined by using the center bottom point and the 5 vertices near it.

Once the object attach to any of the "Rays" it will be drag to the destination.