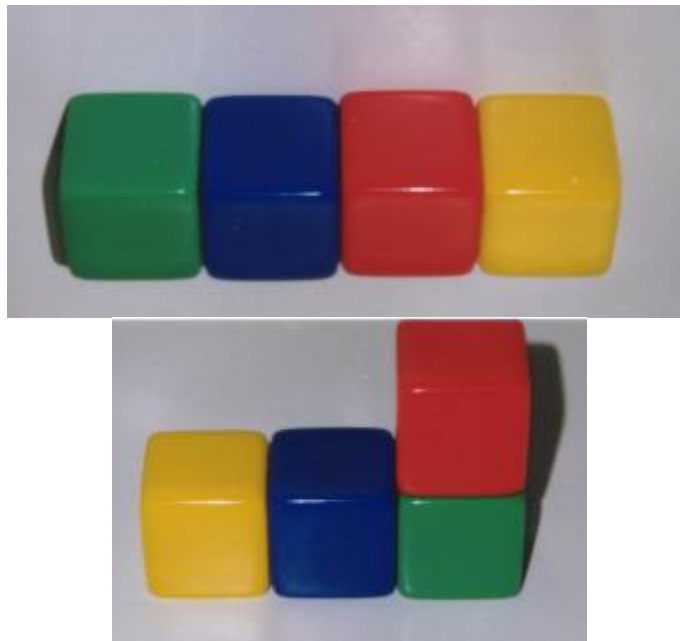


# Matching Cubes

This activity helps you to see very small differences. You have to match patterns of cubes, making yours exactly the same as your helpers. You will need six cubes of different colours. You could use 'Duplo' Lego blocks for this task.

## **Step 1. 4 cubes in a row**

Your helper will make a pattern on a clear plastic sheet using 4 cubes, each one a different colour. The pattern will be 4 blocks in a row, going from side to side, or 3 blocks in a row with fourth block on top of one of the others.



You have to look at their blocks and make your pattern exactly the same, using another set of blocks. You should make your pattern on a table, next to your helper's pattern, not on the plastic sheet. Try to put each of your blocks in exactly the same position as they are in your helper's pattern.

## **Check**

When you have made your pattern, your helper will pick up their pattern and place it over the top of yours so you can check if yours is exactly the same. They will ask you if the two patterns are the same. Can you see any differences between your pattern of cubes and your helper's pattern?

If they are not, you will be asked which block(s) need to be changed. Then your helper will move the plastic sheet away and ask you to change your blocks. Change any block(s) you have to, then your helper will put their pattern on top

of yours again. Keep checking by overlaying the plastic sheet until the two patterns of blocks match exactly.

**Notes for helpers:**

It will help if you use 'Blu-tac' to stick your blocks to the clear plastic sheet then the blocks will not move when you pick up your pattern to overlay theirs. The clear or semi-transparent top of a food container often makes a good surface on which to build your cube pattern.

**Your goal is to match every pattern exactly.**

**Step 2. 4 cubes, some closer, or further away**

Now your helper will use patterns such as the one shown here.



Their pattern will have 4 blocks in a row but one of the blocks will be closer, or further away than the others. You have to match their pattern.

**Notes for helpers:**

The easiest patterns are ones with 1/2 of one block touching 1/2 of the block next to it. More difficult patterns have one block positioned so 1/3 or 1/4 of the block is touching the block next to it.

Now try patterns where 2, 3, or all the blocks are staggered so that the whole side of each block does not touch the block next to it. Start with patterns where 2 blocks are closer or further than the other 2, then progress to patterns such as like the one below where each block is in a different relative position to every other block. The pattern must be matched exactly.



**Your goal is to match every pattern exactly.**

### **Step 3. 4 cubes, with a hole**

Now your helper will use patterns such as the ones shown here. Their pattern will have a hole or an open space between some of the blocks.



**Your goal is to match every pattern exactly.**

### **Step 4. 4 cubes in a row, tilted**

Now one or more of the cubes will be tilted, like those in the patterns shown below. Start with one or two blocks tilted, but in a row, or one on top of the others. When these can be matched, one or two blocks can be placed closer than the others. Then finally use patterns that have a pocket, or hole, formed by the edges of the blocks.

## Visual Thinking Introduction

