



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

| | |
|---|---------------------------------------|
| Name(s) Isaiah J. Campbell | Project Number J1404 |
| Project Title By Random Chance or By Design? | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals Can Something that is designed be recreated by random chance? What is the probability if the materials needed were present? I believe that none of the designed things that I will test will be able to be recreated by random chance.</p> <p>Methods/Materials Test 1 PATTERN TEST Mat. used: 10 blocks, 2 of ea.-yellow sq., blue rect., red rt tri., tan rt tri., green eq lat tri., a box PROCEDURE: I made a pattern using the 10 blks. I took picture of the pattern. I put the blks in the box. I mixed them up with my hand. I randomly drew them out. I picked the first one I touched. I laid them in a straight line. I recorded what order they were in to see if any matched the original design. I repeated the process 50x's. Test 2 PLACEMENT TEST Mat. used: 8 blocks, 2 of ea.- eq. lat. Tri., sq. rect., rt. Tri., piece of paper PROCEDURE: Lay 8 blocks in a design. Draw around the blks to make a template. Hold blks 1 ft. above paper. Drop them. Record if any land in correct places. I also recorded if any had the correct orientation or touched the correct place. I repeated the process 50x's.</p> <p>Results Test 1 THE PATTERN TEST, was an easy test for showing random order. I got enough data by running the test 50 x's to show good results. My test showed that it is very unlikely for patterns to be remade by random chance. The mathematical probability of recreating the same pattern I had by random choice is 1 out of 113,400. Test 2 THE PLACEMENT TEST was more complicated for showing random placement. There's no way to conduct the test accurately enough from my home with the tools I have. There are too many factors at play.</p> <p>Conclusions/Discussion Test 1 THE PATTERN TEST, it was pretty obvious to see that recreating even a simple pattern by randomly choosing objects, is very unlikely. I got the results I expected. Test 2 THE PLACEMENT TEST, was more difficult to accurately test because there were more factors involved when I dropped the blocks. In order for something to be created that is 3-D or has structural placement there are physics involved. It's not only the random order but the placement of the objects that matters. This makes the testing process more complicated. Because you have gravity, velocity and other forces, it is not possible to get completely accurate results at my house. I did get the results I thought I would get because the design was never recreated.</p> | |
| Summary Statement Can something that's been designed by recreated by random chance? | |
| Help Received Mother reviewed project for clarity. | |