



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

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<b>Project Title</b> Landslides, Soils, and Building Foundations	
<b>Objectives/Goals</b> Landslides are mostly common in areas where there is sloped land. With enough rain, landslides can lead to devastating destruction of houses, and natural items, like rocks and trees. One factor that contributes to the landslide is the type of soil that the building is built upon. Our experiment tested strengths of the main soil types in Southern California: loam soils, sandy soils, and clay soils. We used dirt to symbolize the loam soil, sand to represent the sandy soil, and gravel for the clay soils. We built one main building made out of Lego blocks that stood 30cm tall. We created two different land slopes with a 5 foot long gutter and several bricks. The first slope was 24.4 degrees, while the second slope was 31 degrees. We filled the gutter with one type of soil and placed the building inside. We sprayed water with a hose until the building toppled over. The building that lasted the longest time proved that the gravel was the strongest terrain out of the three. Each test was done with a building without a base and with a base. The buildings with a base generally lasted a longer time, proving that long bases do strengthen buildings during a landslide. We hypothesized that the strongest terrain was going to be the dirt because dirt tends to create a free draining system that soaks in water. Overall, our experiment helped investigate which type of soil type would have a stronger resistance and tolerance against landslides.	
<b>Abstract</b> To create the different slopes we used a gutter which we filled with the different terrains, and bricks. The rain was simulated with a hose. There was a total of 12 tests.	
<b>Methods/Materials</b> The buildings in gravel and with the spread foundation lasted more water.	
<b>Results</b> In conclusion, gravel and spread foundations are the most efficient ways to keep a building standing during a landslide. The gravel had spread our particles and the spread foundation provided more support.	
<b>Conclusions/Discussion</b> Our experiment tested the best terrain to build a landslide resistant structure with different foundations and slopes.	
<b>Summary Statement</b> Help Received	