



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> <b>Molly Mancina; Maya Pruthi</b>	<b>Project Number</b> <b>J1717</b>
<b>Project Title</b> <b>How Do the Mass and Height of Dominoes and the Distance between Them Affect the Speed at Which They Fall?</b>	
<b>Objectives/Goals</b> Our objective was to determine how the mass and height of dominoes and the distance between them would affect the speed at which they fell.	
<b>Abstract</b> <b>Methods/Materials</b> We set-up 20 mini dominoes each spaced $\frac{1}{5}$ of their height apart. Next, we knocked them over and recorded how long it took for them to fall with a stopwatch. We repeated these steps three times. We repeated this step spacing the dominoes $\frac{2}{5}$ and $\frac{3}{5}$ of their height apart. We continued this procedure by repeating all steps using regular and large sized dominoes. We are going to run this experiment using 3D printed dominoes to hopefully increase the accuracy of our results. Our materials included dominos, measuring tape with millimeters, iPhone Stopwatch, and a Leveler. We will also use a 3D printer.	
<b>Results</b> Three of our four graphs contain the speeds at which the dominoes fell when spaced different increments of their height apart. The mini dominoes fell, on average, at .36 seconds, when spaced apart $\frac{1}{5}$ of their height, .46 seconds when spaced apart $\frac{2}{5}$ of their height, and fell .92 seconds when spaced apart $\frac{3}{5}$ of their height. The regular sized dominoes fell, on average, at .5 seconds, when spaced apart $\frac{1}{5}$ of their height, .63 seconds when spaced apart $\frac{2}{5}$ of their height, and .79 seconds when spaced apart $\frac{3}{5}$ of their height. The large dominoes fell at approximately .6 seconds when spaced apart $\frac{1}{5}$ of their height, .86 seconds when spaced apart $\frac{2}{5}$ of their height, and 1.27 seconds when spaced apart $\frac{3}{5}$ of their height. Our other graph shows the effect of the mass and height of the dominoes when the distances were kept constant.	
<b>Conclusions/Discussion</b> Our hypothesis that the closer together the dominoes are, the faster they will fall, appears to be correct. We think this because the closer dominoes are to each other the sooner each domino hits the next. Our hypothesis that the mass of the dominoes would not affect the speed appears to be incorrect. As a general trend, the more massive the dominoes were, the longer it took them to fall. We think this was the result because the more mass the dominoes had, with the same force applied, the less acceleration the dominoes had.	
<b>Summary Statement</b> Our project tests how the mass and height of dominoes and the distance between them affects the speed at which they fall.	
<b>Help Received</b> Our parents helped pay for the dominoes.	