



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

<b>Name(s)</b> Francis Geng	<b>Project Number</b>  38400
<b>Project Title</b> Prolong Life of Roses: Cut Stem into Different Angles	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> This project is to test which angle of rose stem cut can increase the longevity of roses the most.</p> <p><b>Methods/Materials</b> 18 fresh uncut roses of same conditions harvested on the same day, 18 200 mL test tubes, an exacto knife, a protractor and distilled water.</p> <p><b>Results</b> The angles of the cut stem influenced the longevity of roses. Roses with 45-degree angle cuts preserved their freshness for a longer time compared to the roses with other degrees of angle cuts. The roses cut at a 45-degree angle lasted over 7 days while the next longest was 6 days for 60-degree angle group.</p> <p><b>Conclusions/Discussion</b> In the experiment, the three roses with 45-degree angle cut stems showed an average lifespan of 7.3 days, which is longer than the average longevity of all other groups in the experiment. My project is the first research about the relation between stem angle cut and rose longevity. My result will benefit florists who want to increase the longevity of roses. This method will bring immense economical profit to the ornamental flower market.</p>	
<b>Summary Statement</b> I discovered that 45-degree angle cuts benefit the longevity of roses the most.	
<b>Help Received</b> I used the test tubes, exacto knife and distilled water in the York School Biology Laboratory.	