



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Allison Phillips; Sophie Staker	Project Number J2022
Project Title That's the Way the Cookie Crumbles: Does the Type of Fat Used in Baking Affect How Crumbly a Cookie Is?	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this study was to determine whether different fats affect how crumbly chocolate chip cookies are.</p> <p>Methods Chose a recipe for chocolate chip cookies. Selected four different fats: butter, margarine, canola oil, and grape-seed oil. Baked the cookies, and weighed each one. Broke the cookies in half, and dusted away the excess crumbs. Weighed the cookies after breaking. Determined the amount of weight lost.</p> <p>Results Unsaturated fats (such as canola oil and grape-seed oil) lost less weight than saturated fats (margarine and butter). Grape-seed oil lost the least amount of weight, and margarine lost the most weight. The end weight loss was relatively close.</p> <p>Conclusions Fats with a lower concentration of fatty acids hold together better than fats with a higher concentration of fatty acids. When applied to baking, this means that cookies baked with unsaturated fats will not be as crumbly as those baked with saturated fats. This might help bakers and businesses that package cookies know which fat will hold together the best, so that the cookies aren't as likely to fall apart.</p>	
Summary Statement We baked cookies to discover whether the type of fat used will affect how crumbly the cookies are.	
Help Received Our science teacher clarified how we should format the graphs and tables, and provided the scale used to weigh the cookies.	