



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Shreya Kumar	Project Number 35201
Project Title Effect of Bilingualism on Problem Solving, Short-Term Memory, and Academic Success in Young Children	
Abstract Objectives/Goals The objective of this experiment is to see if learning a second language at a young age helps to improve a child's cognitive abilities. Methods/Materials I received permission from the school principal, kindergarten and first grade class teachers to conduct the experiment. I designed the questionnaire for parents consisting of questions about child's second language proficiency. The classroom teachers helped me to distribute the questionnaire and the Human Informed Consent Form to the parents. I selected three groups of kindergartners and first graders (monolinguals, receptive bilinguals, and productive bilinguals) based on their second language proficiency with eighteen children in each group. I collected three math test scores and three spelling test scores of all the children. With the help of the classroom teachers, I created and administered a problem solving and memory test for the participating children. I worked with a data analyst to analyze the data and results. More data is being collected. Results - Productive Bilinguals performed significantly better than Monolinguals in the areas of problem solving ($p=0.015$), short-term memory ($p=0.009$), and math ($p=0.007$) - Receptive Bilinguals performed better than Monolinguals in the areas of problem solving ($p=0.039$), and math ($p=0.096$) - Productive Bilinguals performed better than Receptive Bilinguals in the memory test ($p=0.037$) - For spelling, no significant difference was found between the groups Conclusions/Discussion The hypothesis of this experiment is supported by the data that has been already collected and analyzed. Productive and receptive bilingual children performed better than monolingual children in the areas of problem solving and math. It's interesting to note that no significant difference was found between the groups in spelling.	
Summary Statement Young monolingual, receptive bilingual, and productive bilingual children from similar socioeconomic background were studied to determine if learning a second language could boost a child's cognitive abilities and academic success.	
Help Received Kindergarten and first grade teachers, and mother's friend (Data Analyst).	