



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Carly R. Dion	Project Number J1210
Project Title CSI: Carly's Science Investigation. Fingerprint Patterns in Siblings	
Abstract Objectives/Goals The question I posed is will fingerprint patterns show similarity between siblings? After working with fingerprints for several weeks, when creating a title, a crime scene quickly came to mind. I was reminded of the popular television show CSI, but cleverly changed the acronym to Carly's Science Investigation. The purpose of my science project was to investigate similarities and differences in fingerprint patterns and therefore magnify my interest in genetics. Methods/Materials In this investigation, 10-15 pairs of sibling fingerprints are taken and 10-15 pairs of non-related fingerprints are taken. The right index finger is used for the best analysis and effect. The fingerprints are then analyzed and categorized by the patterns they form -- either loops, whorls, or arches. The data is then entered into a chart and/or graph to help compare and visualize where the similarities lie. The materials used are: an ink pad (black works the best), white paper, paper towel, moist towelettes for cleaning hands, a magnifying glass, and consent forms. Results I analyzed fingerprints of 13 pairs of siblings and 13 pairs of non-related people and discovered something very fascinating. Nine out of the 13 pairs of siblings had the same fingerprint category on their right index finger. Three of those were arches; three were loops; and three were whorls, proving that it was no coincidence. Interestingly enough, four out of the 13 fingerprints of those who were unrelated had matching fingerprint patterns, but they all happened to fall under the loop category, which is the most common pattern. Conclusions/Discussion My hypothesis was correct. Fingerprint patterns do show similarity between siblings. Fingerprints may be unique, but fingerprint patterns will often lie within the same category as a sibling. Because fingerprints are used in the criminal investigation field, this information could be helpful to all the federal and local agencies that investigate and solve crimes. Any information obtained about fingerprints would also be helpful in the recovery of missing persons. In the future, this information could be useful to trace and track ancestors. Therefore, the fields of criminal justice and genealogy can be enhanced from this information.	
Summary Statement Although every fingerprint is unique, genetics does play a role, as similarities do exist in the fingerprint patterns of siblings.	
Help Received Mrs. Ligeti helped formalize my ideas and taught me how to conduct a science investigation; parents drove me to get fingerprint samples from neighbors and friends; my mom made several trips to get supplies for my board.	