CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
Arielle B. Hansen

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22260

Project Title
Twins: More Similar than One Would Think: A Study of Fingerprints

Abstract

Objectives/Goals
I investigated to see if twins, identical and fraternal, had any similarities between fingerprints. If we found out how similar twin#s fingerprints are, we would know how specific fingerprint identification tests have to be; whether being able to read the basic outline is enough, or if reading all of the typical and furrows is also necessary. My hypothesis was that both types of twins would have similar fingerprints. The most similar part would be the basic outline, and identical twins would have the most similar fingerprints because they come from the same egg, have the same genetic build-up, and a similar growing environment, where the fingerprint is developed. Identical twins are also 95 percent identical to each other. Fraternal twins will still have similar prints, although not as similar as identical twins, because they are more related than regular siblings and have a similar growing environment.

Methods/Materials
To do the actual experiment, I had to find twenty-five sets of twins. When getting prints, I would collect the fingerprints by preserving them with inkless ink onto a card divided into 4 sections. I also paired up non-related people and took their fingerprints so that I could compare the relationship between their fingerprints to that of twins. After this, I classified each into one of nine types using a magnifying glass. As an extension, I collected the fingerprints of the siblings of the twins previously collected to see if similar prints were limited only to twins.

Results
The data collected showed just how similar twin#s fingerprints are. Of the twins# fingerprints I collected, 28 percent of all the twins had the same classifications for both hands. Fifty percent of the identical twins had the same classifications and 20 percent of the fraternal twins did. Zero non-twins met these requirements. Sixty-eight percent of all twins had similar fingerprints, with 100 percent of identical twins and 47 percent of fraternal.

Conclusions/Discussion
I concluded that twins do have similar fingerprints. The results show that twins are even more identical than one might think. Even though scientists doubt that two identical pairs of fingerprints will be found, we now know that twins would most likely be the ones whose fingerprints would be the same. Also, fingerprint tests will have to be very precise, because for most twins, a quick analyzation will not be enough to tell them apart.

Summary Statement
The comparison of fingerprints between twins to see the similarities.

Help Received
Lori Roeder, school teacher, collected five prints from her students.