Testable Question:

How do sibling fingerprints and twin fingerprints compare?

Prediction:

I think that since identical twins are identical, they will have more similarities than siblings because they are not identical.

Procedure:

1. Find test sub
2. Give each test subject their permission slip and have them bring it to you signed
3. Once they bring you the slip, have them dip their finger in the ink pad
4. Have them place their finger with the ink on the fingerprint data paper
5. Repeat this process with each set of siblings/twins

Background:

I chose this project because…
I was interested in the differences and similarities between Twins and siblings, and fingerprints seems like an interesting way to measure the difference.

In my research I found out that…
There are three different types of fingerprints: whorl, loop, and arch
How to collect fingerprints: dip finger in ink and put it on paper, it will leave a stamp of the fingerprint. To avoid smudging, make sure that you lift the finger completely before removing it. Fingerprints never change.

This project is important because it is helpful to understand the difference between sibling and twins fingerprints so that we know when we identify siblings or twins by fingerprint, whether or not we will know which sibling or twin the fingerprint belongs to.

Constant Conditions:

Independent Variable:
Siblings and twins

Dependent Variable:
Fingerprints

Constant Conditions:
Measuring their fingerprints with same ink, putting their fingerprints on the paper

Data and Trials:

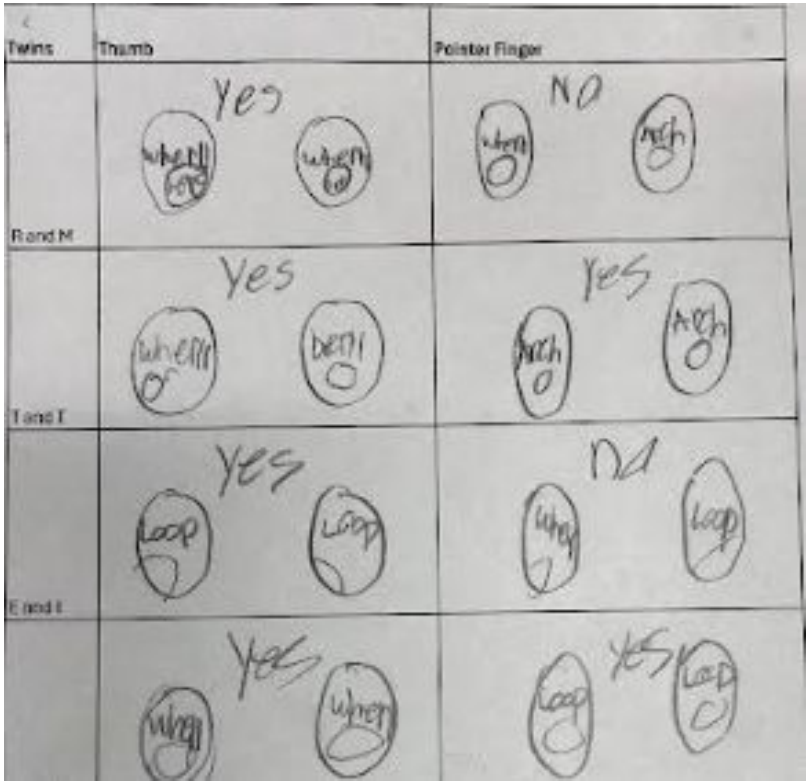
According to my data 5 out of eight times twins will have the same fingerprints. siblings will have the same fingerprints two out of eight times zero times people who are not blood will not have the same fingerprint.

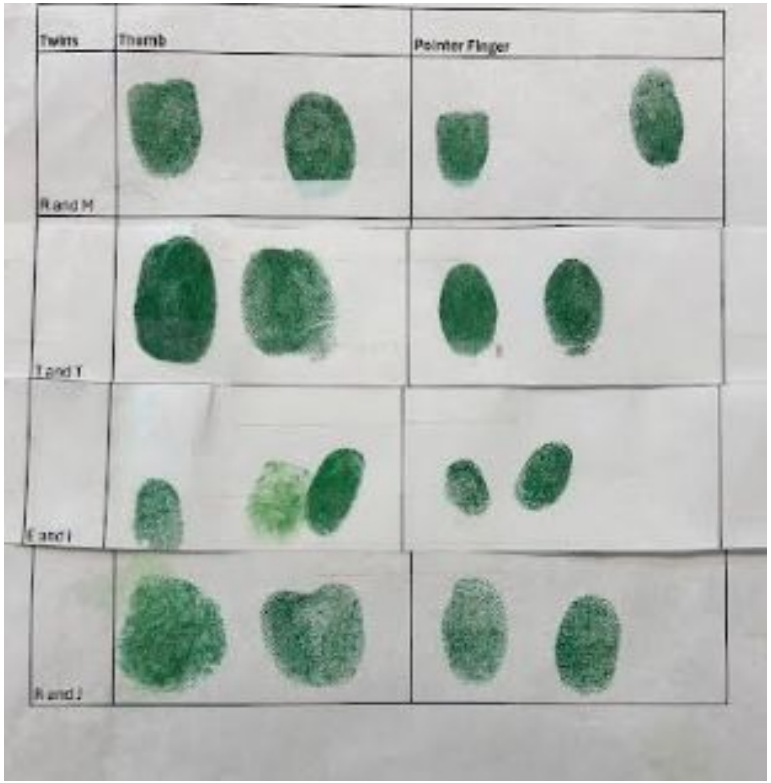
Control

	Thumb	Pointer finger
Control person 1		
Control person 2		

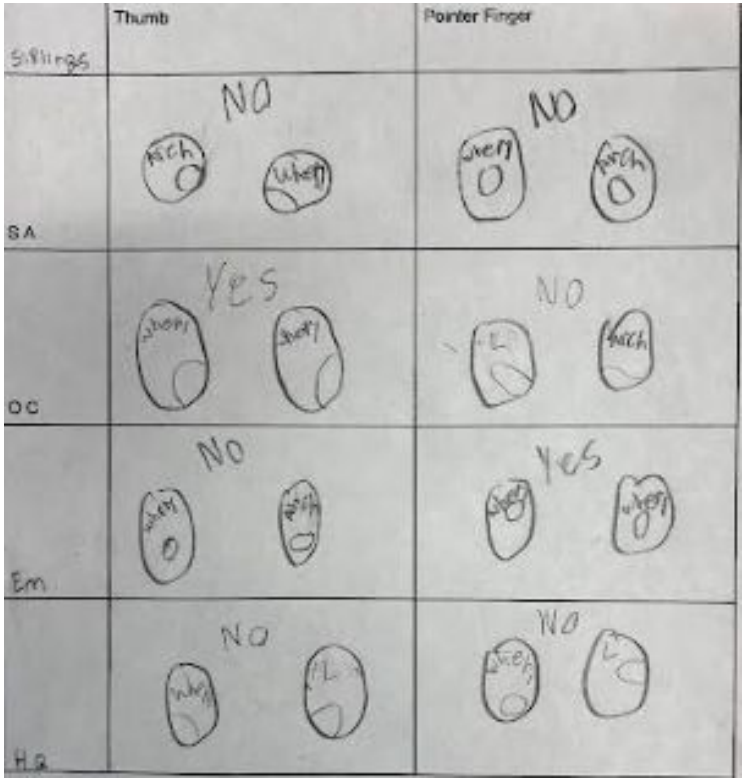
	Thumb	Pointer finger
Control person 1		
Control person 2		

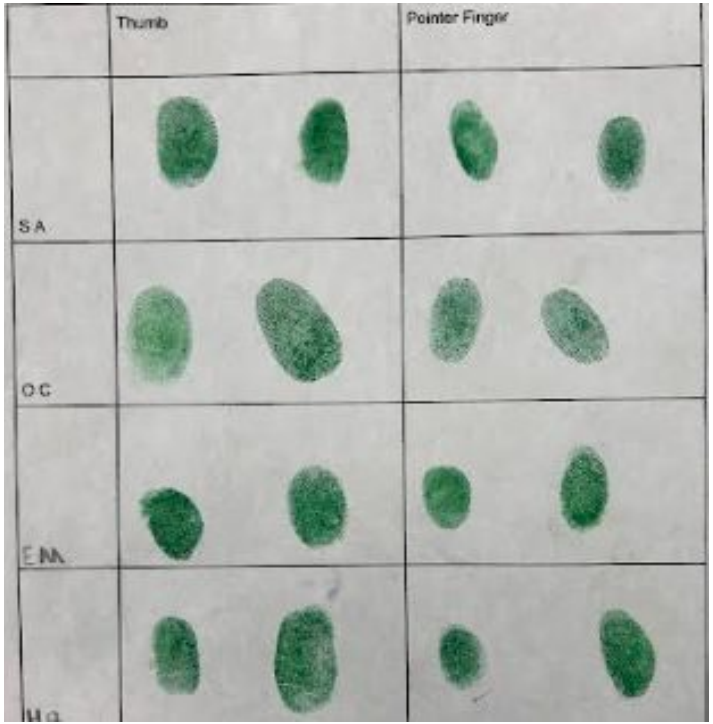
Twins


Twins
Thumb
Pointer Finger
Yes
NO
R and M
Yes
Yes
T and T
Yes
E and E
Yes
R and J


Twins
Thumb
Pointer Finger
R and M
T and T
E and E
R and J

Siblings


Siblings
Thumb
Pointer Finger
SA
NO
NO
OC
Yes
NO
EM
NO
Yes
HG
NO
NO


Thumb
Pointer Finger
SA
OC
EM
HG

Conclusion and Reflection:

I found out that…

Twins fingerprints are more like than siblings witch knowing this could come in handy if one twin committed a crime and I thought it was the other twin.

I was surprised that…

I wasn't surprised by much this was my prediction the only thing that shocked me a little bit was that two out of eight siblings have very similar or the same fingerprints.

If I did this project again…

I would probably do identical twins and fraternal Twins and then I compare the results from each project

Safety:

To make sure that all my participants and I were safe I had a consent form that the participants had to sign and if under 18 adults had to sign too. I also used non-toxic and washable ink to take all the fingerprints.

Citations

How to record fingerprints
https://le.fbi.gov/science-and-lab/biometrics-and-fingerprints/biometrics/recording-legible-fingerprints#:~:text=Roll%20each%20finger%20from%20nail,the%20fingerprint%20in%20its%20space.

Types of fingerprints
https://dps.mn.gov/blog/Pages/20170327-blog-fingerprints.aspx#:~:text=Although%20every%20fingerprint%20is%20different,is%20reminiscent%20of%20a%20whirlpool.

Do fingerprints change
https://www.scienceabc.com/humans/fingerprints-unique-change-age-alter-crime-diseases-identification-biometrics.html