

Name _____ Date _____

POINTING OUT PERPETRATORS

A Lab on Identification of Fingerprints

Objectives

You will collect and preserve fingerprints.

You will analyze and identify fingerprints.

Background Information

When Mr. Crowe walked into his science class, he was surprised by a birthday cake topped with an incredible number of candles. Students broke into an off-key rendition of "Happy Birthday" and gave him a standing ovation.

"For the first time, I'm speechless," Mr. Crowe said. "I can't believe you guys prepared this birthday surprise for me. Do you really think I need all of those candles?! Before we eat, tell me who brought the cake, dishes, forks, napkins, and drinks? I want to thank you personally."

No one spoke as Mr. Crowe looked around the room, waiting for a response. "What's the matter? Are you bashful? Who brought all of this good stuff?"

Still the students smiled and remained silent. Mr. Crowe was amused, and decided to make the best of the situation. "OK, let's try something. The birthday party conspirators moved some glass slides from the table to set up the cake. I think we can use these slides to identify our modest hosts."

Materials

- Glass slides with fingerprints of each student
- Rubber gloves
- 1 large aquarium
- 1 12-ounce aluminum can, top half removed
- 60-volt light bulb
- Light socket and cord
- Super Glue®
- Piece of plywood large enough to cover aquarium
- Forceps
- Paper towels
- Clean white paper
- Transparent tape
- Pencil and paper
- Tape or labels

Procedure

1. Your teacher has set up a large aquarium for Super Glue® fuming. The aquarium is equipped with a light bulb inside an aluminum can to heat the Super Glue®. Fumes from the glue “fix” the invisible fingerprints on the slide so that they can be seen. Several sets of the “Party Conspirators” prints have been found on glass slides. The slides have been placed in the aquarium, where they must remain for 15 minutes. CAUTION: Do not breathe fumes.
2. Make a fingerprint identification sheet of everyone in your class.
 - a. Turn a pencil sideways and rub a thick spot of graphite on your paper with your pencil.
 - b. Place your right forefinger in the graphite, rolling it firmly from right to left.
 - c. Hold up your right index finger so that your lab partner can place a strip of clear tape on the graphite.
 - d. Then gently remove the tape and stick it to a sheet of white paper.
 - e. Label this print with your name.
 - f. Repeat steps *a* through *e* for everyone in your class so that your paper has a sample of everyone’s right index fingerprint.
3. Remove one of the glass slides from the aquarium. A print should be visible on the slide. Be careful not to smear or destroy the print.
4. Compare the print on the slide to the set of prints you have taken from the class.
5. When you find a match, write the name of the conspirator on the next sheet.
6. Also describe on the next sheet each conspirator’s print as a loop, whorl, or arch.
7. Examine the prints of your classmates and classify them as loops, whorls, or arches.
8. Determine the percentage of loops, the percentage of whorls, and the percentage of arches in the class and enter that information on the Data Table. To find percentage, divide the total number of students into the number of students with that type of print.

Names of party conspirators _____

Types of prints _____

DATA TABLE

Number of students in class with loops, whorls, and arches.

	<i>Loops</i>	<i>Whorls</i>	<i>Arches</i>
Number of students			
Percentage of students			

Postlab Questions

1. What was the most common type of fingerprint in your class?

2. Are the percentages of students with each type of print similar to the worldwide percentages?

3. Why do crime scene technicians collect fingerprints?

4. What are some reasons a parent might want to have his or her child fingerprinted?
