Lab - Revealing Latent Fingerprints

Use the background information and instructions provided to help you complete the lab activity below and answer the analysis questions

Fingerprinting - Data and Results

NAME: _____ DATE: _____

PARTNER(S): _____ BLOCK:_____

Fingerprinting Powders

Answer the following AFTER reading the background and instructions for Fingerprinting Powders.

1. What fingerprint patterns do your fingerprints have? Reference your ten-card sheet

LEFT HAND

Thumb	Index Finger	Middle Finger	Ring Finger	Little Finger

RIGHT HAND

Thumb	Index Finger	Middle Finger	Ring Finger	Little Finger

2. Focus on a **single fingerprint.** Detail some of the minutiae in that fingerprint. Use the "balloon method" shown in class to magnify the print. (We have already done this - just copy the information over)

3. Rank your lifted fingerprint from the **fingerprinting powder** on the Likert scale 0-5. Circle your choice
   - 0: no print
   - 1 - some evidence of reaction but no clear ridge lines
   - 2 -can see some ridges but cannot make out minutia
   - 3 -can see some minute characteristic but only a portion of the print
   - 4 -can identify the type of print and several minute characteristics but some of the print is unclear
   - 5 - as good as high quality inking

4. How many points of the lifted fingerprint were you able to match to the inked fingerprint? How did the lifted print compare to the inked fingerprint? Describe the appearance of the lifted print.

Superglue Fuming

Answer the following AFTER reading the background and instructions for Superglue Fuming.

5. Describe what the print looks like and the quality of the minute characteristics.

6. Rank the **superglue fuming developed fingerprint** on the Likert scale 0-5. Circle your choice.
    - 0: no print
    - 1 - some evidence of reaction but no clear ridge lines
    - 2 -can see some ridges but cannot make out minutia
    - 3 -can see some minute characteristic but only a portion of the print
    - 4 -can identify the type of print and several minute characteristics but some of the print is unclear
    - 5 - as good as high quality inking

7. With what component of the **fingerprint residue** does the **cyanoacrylate** bind?

8. Does the chemical method alter or destroy the evidence for possible future testing? If so, how?

9. Fill out the row for “Superglue Fuming” in Table 1 on your response sheet using the background information, the instructions, and your personal experiences using this method to develop a latent print.

Iodine

10. Describe what the print looks like and the quality of the minute characteristics.

11. Rank the **iodine** developed fingerprint on the Likert scale 0-5. Circle your answer.
    - 0: no print
    - 1 - some evidence of reaction but no clear ridge lines
    - 2 -can see some ridges but cannot make out minutia
    - 3 -can see some minute characteristic but only a portion of the print
    - 4 -can identify the type of print and several minute characteristics but some of the print is unclear
    - 5 - as good as high quality inking

12. With what component of the **fingerprint residue** does the **iodine** bind?

13. Does the chemical method alter or destroy the evidence for possible future testing? If so, how?

14. Fill out the row for “IodineFuming” in Table 1 on your response sheet using the background information, the instructions, and your personal experiences using this method to develop a latent print.

Silver Nitrate

Answer the following AFTER reading the background and instructions for Silver Nitrate Development.

15. Describe what the print looks like and the quality of the minute characteristics.

16. Rank the **silver nitrate developed fingerprint** on the Likert scale 0-5. Circle your choice.
    - 0: no print
    - 1 - some evidence of reaction but no clear ridge lines
    - 2 -can see some ridges but cannot make out minutia
    - 3 -can see some minute characteristic but only a portion of the print
    - 4 -can identify the type of print and several minute characteristics but some of the print is unclear
    - 5 - as good as high quality inking

17. With what component of the **fingerprint residue** does the **silver nitrate** bind?

18. Does the chemical method alter or destroy the evidence for possible future testing? If so, how?

19. Fill out the row for “Silver Nitrate” in Table 1 on your response sheet using the background information, the instructions, and your personal experiences using this method to develop a latent print.

Analysis:

1. Summarize your results on the table below. Some have been filled in for you:

Method	Principle	Use on:	Advantages	Disadvantages
Fingerprint Powder	Adherence of fine powder particles to the moisture and oils in fingerprints			
Cyanoacrylate vapor (super glue)			Can be used on a wide range of surfaces. Produces stable and long-lasting results that can easily treated to enhance	
Iodine Fuming				Brownish print fades quickly; must be photographed or sprayed a starch solution; Iodine can be toxic to inhale; Best on fresh prints
Silver Nitrate Physical Developer		paper, cardboard, plastics and unvarnished, light-colored woods.		

Based on what you have learned, read each scenario below and determine which latent fingerprinting method you would use and why.

2. An alleged 16th century map is discovered. Historians would like to authenticate the map. They would like to see if there are latent prints on the map they can use to map back to the suspected cartographer. Which chemical method would be the best to use and why?

3. A body is found in the woods. There is little evidence except a soda bottle nearby. Although the bottle could be unrelated trash, the police want to rule out the possibility that it belongs to the perpetrator. They hope there may be latent prints that can be recovered. Which chemical method would be the best to use and why?