

Name _____

The Disappearing Fingerprints

Read the *Mystery Matters* article “The Disappearing Fingerprints” by Deborah Noble. Fill in the following as you read the article.

Introduction

- 1) What are the four simplest methods of developing fingerprints?
- 2) Who ended up kidnapping the 8 year old girl in Knoxville according to the local police?
- 3) How many days after the kidnapping did police find the green car?
- 4) When police dusted the car, what parts of the car did they dust?
- 5) How many fingerprints did they find when doing so?
- 6) Did fuming with superglue work to find her fingerprints?
- 7) How were police able to link the girl to the car and its owner?

Latent Prints

- 8) What is a latent print?
- 9) What nonporous surfaces are latent prints more likely to smear, fade or wash away?
- 10) Where have fingerprints been found to last for more than 20 years?
- 11) When the senior criminologist had his grandnephew put his fingerprints in the car, when could he easily dust and find them? When could he not find them?
- 12) For the toddler that had been kidnapped, murdered and left in bushes by her killer, what print did police find and where was it?

13) Bohanan used glass bottles and varying conditions to study how long children's fingerprints would last compared to adult fingerprints. What did he find – how long did they last and when did they disappear by?

Lightweight Molecules

14) What was about the compounds in children's fingerprints that possibly could explain for their disappearance?

15) Residue that is deposited by fingerprints is 99% from what?

16) What makes up the other 1% that is left behind in a fingerprint?

17) To study fingerprints, the investigators gathered fingerprint oil from volunteers who ranged in age from 4 to 46. What instrument was used to analyze the samples?

18) Once analyzed, the rapid disappearance of child fingerprints became clear. Fingerprint samples from adults and older adolescents contained mostly what?

19) Once analyzed, the rapid disappearance of child fingerprints became clear. Fingerprint samples from children contained mostly what?

20) Why are the fingerprints from children more likely to evaporate faster - what was it about the molecules that caused them to evaporate quicker?

21) Before puberty, what is not present on children's faces that teenagers' and adults' produce?

22) Children's prints contain large amounts of cholesterol; why doesn't this help when trying to find the fingerprints?

Developing Latent Fingerprints

23) What is the fine powder usually used when dusting for fingerprints? How soon after the crime does it need to be used?

24) Silver nitrate solution react with what in sweat to form silver chloride?

25) How is iodine used to visualize fingerprints? What type of surfaces are best?

26) When sprayed, Ninhydrin reacts with nitrogen in amino acids and proteins. After heating, what color does the fingerprint appear?

27) Why can UV lights be used to visualize fingerprints?

28) What does superglue react with that allows it to coat a latent fingerprint with a thin protective plastic layer?