SI Forensics - Full Discipline Demo

Trace Evidence

Final Report - Answer Guide

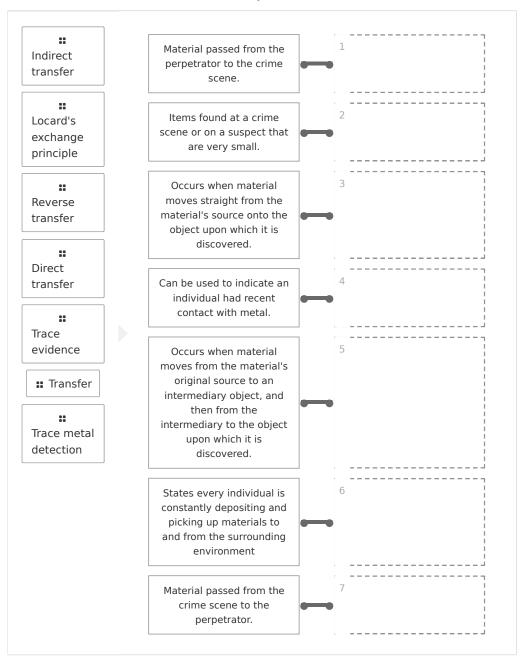
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Instructor Sales SI Demo

Test Your Knowledge



Match each term with the best description.



Correct answers:

- 1 Transfer 2 Trace evidence 3 Direct transfer
- 4 Trace metal detection 5 Indirect transfer
- 6 Locard's exchange principle 7 Reverse transfer



Classify each statement regarding trace metal detection as true or false.

Different types of metal cannot be differentiated using trace metal detection.

All trace metal detection fluids require visualization with UV light.

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Trace metal detection can be used to differentiate between someone who only handled a gun and someone who fired a gun.

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Trace metals can only be detected within a few hours of the contact between the skin and the metal.

Trace metal detection is used to determine where a gun was held against the body.

True	False
1 1	Δ
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l	

Correct answers:

1

Trace metal detection is used to determine where a gun was held against the body.

Trace metal detection can be used to differentiate between someone who only handled a gun and someone who fired a gun.

2

Trace metals can only be detected within a few hours of the contact between the skin and the metal.

Different types of metal cannot be differentiated using trace metal detection.

All trace metal detection fluids require visualization with UV light.

Exploration



Which of the following would not be classified as trace evidence?		
O Hair		
A gun	~	
Foreign soil		
Fingerprints		
Which of the following would not be classified as trac	ce evidence?	
Hair		
A gun	~	
Foreign soil		
Fingerprints		
Only someone who had recently held a gun would yie a TMDT. True False	eld a positive result for	
Exercise $f 1$ How many sources did the materials found on your clothing $f c$	ome from? Was the number of	
sources higher or lower than you expected?		
Student answers will vary. Students will most likely find materials sources.	from at least two different	



Explain how you were able to determine exactly where some of the material found on your clothing came from.		
and and a management of the damper about a damper and a d	af out at a middle man such a through	
cudent answers will vary. Students should use their knowledge contact with during the day to determine the source of the ma		
y is it important to start with clean clothes when doing th	iis experiment?	
is important to start with clean clothes because otherwise the ready contain embedded objects from a location not visited the		
Data Table 1: Record of materials found on items of clothin	ng	
m of Clothing	Material Recovered	
udent data will vary, sample data provided. Sweater	Dog hair, human hair	
cks	Dog hair, thread, dirt	
ans		
cks	Dog hair, thread, dirt	
ercise 2	Dog hair	
cercise 2 nat differences did you observe with the trace metal detected and serve with the trace with the trace metal detected and serve with the trace with the trac		
at differences did you observe with the trace metal detec		
at differences did you observe with the trace metal detec		

Describe a situation where the trace metal detection test could be used in a criminal investigation.		
What do you think the results would look like if you only held the metal pieces for a few seconds?		

Photo 1: Left hand (SAMPLE ANSWER BELOW)



Photo 2: Right hand (SAMPLE ANSWER BELOW)



Competency Review

Reverse transfer		
Direct transfer		
Indirect transfer	~	
Inverse transfer		
ocard's exchange principle concerns tra	ace evidence.	
True	•	
○ False		
Trace metals can be detected on the skir	up to after contact with	
O 1 hour		
4 hours		
O 24 hours		



Trace metal detection solution utilizing 2-nitroso-1-naphthol yields an instant reaction when exposed to various metal ions without requiring visualization using UV light. True False	~
Environment has no bearing on the trace evidence found on clothing.	
○ True	
○ False	*
When examining an article of clothing for trace evidence, the garment should be shaken vigorously to release all of the trace evidence it contains	ins.
○ True ○ False	*
Metal ions transfer to skin more readily if moisture is present.	
○ True	~
○ False	
Which of the following were you able to determine with the trace metal detection test used in Exercise 2?	
The type of metal	
The duration of contact between the metal and the skin	
The shape of the metal object held	~
The color of the metal object held	

Extension Questions

Use what you know about trace evidence to explain why it is so important for crime scene investigators to utilize personal protective equipment such as gloves, hairnets, and booties. (SAMPLE ANSWER BELOW)



Personal protective equipment must be worn by crime scene investigators to prevent contamination of the crime scene. Locard's exchange principle states that every individual is constantly depositing materials to the surrounding environment. The use of personal protective equipment reduces the amount of transfer that may occur from the crime scene investigators to the crime scene, keeping it as pristine as possible.

