Physical Evidence Guided Notes

The ______ states that "with contact between two items, there will be an exchange." For example, burglars will leave traces of their presence behind and will also take traces with them. They may leave hairs from their body or fibers from their clothing behind and they may take carpet fibers away with them.

Physical and chemical analysis of ______ (chips or residue) can indicate it's _____, such as automobile paint, house paint, nail polish, etc. The evidence can be compared to 40,000 different types of paint classified in a database, which can be used to identify a particular make or model of car or brand of tool.

| Paint evidence can also indicate | if an investigator is able to find |
|---|--|
| similarities between two samples, such as the | _, number of layers, chemical composition, or a |
| between the edges of two | p paint chips – one from a tool and one from a crime |
| scene. | |

_____ can be found at various crime scenes, such as breaking and entering, hit and run, vandalism, or murder.

Glass at a crime scene is analyzed to determine its ______, surface characteristics, _____, thickness, density, chemical composition, and refractive index (RI).

The results of the tests provide clues about the crime and help investigators connect the evidence to a suspect or other object used in a crime, such as matching glass from a crime scene to ______

_____ can be examined to determine its chemical composition to identify the type of ______ used and its origin.

Traces of explosives found on a suspect's _____ may be matched to explosives from the crime scene.

• Materials used to make an ______ will be compared to evidence found in the suspect's possession to confirm a match.

Characteristics of ______ are examined to find matches between suspects and the evidence found at a crime scene.

• Chemical tests can reveal ______ (GSR) on the hands, face, or clothing of a victim or suspect to indicate how close a person was to a fired gun.

• Rifling (grooves) in a gun barrel causes distinctive grooves, indentations and scratches upon fired bullets, which can be matched to the weapon that fired them.

Police are able to search the ______ (IBIS) database to compare markings from bullets, cartridge cases, and shotgun shells to ballistic evidence

| | evidence car | n reveal where a person has traveled and may be |
|--|--|--|
| picked up at a crime scene or left bel | hind. | |
| Investigators examine the samples | for chemical composition |) |
| , a | nd other organic matter t | o find links to a specific crime scene. |
| There are 3 types of fingerprint patte | rns: | . Investigators |
| also identify unique | characteristics | in a fingerprint that can be used to identify a |
| suspect or victim. | | |
| • AFIS (| |) is a database used by investigators at |
| local, state, and national levels to sea | arch for matches to finge | rprints found at a crime scene. |
| | can be photographe | d, lifted with tape, or cast with plaster to compare |
| to a suspect's | · | |
| • Investigators will examine the evide | nce to identify the | based on its |
| a | nd other physical feature | s to provide leads in the case. |
| Shoes and tires will also show | | after being used for a period of time as |
| well as other features (|)` | hat can be used to match evidence to specific |
| items. For example, shoeprints can b | e matched to a suspect | based on how the treads on the shoes that are |
| worn down due to that person's | | |
| Each of the ii | n humans is unique due | to age and wear. |
| Impressions and photographs of | le | t on a victim, assailant, or other object at a crime |
| scene can often be matched to | records | |
| Tiny fo | orm on the edges of a to | ol as it is used, which can be used to identify |
| matches between evidence and susp | ects. | |
| Tools may also pick up traces of | or ot | her substances that can be tested or have |
| fingerprints that can be lifted. | | |
| When an object broken, torn, or cut, | two unique edges are fo | med, which are referred to as |
| These edges can be compar indicates that they may have | ed by the naked eye or v been part of the same ol | vith microscopes to see if they fit together , which bject at one time. |
| Investigators may compare the edg accident, paper bag, etc. to find poss | es on pieces of tape, gla ible matches. | ss fragments, paint chips, pieces of a car from an |
| can often be | matched to weapons or | tool marks on the weapon. Investigators may |
| also be able to determine the weapon | n's size, shape, and leng | th. |
| Analysis of a | may provides clues | o a victim's injuries, characteristics of the suspect |
| (| etc.), and | of the victim and suspect at the time of |
| the incident. | | |
| Examiners will analyze a | | to find clues to link it to a crime scene |
| or a specific suspect. They will analy | ze the | used, printing method or |
| , and t | ype of ink. | |
| Other unique features, such as | | on stationary or indentations made as |

someone wrote on a page in a notebook, may provide useful clues.

Flies, beetles, and other insects can provide useful clues about a _____

_____ use factors such as weather conditions, the location and condition of the body, and their knowledge of the life cycles of insects to help them estimate the postmortem interval or ______(the time between death and the discovery of the body).

Investigators can extract ______ from almost any tissue, including hair, fingernails, bones, teeth and body fluids. The DNA is used to create a ______ that can be compared to profiles from suspects or victims.

• _____ (Combined DNA Index System) is a database maintained by the FBI that is used to find matches to unknown DNA samples from a crime scene.

_____ analyze skeletal remains to determine four characteristics for a

victim)

- Determined by examining the pelvis, humerus, and femur
- Determined by analyzing the development of the teeth, bone growth, and the length of specific bones, such as the femur.
- Determined by analyzing the skull for characteristics that are common among people of different races.

• _____es can be collected from bone, teeth, and hair to provide clues to a person's identity. Scientists may also be able to gain clues as to a person's past, ______, or the ______ based on bone fractures and other signs of trauma.

_____ can be analyzed to give investigators information about the crime as well as its victim or the suspect.

• Chemicals and ultra violet light can be used at a crime scene to find ______. Areas with potential evidence are swabbed, bagged and collected in vials, which are air tight and have a low risk of cross contamination.

_____ may be transferred from the suspect or the suspect's clothes to the victims' and vice versa. For example, a suspect may pick up ______ on his shoes or leave hairs behind at a crime scene.

• Hairs can be examined to identify their origin, such as ______. Hairs with roots intact can be tested for _____.

• _____ are used to make clothing, carpeting, furniture, beds, and blankets. They may be ______ from plants or animals or ______ fibers that are man-made.

Observe the following image. Circle and label by number which articles you would collect. Explain why you would collect these articles and what you would test them for? .



Assignment 1: What evidence would you collect? A Physical Evidence Challenge

