Make Your Mark

Forensic Science Tool Mark Lab

A tool mark is any indentation, abrasion, or cut caused by a tool on another object. For example, if you attempted to pry open a locked window with a screwdriver, the screwdriver would leave a tool mark on the window and the windowsill.

Tool marks are most often found at burglary scenes where there was forced entry. These marks are actually impressions in wood or other material. Close examination of the impressions can reveal the size and shape of the tool. In some cases, scratches, nicks, and breaks on a tool can help an investigator individualize a particular mark and the tool used to make it.

When feasible, investigators carry the material bearing a tool mark to the forensic lab. However, when this is not possible, they photograph the tool mark and make a cast of it. Investigators then test several types of tools to see if they can make a similar mark. By comparing the crime scene tool mark with several test tool marks, investigators can sometimes determine what kind of tool was used in the crime. If they are very lucky, they can use some unique characteristics of a tool, such as scratches or breaks, to identify it as the one used in the crime.

Several tool mark impressions have been collected from various crime scenes and brought into the lab for you to analyze. Investigators have also collected several tools that they believe made the marks. Your goal is to use the distinct characteristics of tool marks to match the impression from each crime scene to the correct tool that made the mark.

**Procedure**:

1. Make an impression of each tool in the modeling clay.
2. Compare each impression to the impression taken from the crime scene.
3. Use the distinctive marks on each to determine which of the suspect’s tools made the crime scene tool mark.
4. Record your match in the data table below and provide a description of the characteristics that led you to your conclusion.
5. After matching each tool mark, complete the analysis questions on the back of this page.

|  |  |  |
| --- | --- | --- |
| Station (Crime Scene Tool Mark) | Suspect Tool Mark (match) | Description of matching characteristics |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Analysis Questions:**

1. What is a tool mark?
2. Where are tool marks most often found and why?
3. What do investigators do when they cannot take the material from the crime scene that has the tool mark in it?
4. Can investigators identify a specific tool that was used in a crime?
5. What characteristics of tool marks were most useful in order to successfully match a crime scene impression to a known impression? Why?