

Ballistics Match

Introduction

When cartridge shell casings are recovered from a crime scene, they are photographed and compared to NIBIS records to determine if these casings match any found at previously committed crimes. This allows investigators to link a series of crimes to the same perpetrator. Shell casings can demonstrate certain identifying markings, such as ejector marks, breech marks, and firing pin impressions. In this activity, you will compare the firing pin impressions. Your comparison should include:

- Caliber of the cartridge
- Headstamp marking of the manufacturer
- Location of the firing pin strike
- Description of the unique firing pin characteristics



Scenario

A recent string of gas station robberies have taken place in the area. In each case a man has walked in, threatened the clerk, fired a series of warning shots, and then made off with the money. Three possible suspects have been apprehended in connection to the crimes.

Materials

Pencil
lab sheet of firing pin photographs
hand lens
stereomicroscope

Procedure

1. View each shell casing with a hand lens or stereomicroscope to determine each of the following: the caliber, headstamp, location of firing pin strike (center or rim), and description of firing pin marks. Record your data on Data Table 1.
2. Using a pen or pencil, circle or mark the unique patterns on each casing.
3. Using the three cartridge casings from the three suspects and your information from Data Table 1, determine if any of the crime-scene casings match casings from the suspects.



Suspect 1



Suspect 2



Suspect 3

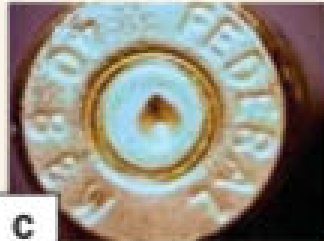
	Suspect 1	Suspect 2	Suspect 3
Caliber			
Headstamp Markings			
Location of Firing Pin Strike			
Description of Mark			



A



B



C



D



E



F



G



H



I



J



K



L

Final Analysis:

1. Of the three suspects, which one(s) could you link to the crimes? Describe the specific characteristics that allowed you to make this determination.
2. Based on the shell-casing matches, which of the three suspects could *not* be linked? Describe the specific characteristics that allowed you to make this determination.
3. If you were a prosecuting attorney, what argument could you provide to the defense's claim that "if a suspect's cartridge shell casings were *not* found at a crime scene, he must be innocent"?
4. Research the Washington, D.C. sniper case mentioned at the beginning of the chapter. Explain how ballistics evidence was used to link the two suspects to the serial killings.