

Name _____ Date _____

CASTING FOR EVIDENCE

A Lab on Making and Evaluating Shoe Print Impressions

Objectives

You will make a cast of a shoe impression.

You will use this cast to determine whether the suspect's shoe matches prints taken from a crime scene.

Background Information

Brandon's Burger Bonanza was robbed late Saturday night several hours after closing. When police arrived, they parked a few yards away from the restaurant. Then they surrounded the area with yellow crime scene tape to preserve the evidence.

Since on-lookers had been kept at bay, some valuable print evidence was found at the restaurant. A light rain had fallen about closing time. In the soft dirt, the robber's shoes left neat impressions by the back door. Investigators need a copy of those impressions to determine what size shoe the assailant wore, and what unusual markings might be found on his or her shoes.

Materials

4 suspect footprints

Ruler

An impression of the thief's footprint in clay or soft soil

Stereomicroscope

Plaster of paris

Casting frame (*optional*)

Water

Procedure, Day 1

- If you are using a casting frame, place it around the footprint:
 - Arrange the four pieces of plank around the footprint, getting as close to the print as possible without distorting it.
 - Press the pieces of plank into the soil to a depth that is as deep as the print.
 - Have the ends of the planks adjoin so that they form corners.
- Place enough water (estimate) in a mixing bowl to fill the cast. Add powdered plaster of paris, stirring constantly, until the water and plaster reach the consistency of pancake batter. If the mixture is too thick, add more water. If it is too thin, add more plaster.
- Holding the bowl over the impression to be cast, pour the liquid plaster of paris

Allow the cast to sit about 30 minutes, then remove it. You should have a perfect, opposite impression of the shoe print.

Before the cast completely dries, mark your name and the date on it with a stylus.

Let the cast dry overnight.

Procedure, Day 2

Gently rinse any adhering soil from the cast.

Compare the cast you made with the four suspect footprints. To positively match your cast to a print, you must find twelve points of comparison that are the same. For example, if you find that your cast and one of the prints have the same tread pattern, that is one point of comparison that is the same. If you find that your cast and one of the prints show a tear on the heel, that is a second point of comparison that is the same.

As you compare your cast with the suspect's prints, list all points of comparison that are the same for the cast and each of the four prints. Record these points in the Data Table. Some points have been listed in the first column. As you study the prints and cast, add more points to this column.

DATA TABLE

Points of comparison between cast and prints that are the same.

<i>Points of comparison</i>	<i>Print 1</i>	<i>Print 2</i>	<i>Print 3</i>	<i>Print 4</i>
tread pattern				
tear				
depth				

Postlab Questions

1. Which print matched your cast? How many points of comparison matched between cast and this print?

2. What was the purpose of the casting frame?

3. How could you use your cast to make a shoe print? Would this be helpful in the investigation? Why or why not?

4. What other kinds of impressions might be helpful in solving a crime?

Suspect Shoe Print # 1.



Suspect Shoe Print #2.



Suspect Shoe Print #3.

