LESSON 1-4: TRACKING ON!

A Lesson on Tire Track Evaluation

Motor vehicles are essential to all aspects of society, including the criminal aspects. Most crimes involve a motor vehicle. Often, the only evidence left at a crime scene is a tire track. Therefore, investigators carefully search crime scenes for clues left by vehicles. A tire track is the path left in the soil by the wheels of a vehicle. Sometimes, tire treads can be seen in the tracks. A tire tread is the pattern of the tread design on the tire.

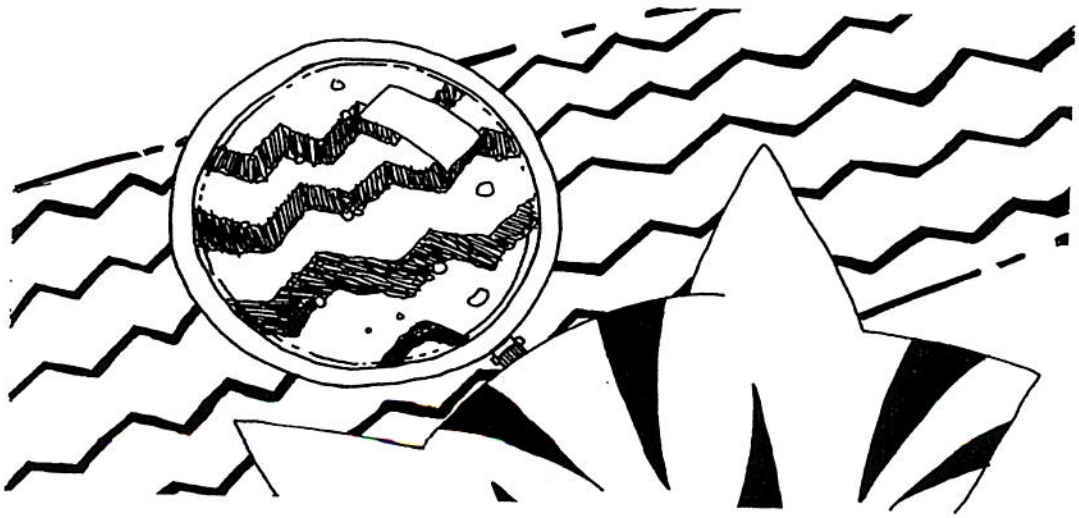
To record tire tread and track evidence, the crime scene is marked with crime scene tape and protected from damage. Then the tracks are photographed, measured, and cast. Each photograph includes some item that gives the picture scale: a ruler, coin, or pen can be used. The best photographs are made straight-on to the track, as if the photographer were suspended in the air above it.

Measuring Track Width

Tire tracks can tell an investigator the direction of travel and any changes in that direction. When careful measurements are made, they can also reveal vehicle tire track width and front and rear tread patterns. The tire track width is the distance in inches between the middle of the two front tires on the two back tires of a vehicle. Track width measurements can be used to identify a type of vehicle. Tread marks are often helpful in identifying a particular vehicle within this type.

Check Out the Tread Width

Tread width is the distance in inches across the tread pattern. Vehicles often use different kinds of tires, and therefore different tread patterns, on the front and rear wheels. That is why, front and back tread widths must be measured separately.



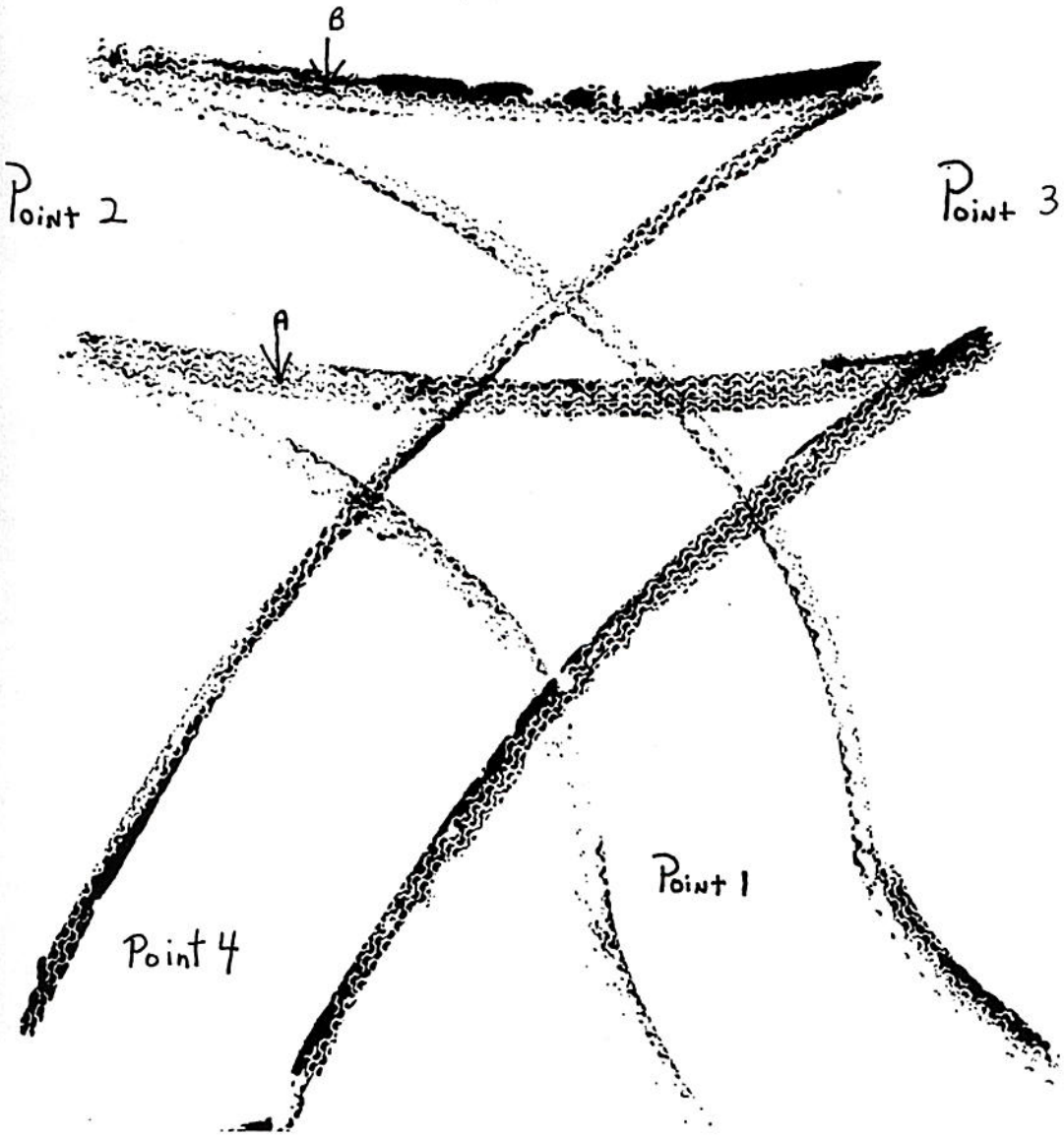


Figure 5. Distance from A to B is the wheelbase. This vehicle began at point 1, stopped at point 2, backed up to point 3, then pulled forward to point 4.

Name _____ Date _____

TREAD LIGHTLY

A Lab on Tire Track Evaluation

Objectives

You will determine the track width of a vehicle by examining its tire tracks.
You will identify tires by their tread marks.

Background Information

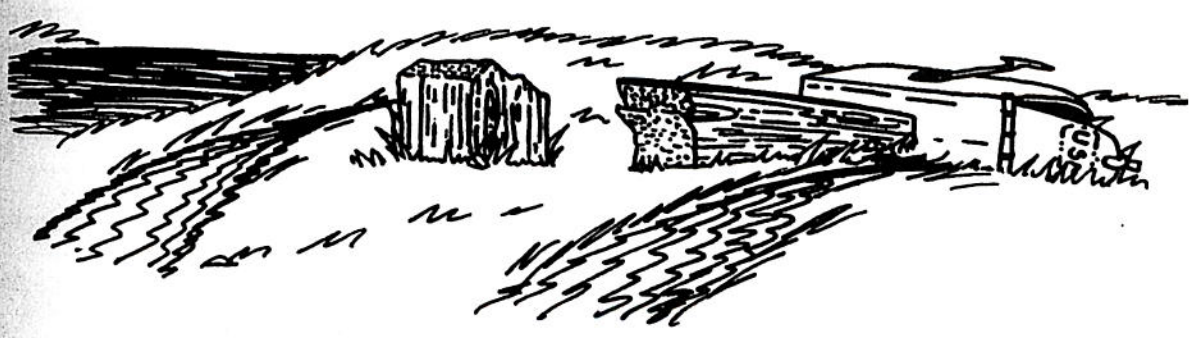
Someone has run over Sheriff Hosey's mailbox for the third time. Even though he is a patient man, the sheriff decides to find out who keeps destroying his mailbox. This third incident occurred about 2:00 A.M. Saturday. As soon as he heard the familiar crash, the sheriff ran to his front porch to get a glimpse of the offending car and its license plate. Unfortunately, the car was moving too fast for him to read the license plate number.

The sheriff saw enough of the car, however, to narrow down his list of suspects. He knows that it was a dark-colored sports car. On the rear bumper was the familiar sticker:

GHS
Gladville High School

In his yard, on both sides of his crushed mailbox, are a distinctive set of tire prints.

On Monday morning, Sheriff Hosey stood in the Gladville High School parking lot and made a list of dark-colored sports cars with GHS stickers. When he had his list complete, he asked Principal Wilkins to send the students who drove these cars to the parking lot to help him make prints of their tires. He carried these prints back to his yard for comparison.



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Materials

10 model cars
A print from the car that ran over Sheriff Hosey's mailbox
Ruler
Paper
Ink pad

Procedure

1. Examine the print from the car that ran over Sheriff Hosey's mailbox. Measure the tire track width (in inches) of this print and the width of the front and rear tire treads (in inches). Be very exact in your measurements. Enter all measurements on the Data Table.
2. Using white paper and the ink pad, make tire prints of suspect cars 1 through 10.
3. Measure the tire track width and tread widths of each of these cars, and enter this information on the Data Table.

Postlab Questions

1. Which car ran over Sheriff Hosey's mailbox?

   _____
   _____

2. In this lab, how many cars have tires with different tread widths on their front and rear tires?

   _____
   _____

3. Tread patterns are often very distinctive. Could you have identified the car belonging to the mailbox vandal by tread patterns?

   _____
   _____

4. Based on the tire tracks shown in the illustration, in which direction was this vehicle moving? How do you know?

   _____
   _____

5. Even though Sheriff Hosey found a car that could have made the tracks in his yard, he could not prosecute. Why not?

   _____
   _____

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DATA TABLE

Wheelbase and tread width measurements.

Vehicle	*Tire track width*	*Front tire tread width*	*Rear tire tread width*
Print of car that ran over mailbox			
Print of car 1			
Print of car 2			
Print of car 3			
Print of car 4			
Print of car 5			
Print of car 6			
Print of car 7			
Print of car 8			
Print of car 9			
Print of car 10			

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