

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

**Forensic Science**

**Chapter 15 – CASTS AND IMPRESSIONS CHART – PART II**

**Directions: Fill in the information from the Classroom Chart or the Online Chart.**

***Forensic Science Standard and element:***

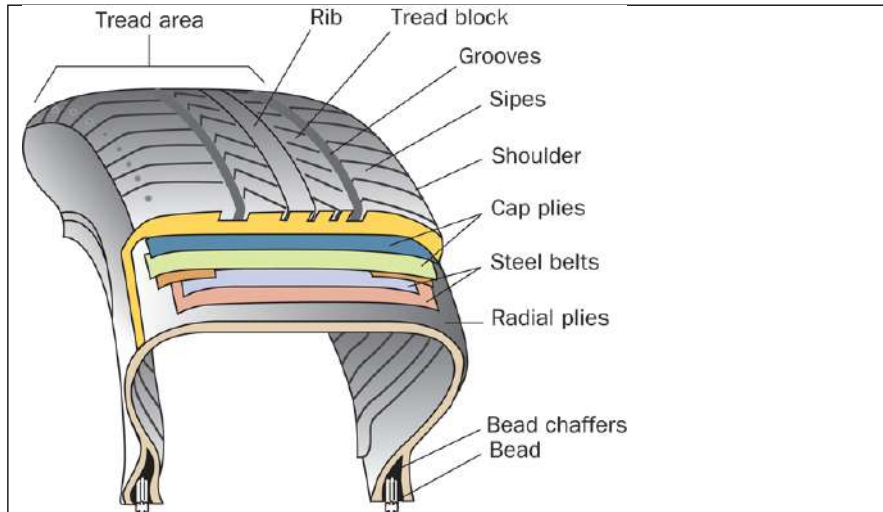
**SFS4. Students will evaluate the role of ballistics, tool marks and evidence of arson in forensic investigation.**

- a. Recognize the forensic significance of tool marks, footwear and tire impressions in an investigation.
    - 1.) Put chart in Science Notebook behind the Charts section after it has been checked. \_\_\_yes \_\_\_no
    - 2.) All parts were accurate and complete with no abbreviations. \_\_\_yes \_\_\_no
    - 3.) Handwriting was neat. \_\_\_yes \_\_\_no
    - 4.) Information was dark enough to be easily read, and chart was neat. \_\_\_yes \_\_\_no
- (Part of Notebook Grade)*

**TIRE TREADS AND IMPRESSIONS**

- Tread patterns can indicate the type of vehicle that left the mark
- Link a suspect or victim to a crime scene
- Reveal events that took place at the scene

**ANATOMY OF A TIRE**



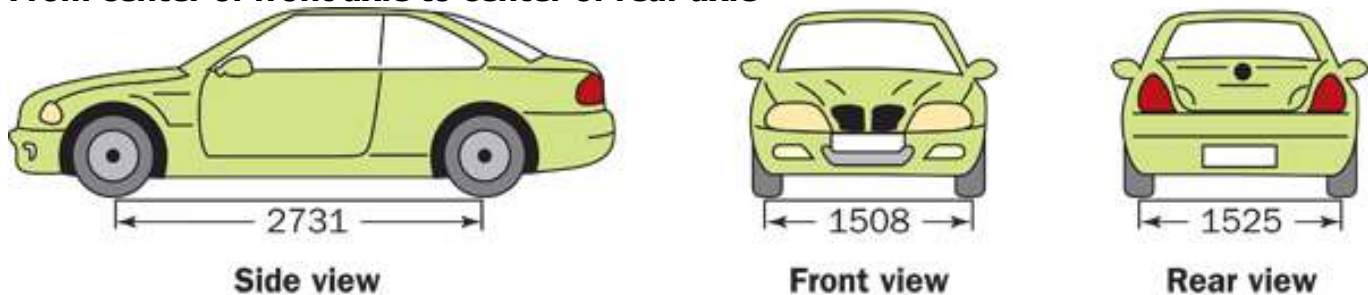
**IDENTIFYING A VEHICLE**

**Track widths—**

**From center of tire to center of tire**

**Wheelbase length—**

**From center of front axle to center of rear axle**



## TURNING DIAMETER

The **turning diameter** is a measure of how tight a circle can be driven by a vehicle or the turning diameter or it is the minimal space required for a car to make a U-turn. When a vehicle turns a sharp corner, even at moderate speeds, a track is created by the additional stress put on the front outer tire.

## ACCIDENT RECONSTRUCTION

- Drivers may not recall the exact series of events before, during, and after an accident
- People, vehicles, and objects, however, can leave evidence of their actions at the scene of an accident
- Debris patterns and tire marks can be clues to speed, direction, and vehicle identification
- Splash patterns created as a vehicle moved through a puddle of water (or some other substance) or from wet to dry pavement.
- Substance transfer, such as oil leakage from vehicle to pavement or soil (The drips would be farther apart as the vehicle accelerates.)
- Vegetation disturbed as a vehicle entered or left a road

## 3 BASIC TYPES OF TIRE MARKS

### 1. Skid marks:

- Formed when someone brakes suddenly and lock the wheels.
- Provides evidence of the distance brakes were applied.
- Calculation of velocity can be made from skid marks.

### 2. Yaw marks:

- Produced when a vehicle travels in a curved path faster than the vehicle can handle and skids sideways.
- Tires and road surface melt from extreme temperatures.
- Audible squeal and often smoke occurs.

### 3. Tire scrubs:

- Produced by a damaged or overloaded tire or tires during or immediately after impact.
- Usually curved, irregular in width
- May have striations that look like stripes
- Determine area of impact

## DENTAL PATTERNS IN FORENSICS

**Locard's principle of exchange** refers to an exchange of materials between a suspect and a victim or a suspect and a crime scene. Occasionally, a perpetrator will leave behind a bite mark. Like fingerprints, bite marks are considered to be individual evidence.

**Factors** that contribute to the individuality of our teeth include the **number, size, coloration, alignment, unique fillings, crowns, caps**, the **distance between teeth**, and the **overall condition** of our teeth. In an older person, the teeth may have a unique pattern of fillings, breakage, crowns, and caps. Certain antibiotics taken by children have been known to discolor their teeth.

The appearance of **20 primary, baby teeth** follows a predictable pattern beginning in the first 7 to 12 months of life. Gradually, the primary teeth are replaced by **32 permanent, adult teeth**. The last teeth to develop are the wisdom teeth, which emerge between the ages of 17 and 21.