# Casts and Impressions

## People, vehicles and objects leave evidence of their presence at the crime scene in the form of a mark or an imprint.

# Types of impressions

## Patent – visible impressions produced when an object moves through

##### soil, dirt, dust, paint, blood,…

## Latent – impressions that are hidden to the eye but can be seen using

##### dusting powder, lights and/or chemicals.

## Plastic – impressions left in soft material like mud and soil

# Class Evidence - evidence that can lead to a group.

## type of shoe, size of shoe, tire tread pattern

# Individualized evidence – evidence that is unique and lead to a specific source.Distinguishing characteristic like a worn spot or crack

## Dental impressions are individual

# Shoe impressions include:

## The size of the foot

## The depth of impression can tell weight

## The type of job by the type of shoe

## There are computer databases of tread patterns.

# Shoe wear patterns

## Shoes wear out differently on different people

### Scuffing feet

### Heel walking vs. toe walking

### Body weight

### Point of toes when walking

### Shape of feet

### Activitites

### Type of surface walked on

### Injuries

#  Gaits and Tracks

## Gait – how a person walks/runs

## Limps – injuries cause an asymmetrical gait

## Length of stride

### Close tracks for walking

### Tracks are farther apart when running

## Trails can indicate movement direction

## Information that you can learn from gaits and tracks

### Number of people at the crime

### Movements of individuals

### Entrance to and exit of the crime scene

# Collections of shoe impression evidence

## Photographing evidence

### Take photo BEFORE anyone alters or touches the impression

### Fill the camera’s viewfinder with the impression

### Take photos that are perpendicular and also photos that are at several angles

### If using a digital camera – check quality of photos and retake pictures if you have to

### Old-Fashioned film cameras are used by CSI more often because the negatives can prove that the pictures were/weren’t altered.

## Lifting latent impressions

### Bare feet leave body oil.

#### Can use fingerprint dusting powder.

### Shoes leave dirt and plastic from shoe

#### Electrostatic print lifting – static is created on plastic to attract dirt and dust

#### Gel lifting – a gel pad is put down and dirt/dust sticks to it

### Luminol finds blood impressions of shoe prints

## Casting plastic impressions

### A cast is a 3 dimensional impression like a foot print in mud.

### To cast impressions in sand or dirt spray hair spray on footprint first, then use plaster of paris.

### To cast an impression in snow spray a fine mist of wax on first, then use dental stone

## Foot Length and Shoe Size

### Vary by the type of shoe.

### Sneakers are smaller than work boots

### Identification of the make and model of shoe and manufacture can tell the size of the foot.

### Size of shoe gives a rough estimate of height.

# Tire Tread and Impressions

## Indicate speed and direction

## Skids can help tell who is at fault in an accident

## Examiners look for

### Tread patterns and measurements to identify the type of tie and perhaps the make and model of the car.

### Nature of impression to see how the car was driven

## Tires can have latent, patent and plastic impressions from cars.

#  Anatomy of a tire

## Image result for tire tread imagesRidges are elevated regions.

## Grooves are indentations

## The purpose of ridges and grooves is to help channel water away from the tire to increase traction.

## Every model of tire is unique.

## Tread patterns are symmetrical

##  Ribs, ridges and grooves are counted

## Ink impressions are made of tire impressions

# Image result for tire wheelbase imagesIdentifying a vehicle

## Sometimes tread patterns aren’t enough.

## Track width is the measure of the tread from the center of the front tires.

## Wheelbase is the distance between front and back tires

## Turning diameter is the size of the tightest circle that can be driven.

# Establishing Car Movements from tire marks.

## Vegetation is disturbed as a vehicle enters or exits.

## Debris patterns cast off by a moving vehicle.

## Splash patterns created as a vehicle moved through a puddle.

## Substance transfer and oil leakage

## Tire marks.

# 3 Types of Tire marks

### Image result for tire skidmark imagesSkid Marks

#### Formed when vehicle brakes suddenly and wheels lock.

#### Provide evidence of distance of when the brakes were applied.

#### Calculation of velocity can be made.

### Yaw Marks

#### Image result for tire yaw marks imagesProduced when a vehicle travels in a curved path quickly and skids.

#### Tire tread surface melts from the extra frictions and increased temperatures.

#### Audible squeal and smoke occurs.

### Tire scrubs

#### Produced by a damaged or overloaded tire or tires during/after impact

#### Curved and irregular width

#### Might have striations

#### This can help determine the area of impact.

# Image result for human dental impressionsDental Impressions

## Perpetrators will occasionally leave a bite mark

## Dental impressions are considered to be individualized evidence

### Number of teeth

### Size of teeth

### Alignment of teeth

### Unique fillings

### Crowns and caps

### Distance between teeth

### Wear patterns

## Development of teeth

### 20 primary teeth start emerging at 7 months

### 32 adult teeth started at ~5 years

### 4 wisdom teeth at ~17 years.

### Pathologists can determine the rough age of an individual by examining teeth

