High School Science Virtual Learning

Forensic Science Shoe Impressions

May 5, 2020

Forensic Science
Lesson: May 5, 2030

Objective/Learning Target:
Students will be able to explain how shoe impressions are used as evidence.

Bellwork: Answer in your notebook or piece of paper

Bellwork 1:

What are tool marks?

Bellwork 2:

What is the difference between class and individual evidence?

Bellwork Questions/Answers

Bellwork 1: What are tool marks? Impression left on a surface from some sort of tool. In forensics, the impressions are used to identify the type of tool that left it behind.

Bellwork 2: What is the difference between class and individual evidence? -Class evidence is evidence that has characteristics that are common to a group of items. Individual evidence is evidence that is unique to a given item.

What are Impressions?

Read this FBI article that discusses shoe impressions. Carefully take notes to answer the following questions.
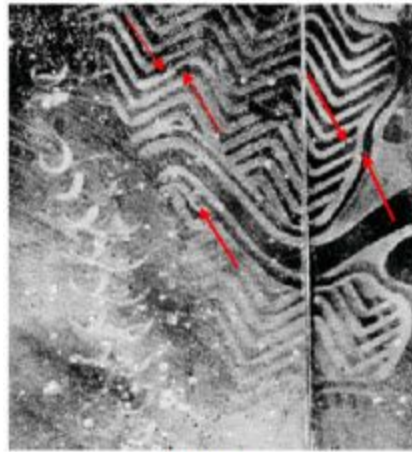
[Forensic Analysis of Footwear](#)

Figure 2(A)
Questioned Footwear Impression

Figure 2(B)
Known Shoe

FBI Questions

1) Give examples of Class Evidence in shoes.

2) Give examples of Individual Evidence in shoes.

3) If an examiner is using the individual evidence collected from shoes, what must they make sure of to have a positive identification?

4) Footwear impressions can be found at all crime scenes. What information can they give us?

5) What problems can arise with shoe impression evidence?

FBI Questions/Answers

1) Give examples of Class Evidence in shoes. -manufacturing process marks, size, design, mold characteristics

2) Give examples of Individual Evidence in shoes. -rocks, thumb tacks, tape, marks from cuts, nicks, gouges, scratches

3) If an examiner is using the individual evidence collected from shoes, what must they make sure of to have a positive identification? -orientation of all marks must be the same and clear. If they all match, a positive identification can occur

4) Footwear impressions can be found at all crime scenes. What information can they give us? -Where the crime occurred, direction suspect traveled, how many involved.

5) What problems can arise with shoe impression evidence? -Not collected properly, overlooked or not collected at all

Watch a Real Detective

Watch this video over a detective explain how shoe impressions are used in real life. Answer the following questions in your notebook or piece of paper.

1) What is the worst surface to obtain a shoe impression?

2) Can you actually get a shoe print from the above surface? How?

3) What happens once you determine what kind of shoe impression was left behind at a scene?

4) What are the detectives searching for when looking at shoes and their impressions?

Real Detective Questions/Answers

1) What is the worst surface to obtain a shoe impression? -low pile carpet

2) Can you actually get a shoe print from the above surface? How? -Yes, you will have to use a special paper that can lift dirt from shoe prints using static electricity

3) What happens once you determine what kind of shoe impression was left behind at a scene? -If the print on the sole is not easily identifiable, it is sent off to get further analysis. Once the brand is determined, the suspect's shoe will be compared to the one left at the crime scene.

4) What are the detectives searching for when looking at shoes and their impressions? -They are looking for accidental characteristics that can match the suspect shoe. They include cuts, tread wear, etc.

Now You Try

Use the photos and the internet to determine which Brand and Style of shoe is shown.

Did you get it right?

Shoe 1: Nike Metcon 5

Shoe 2: Nike Free Trainer 3.0 V4

Additional Resources

[Photographing Shoe Impressions](#)

[What to do vs what not to do](#)