

Shoe Print Controls & Comparison Lab

By Jeanette Hencken

Shoe Print Controls and Comparison Lab

Teacher Instructions:

If you want any real challenge in this lab you will need multiple pairs of shoes that are at least the same make & model. The same size, worn by the same person would be the best challenge. There are a couple of ways to get 3-4 pairs of shoes that will fulfill your requirements. You can purchase multiple shoes of the same make and model and wear each of them every day for 2 weeks, or you can find a friend who plays some serious tennis, basketball, etc., and ask them if they if they buy multiple pairs of the same shoe and would be interested in giving you their retired shoes.

Once you have these shoes you will need to make prints of each shoe. First you will need to label the shoes: 1, 2, 3...etc. or A, B, C...etc. Using the same instructions as listed for the lab you can make the prints to use for questioned shoe prints.

1. Rub the outsole of the known (suspect) shoe with the shoe cleaning sponge, coating the surface well.
2. Holding the heel of the shoe with one hand and sliding your other hand inside the shoe, roll the outsole on the copy paper. Roll from the heel to the toe of the shoe, pressing firmly and as evenly as possible. Label the control with the letter for the shoe that made that print.
3. Dip the magnetic brush in the powder and brush the paper where you made the print. Brushing in a circular motion and multiple times will ensure that all of the areas of the print are made visible.
4. If the print you made doesn't have all of the outsole on it or it does not result in a detailed image, try again.
5. Repeat this process with each of the suspect shoe outsoles.
6. When you are happy with the print you have made, label the paper on which you have the print.
7. Write out a key so that you know which shoe the questioned shoe print came from.
For example, Q-1 (questioned shoe #1) came from shoe C.
Q-2 (questioned shoe #2) came from shoe A.

Making copies:

Since it does take a significant amount of time and organization to create the questioned shoe prints, you might want to make multiple copies of them to use from year to year or classes to class. It pays to make these copies with a copier that you can have some input into the darkness/lightness of a copy before multiples are made. That is, you will have the best result with your copies if you can either make the copies yourself, making sure that you use the best level of darkness that results in the most detail showing up on a copy, or ask that they make the first copy and let you evaluate it before they make multiples.

Once you have a good original copy, record the level of darkness used and ask for the same darkness on the next set of copies. You can then hold onto it and use it a few times before going through the process of making a new print and multiple copies of that print. going through the process of making a new print and multiple copies of that print.

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Student Instructions

Purpose: To practice making control prints and comparing manufacturing detail and wear found on an outsole.

Pre-Lab Questions:

1. What type of evidence is questioned evidence? (Where is it found?)
2. What type of evidence is known evidence?
3. What are wear and accidental marks?

Materials needed for each lab team:

Sheets of copy paper, 8 1/2 x 11

A shoe cleaning sponge

A questioned shoe print (obtained from the teacher)

Suspect shoes (knowns)

Magnetic fingerprint powder, 1-2 tablespoons in a cup or small jar

Magnetic fingerprint brush

Procedure:

Part One

Make a control print of each of your suspect shoes. To do this you will need a sheet of paper, a shoe cleaning sponge and a suspect shoe.

1. Rub the outsole of the known (suspect) shoe with the sponge, coating the surface well.
2. Holding the heel of the shoe with one hand and sliding your other hand inside the shoe, roll the outsole on the copy paper. Roll from the heel to the toe of the shoe, pressing firmly and as evenly as possible. Label the control with the letter for the shoe that made that print.
3. Dip the magnetic brush in the powder and brush the paper where you made the print. Brushing in a circular motion and multiple times will ensure that all of the areas of the print are made visible.
4. If the print you made doesn't have all of the outsole on it or it does not result in a detailed image, try again.
5. Repeat this process with each of the suspect shoe outsoles.

Part Two

1. Compare each of the controls to the questioned print. Examine them for manufacturing details, wear and accidental marks. You can lay the control on top of the questioned print with a light source (overhead projector, light box, or simply a window on a sunny day) behind them and it may help with the comparison.
2. Determine which of the controls you made has the most details in common.

Conclusions:

A. Which known shoe outsole is the most consistent with the questioned print?

B. On the print for the questioned print and the outsole you believe it to be most consistent with, mark 4 points of comparison that you believe are evidence supporting your answer to "A."