

# Locard's Principle of Exchange Lab

Every contact leaves a trace...

## Objectives

- Students will learn an authentic crime scene investigation procedure
- Students will identify the debris they find on clothing
- Students will use careful observation to infer the origin of debris
- Students will practice microscope skills



## Materials Required

Clear tape

Vaseline Jelly

Cover slips

Tooth picks/probes

Microscope slides

Microscope slide labels

Mystery items

Collection bags

Sharpie Marker(s)

## Description

Crime scene investigators know that a fundamental principle of investigation for every crime scene comes from **Edmond Locard**, a forensic pioneer in the early 1900's. Locard strongly believed that a criminal could be connected to a crime through trace evidence at the scene.

As a result, many crime labs have '**standard slides**' that contain known objects. Whenever scientists investigate an unknown item, they compare it with something known and thus are able to piece together a story. For example, if a white powder is detected on a piece of fabric, forensic teams can look at standards of white powders and match the unknown with a known standard.

You will apply Locard's principle to connect a piece of fabric to a suspect by matching fibers, hair and other debris from the fabric to standards and solve a crime!

## Directions

DAY I: Plan with your group **what your suspect is like** and what you will need to bring in to 'dose' your clean fabric.

- You will be making a **simulated version of a piece of fabric** from a particular suspect. First, though, you need to **create a profile for this suspect**. Include important information about his/her travels, lifestyle, motivations, etc. This profile needs to be a **minimum of two paragraphs** and include a name for your suspect.
- Each person on your team must **decide on two pieces of evidence** he/she will bring in tomorrow to '**dose**' the fabric and make a standard slide. Remember, this piece of evidence should complement the profile and give a clue which will lead to your suspect. (Minimum of 4 items... no liquids... hair, dirt, powders, wood chips, material, leafs, herbs, salt, make-up, etc.) If you have extra time, please swap bios with another group.
- **Please complete and turn in your profile by the end of class.**

### Day II: Part I

- At the start of class, you will **'dose' your piece of fabric** (from the suspect) with the evidence.
- Place your fabric into an **evidence collecting bag** and **label** it clearly.
- Create **standard slides** of the evidence by placing a little of each of the evidences that you 'dosed' on the fabric on the slides, and apply a small amount of Vaseline Jelly to the cover slips and place them atop the slides. **Neatly label slides** with what you dosed it with.
- Place the slides on the **evidence collection table** in the "Known Standard Slide Area" along with your well labeled evidence bag. Place the description of your suspect in the "Suspect Area" of the table.

### Day II: Part II

- Take an evidence collection bag to **investigate** (that is not your original one).
- Place a **large white sheet** of paper on your lab table before opening your bag. Shake the cloth over the white paper to catch any of the loose debris.
- Press the strips of sticky tape about 15 cm long against the fabric to collect the remaining debris (each strip can be pressed against the fabric three or four times).
- Adhere the strips to the white paper (sticky side up). **Investigate the debris** using a magnifying glass. If you want to make slides of the debris, make a slide and look at it under the microscope.
- Make **drawings** of any evidence you find. You must have a minimum of four drawings on your data sheet.
- **Look at the standard slides.** Compare the drawings and your observations to the standards and see if you can identify the evidence.
- Carefully **read the suspect bios.** Does any of the evidence match a suspect's bio? Match the evidence to the most likely suspect.

### Day II: Part III

Reflect on this process.

- Read over the **objectives** above and reflect as to whether or not you met those objectives.
- What **indicators** do you think you met on the Compass School report card?
- How **might you have improved** this lab or what might you do **differently** in the future?