

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### **Testing Locard's Exchange Principle: Part 1**

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#### **Pre-lab Procedure:**

1. The day before the lab, choose a clean shirt, and wear it throughout the day.
  2. Record your movements during the day. Describe the type of location and the people, animals, and activities you encounter.
  3. At the end of the day, seal the shirt in a zip-top bag and **BRING IT TO CLASS.**
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#### **Forensic Science: Locard's Principle of Exchange**

*A fundamental principle of investigation for every crime scene comes from Edmond Locard, a forensic investigator in the early 1900s. Locard strongly believed that a criminal could be connected to a crime by true evidence collected at the crime scene. He stated:*

*"Whenever two objects come into contact, there is always a transfer of material. The methods of detection may not be sensitive enough to demonstrate this, or the decay rate may be so rapid that all evidence of transfer has vanished after a given time. Nonetheless, the transfer has taken place."*

*The forensic scientist must be methodical in his or her work. He or she must first observe general characteristics of the evidence and then observe more specific features. He or she must link evidence to a crime and to the suspects by identifying and comparing relevant material.*

*Finally, the forensic scientist must come up with a theory or opinion that is able to stand up to scientific and legal scrutiny.*

#### **Part I: Pre-Lab Questions: Locard's Principle of Exchange**

1. You are sitting in your room. What kinds of materials are you in contact with?
  
  
  
  
  
  
  
  
  
  
2. What possible transfer of material could have taken or is taking place? Make a list.
  
  
  
  
  
  
  
  
  
  
3. How could you have prevented any transfer if you thought about it first?

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4. Think about when you came to school or work today. Did you leave any evidence that you were there other than being observed by others (eyewitness accounts)?
  
5. Trace evidence is one of the most important types of evidence. It is called trace because it literally leaves a trace. What types of materials could be left behind to qualify as trace evidence? Try to think of 5! (hint: there are some answers in the reading below.)

**Read the article below, then answer question 6**, which asks you to describe why Locard's exchange principle is the most fundamental concept in Forensic Science.

### **Introduction**

Edmond Locard (1877-1966) in 1910 persuaded the police department in Lyons, France, to give him two attic rooms and two assistants to start the world's first police laboratory. During his first years of work, the only instruments available to Locard were a microscope and a rudimentary spectrometer. However, his enthusiasm quickly overcame the technical and monetary deficiencies he encountered. From these modest beginnings, Locard's research and accomplishments became known by forensic scientists and criminal investigators throughout the world.

It was Locard's belief that when a criminal came in contact with an object or person, a cross-transfer of evidence occurred (Locard's Exchange Principle). Locard strongly believed that every criminal can be connected to a crime by dust particles carried from the crime scene. This concept was reinforced by a series of successful and well-published investigations. In one case, confronted with counterfeit coins and the names of three suspects, Locard urged the police to bring the suspects' clothing to his laboratory. Upon careful examination, he located small metallic particles in all the garments. Chemical analysis revealed that the particles and coins were composed of exactly the same metallic elements. Confronted with this evidence, the suspects were arrested and soon confessed to the crime.

Every time you make contact with a person or object there is an exchange of materials. This could mean the transfer of fibers, hairs, wood shavings, metal filings, tidbits of paper, or any small, lightweight item adherent to the donor object. This exchange enables forensic scientists to determine where someone has been based on trace evidence. It is even possible to track a person's daily movements by examining his or her clothing.

6. Describe why Locard's exchange principle is the most fundamental concept in Forensic Science.