


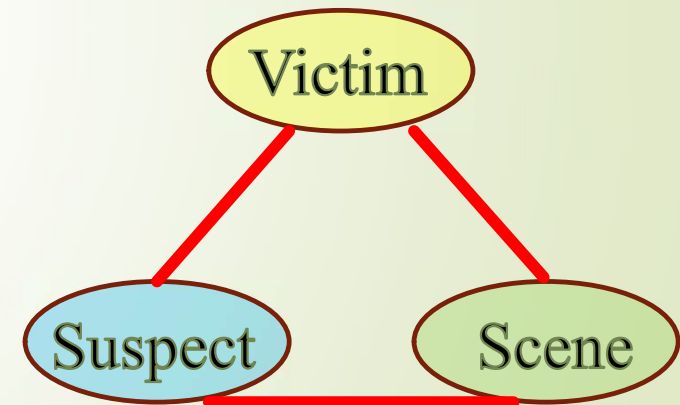
The Chemical Adventures of Sherlock Holmes: Chemistry in Forensic Science

Forensic Science  Relating to the use of science and technology in the investigation and establishment of facts or evidence in a court of law

Purpose: Not Just for Identifying Things!

Aid in Reconstructing Events and Human Activities

- Link between the victim and a suspect, a victim and scene or the suspect and a scene.



Forensic Science Techniques – *Chemistry*

➤ Elements, compounds, and mixtures

- Toxicology
- Drugs and poisons
- Polymers
- Analysis of ink (chromatography)
- Drug analysis

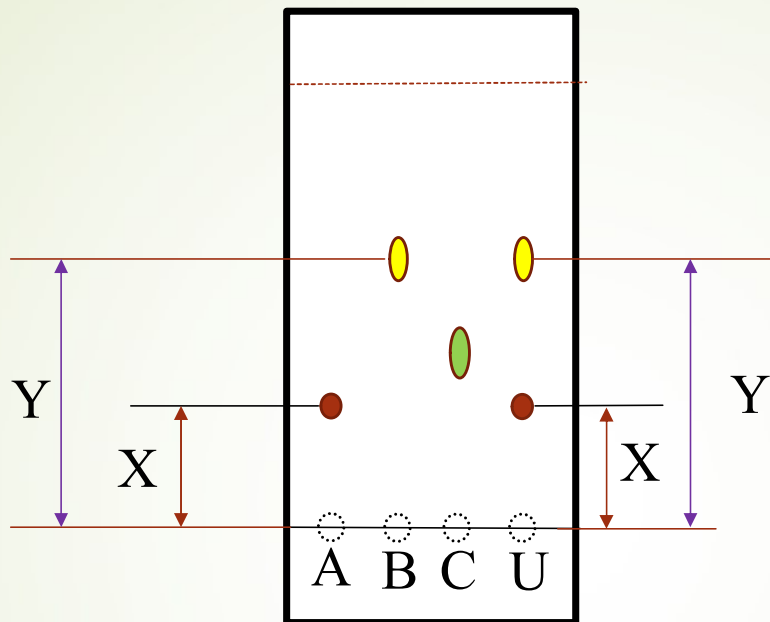
➤ Chemical reactions

- Arson/Explosive analysis

➤ Thermochemistry

- Arson
- Identification of unknown metals





U = Unknown Mixture

A = Standard A

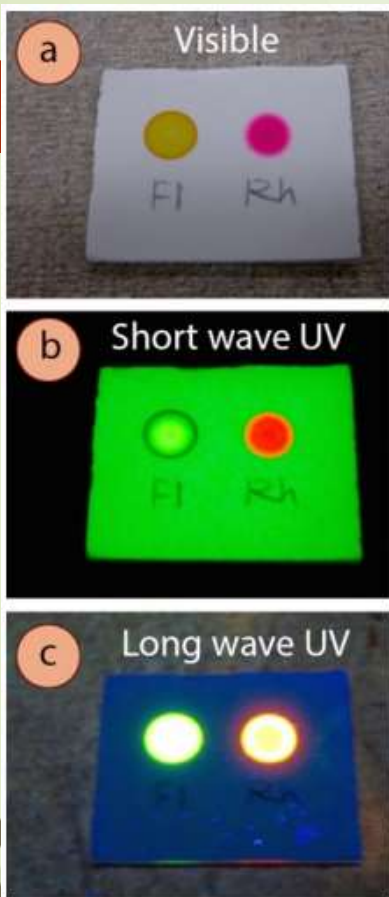
B = Standard B

C = Standard C

$$R_f = \frac{\text{distance travelled by component}}{\text{distance travelled by solvent}}$$

Standard is pure
known compound

Thin-layer chromatography (TLC) is routinely used for the qualitative and semi-quantitative analysis.



- a) Visible light
- b) 254nm UV light
- c) 365nm UV light

- Some compounds themselves fluoresce, appearing a variety of colors when exposed to UV light.
- They are most common with highly conjugated compounds



**Enhance
fluorescence**

