

Introduction

Welcome detectives. In this course we are going to look at some of the same techniques that are used by the FBI, State Police Crime Labs, and the county's best forensic labs to look at the physical evidence collected at a crime scene and taken from suspects. We will be working as a real chemist works with some very dangerous chemicals and so we will need to wear the safety equipment worn by a chemist. The chemical industry deals with both the most dangerous substances known to man as well as totally safe chemicals. Yet the chemistry industry enjoys being one of the least regulated industries with one of the safest records in terms of accidents anywhere. This is because of the level of education required to be a chemist. We have a set of very rigidly adhered to rules. These rules are all voluntarily obeyed because everyone who is a chemist knows very well the dangers of not obeying the rules. Among the rules that all chemists obey are the rules that safety goggles are always worn in the laboratory and nothing is ever put in the mouth in the laboratory. We wear safety goggles, not only because what we are doing can blow up in our face, but more importantly, because we never know for sure what the person next to us is doing. We never put anything in our mouths in the laboratory because the chemicals we are working with are always evaporating into the air & we don't want to put something in our mouths we did not intend to. The safety rule of absolutely no work in this lab with out wearing safety goggles will be rigidly adhered to. If you are caught working in the lab without your goggles on you will not be allowed to continue in the class. This rule is for your own safety. There are a few other absolute safety rules that will be rigidly adhered to. These include absolutely no horseplay, either with pushing and shoving or with the wash bottles. You will also not be allowed to work in the lab if you wear sandals to class or shorts. To prevent dangerous chemicals from getting on our skin in case something spills, we will need to wear slacks or long lab coats. If you have access to an old oversized tee shirt that will cover your clothes, these work well as lab coats. To prevent chemicals from getting on your skin and eating your skin away, it is strongly suggested that you do not wear any jewelry to class.

Of course the professional labs have access to a lot of very sophisticated equipment that we will not be using. Therefore the professional labs will be able to do some things that we will not be able to do. We will be confining our analysis to certain defined substances. We will not have to identify anything and everything in the universe as the professional labs do. But we will look at some of the problems that detectives regularly have to face. That is which of the pieces of evidence found at the crime scene actually belong to the perpetrator of the crime and which are there from people who have had nothing to do with the crime? How much evidence is necessary before the detective can say that the evidence points to one suspect or another? Does it mean that a suspect is guilty just because a piece of evidence points to the idea that that person was in the area? Are some pieces of evidence more convincing as evidence than others? If you find fibers or hairs at the crime scene, what does that tell you? How difficult would it be to match the fibers found at a crime scene from someone's clothing? If you found a piece of fabric from a pair of blue jeans, would that say anything about the suspects? If you found a piece of dog hair or cat hair, what would that tell you?