Name _____ Class _____ Date _____

Forensic Investigation Unit Practical: fingerprint analysis, documentation analysis, and substance identification.

To begin, each team is given time to read the background information. Each student selects a role as a criminal investigator based on his/her expertise or interest. Complete the Student Assignment Sheet with your teams allocated assignments.

Crime labs frequently receive unknown substances taken from a crime scene. Experts in the crime lab have the task of determining the physical and chemical identity of these substances. Many times these mysterious substances are illegal drugs. The findings of the crime lab are important in determining the guilt or innocence of a suspect.

The forensic scientist in the crime lab must carefully perform tests of different evidences. The results he or she gathers must be so exact that the identification is correct beyond a reasonable doubt.

In this lab practical:

* Students will work in teams
* Each team will be given time to inspect the evidence collected from the crime scene.
* Each team will design a plan for analyzing the evidence by conducting critique – appropriate forensic lab procedures.
* Students will determine which experiment to conduct and how to analyze the data obtained.
* Students will draw conclusions
* Students will write a report of their findings. (see report assessment details below)

Background Information:

Bellows Falls High School has a drug problem. Over the past year, illegal drugs have been seized from student cubbies on five occasions. All of these illegal drugs are white powders that look remarkably like table salt. During a recent cubbie search, investigators collected several zip-lock bags filled with a white powder. Before charges can be pressed against any one individual in possession the identity of the powders must be established, as well as any other incriminating evidence.

You are a member of a forensic science lab team that has been sent to Bellows Falls High School. A temporary lab facility has been set up at the high school. Unknown white powders will be delivered to you (as well as other pieces of evidence) in the lab so that you can determine their identity.

Due to limitations in equipment at the school, you have been asked to use a simple series of tests to determine the identity of the powders. To enable you to do this, the six known white powders are provided by referencing the results you obtained from the Substance I lab. You will run substance tests on each of the unknown substances that your forensic unit receives and record the results in Data Table 2 of this packet. Later you will compare the results of the unknown powders collected during cubbie seizures with those of the known substances.

Your findings will determine the charges (if any) brought against the students in possession of drugs.

A brief overview of the white powders previously discovered at Bellows Fall High School and the charges associated with their possession includes the following:

Escape (scogaine): a mild hallucinogen. First offense is usually probation.
Peppy (irenin): a mild stimulant; often results in psychological dependence. First offense results in 6 months to one year in prison.
Vavoom (Bradlin): a strong stimulant; causes physical dependence. First offense results in 1 to 3 years in prison.
Droop (Markopan): a moderate depressant; causes physical dependence. First offense results in 1 to 3 years in prison.
Bang (Davlate): a strong narcotic that causes physical and psychological dependence. First offense can result in 5 to 10 years in prison.
Table salt: found in a student's locker as a joke.

Other evidences to consider during your investigation: fingerprints, handwriting, ink chromatography, and another type of drug test (TLC) to determine a pure finer drug that shows negative results with the basic substance indicators described above.

Three of the main refined drugs that are found on the streets today are fireworks, moonwalk, and flash. These three known substances can be referenced by comparing the results of your Substance II TLC lab, as they correspond to each as follows:

ASP: Flash
ACT: Moon Walk
CAF: Fireworks

You will run TLC tests on each of the unknown refined drugs that your forensic unit receives and record the results (R_f value) in Data Table 3 of this packet.

Your Forensic Team will be responsible for:

Collecting and Analyzing the Data
Drawing Conclusions Bases on the data
Presenting findings to a judge asking for a "Court Order for Arrest".

Assessment:
Documentation presented to the judge must include the following, and every team must turn in each item listed:

1. Detailed **diagram** of the crime scene – due when crime is solved.
2. Brief **strategic plan** for investigation – due at beginning of investigation.
3. **List of evidence** – use various attached tables to help – due when crime is solved.
4. **Daily log** of teams' activities – due when crime is solved.
5. **Results** of all laboratory experiments conducted – 1. Substance Id using standardized tests, and TLC, 2. fingerprinting analysis, 3. documentation analysis – due when crime is solved.
6. Minimum one-page summary listing guilty party and evidence used to reach that conclusion – due when crime is solved.

Student Assignment Sheet

Criminal Investigation Team Assignment

Detective Chief — Serves as team leader as well as investigator, divides the tasks among the team members and checks to make sure all examinations and reports are completed.

Field Investigator #1 — serves as the recorder to document all evidence, files completed documents with the district attorney's office.

Field Investigator #2 — serves as the leader in the laboratory investigations, obtains all the equipment for experiments to be conducted on the evidence.

Field Investigator #3 — serves as evidence investigator, checks out incoming information and evidence from the crime scene.

Field Investigator #4 — serves as special detective as assigned by the Chief Detective.

Task	**Name**
Chief Detective	
Field Investigator #1	
Field Investigator #2	
Field Investigator #3	
Field Investigator #4	

During the following four days, students work to complete their plans of data collection, experimentation, data analysis, drawing conclusions, and writing their reports.