

## SOLVE THE CRIME!

Name \_\_\_\_\_

Name \_\_\_\_\_

Period \_\_\_\_\_

**To:** Your chemical forensics lab (you and a lab partner)

**From:** District attorney's office

**Re:** Identification of white powder evidence

A valuable art coin has been stolen from the home of a wealthy local collector. We have three suspects, all of whom claim they are innocent: I. R. Kleen, I. M. Innocent, and Who Me (we are currently awaiting a report from Interpol to see if these are aliases). The only clue we have that might help to identify the perpetrator is a very small amount of white powder found on the table near the coin case where the coin was stored. Under a hand lens, it looks as though the powder could be a mixture of two substances, but it could be three.

Unfortunately, our analyst disobeyed laboratory protocols and tasted one of his samples the other day, and he is now in the hospital. We need your lab's help quickly, for we can only hold the suspects for 48 hours without officially charging them. We have sent you a sample of four white powders for your initial examination (labeled A, B, C, and D); each is a common household substance that we think might be among the substances in our evidence collected. Please use the three available test reagents (liquids) to work out a procedure for analyzing our white powder evidence and identify its constituents. The procedure has to be as efficient as you can make it since only a small amount of evidence was collected. To be admissible in court, you must keep a detailed account of how you analyzed the data. We look forward to receiving your procedure as soon as possible and your decision regarding the content of the evidence.

**Materials:** Evidence samples                      Common household substances A, B, C, and D

Reagents: water, vinegar, iodine solutions      Common laboratory equipment

**Note:** Your team is responsible to 1) write a clear procedure, 2) keep clear records of all the data recorded, and 3) identify the contents of the samples of evidence **AND supporting evidence to back up the conclusion.** \*\*Be sure to record the evidence sample number, as we are constantly reviewing many samples!\*\*

**FLASH!!** Additional evidence has been obtained from the crime scene, where another sample has been found. It was determined to contain THREE of the powders. Your team is responsible to identify each of the powders in this new evidence as well.