

THERE'S BEEN A CRIME!

As experts in chemistry, you have been recruited by the local Police Department to help solve a recent crime that took place in your community.

Late last night, an important collection of lab equipment was stolen from the chemical supply room in the chemistry wing of the building. There have been a string of similar robberies at schools around the area and there is some evidence to support that these crimes may be related. In addition to the valuable lab equipment, it appears that there have been some other suspicious signs and missing materials in each of the locations. From conversations about the other crimes, it is believed that whoever this is, they had key card access to some locked rooms and they have left some clues as a sort of “calling card” to claim credit for the event.

Since there is so much evidence to collect and ground to cover, you and your group decide to divide and conquer with each person going to a different clue to report back later. Your community is counting on you. Help us to track down this criminal!



CLUE #1

The Scene of the Crime

In the location where the lab equipment used to be, you find a flask filled with some unknown substance and a handwritten note:

*Thanks for all the free stuff!
As payment, I leave this precipitate...*



Upon examining the substance in the flask, you notice that there is an unknown solid that has settled to the bottom of a liquid solution of Potassium Carbonate

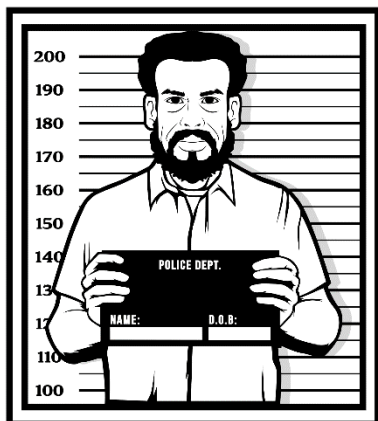
You realize that these particular compounds don't match any of the chemicals that the school has in storage so they must have been created by the suspect with a chemical reaction!



CLUE #2 The “Calling Card”

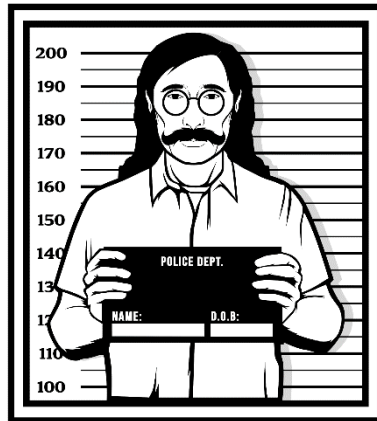
You dig a little bit deeper into this theory that the suspect left behind some clues as a sort of “calling card”. After a little research, you learn about a series of robberies that took place several years ago. In these cases, the suspects always created and left behind a chemical compound in a flask. These so called “gifts” became so common that law enforcement referred to each of these criminals by their compound name before they were able to determine their true identity. Now that all of these cases have been solved, you suspect that your perpetrator could be affiliated with this group so you look up the information on the three that were caught and in prison. You decide to find a connection between the suspects and their “calling cards”.

Alex Gerald Sullivan



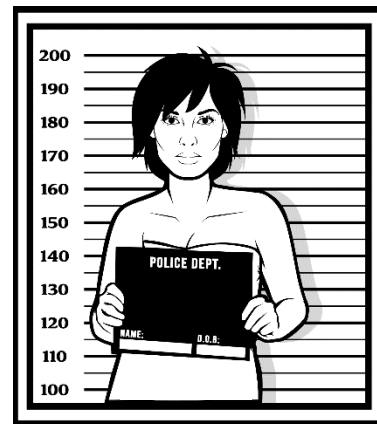
aka “Silver Sulfide”

Nathanial Allen Parks



aka “Sodium Phosphide”

Natasha Holly Osborn



aka “Ammonium Oxide”

CLUE #3

The Suspects

Building security provides you with is a registry of names of the people who scanned key cards to access locked doors in the building within the past 24 hours. This also contains their district provided ID number. You ask for more details but this is all that security is willing to provide to you.

Sheldon Nicholas O'Connell	827413
Donny Homer Parrish	830706
Cayden Marie Hawking	817134
Kelly Cynthia Larson	827058
Greta Renee Giles	829754
Tamara Lee Osborne	819189
Franklin Edward Sparrow	827384
William Samuel Star	818056
Harriette Madge Frost	828422
Addison Ursula Smith	827670
Bryce Lincoln Clayton	831489
Karena Linette Stephens	828513
Freddy Edwin Olson	825739

You also receive word from one of your partners that they found a note from the suspect in the location of the missing lab equipment. On the back of this slip of paper, it seems that there was a list of element symbols that had been cut off. While this doesn't point you directly to just one suspect, you realize that it does narrow down your list substantially. **You decide to make note of the possible suspects from this list.**

ID Number: Pb - N -

CLUE #4

Types of Reactions

On the whiteboard in one of the chemistry classrooms, the teacher left up some example chemical reactions that the class had been working on the previous day. You notice that all of the reactions except for one has been modified overnight to have an error in it. You expect that there must be some reason why there was only one type of reaction that the criminal decided not to tamper with so you make note your perpetrator's favorite reaction type in your notebook.

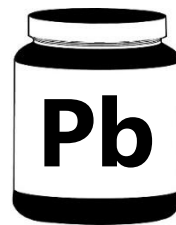
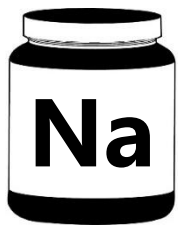
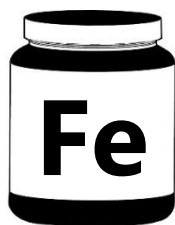
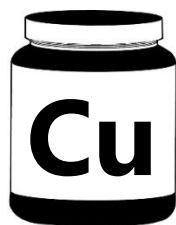
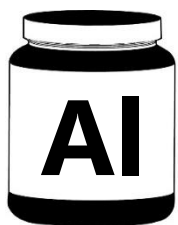
Types of Reactions



CLUE #5

Single Replacement

In your sweep of the area, you come across a cabinet of metal samples. It quickly becomes clear that there is one container missing. When trying to figure out what the missing bottle contained, you remember that one of the chemicals that was reported missing in a neighboring school was a solution of Calcium Sulfide. You believe that the perpetrator used this solution and the missing metal sample to produce a new ingredient with a single replacement reaction. **Can you use this theory to determine a) what the missing ingredient must have been and b) the identity of the new compound that must have been created when mixed with Calcium Sulfide?**



CLUE #6

Missing Ingredient

In one of the storage cabinets, you notice that there is a jar that has been completely emptied out. As you began to search around to see if there was any indication about the identity of this substance, you notice a ripped out sheet of notebook paper crumpled up and thrown in the trash. When you smooth it back out, you find a that it has been labeled “Ingredient List” but it only seems to have some cryptic drawings rather than the names or symbols that you would expect. **Luckily, you realize that it’s just a clever code to hide the true list and you make note of what you now know to be the missing compound.**



EVIDENCE SHEET

What does the evidence tell you? What do you know?

How might this evidence help solve the mystery?

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CONCLUSION

It is our professional opinion that the police should arrest _____

Here's why...