



## Scientific Investigation with the SJCSI

E. Berbey (1), G. Delpeyroux (2), E. Douay (3), C. Juchereau (4), and O. Garavet (5)

(1) France (berbey.svt@gmail.com), (2) France (coolkid87@hotmail.fr), (3) France (edouay@aol.com), (4) France (juchereau87@orange.fr), (5) France (ophel\_8719@live.fr)

Scientific Investigation with the SJCSI (Saint Jean\* Crime Scene Investigation)

Our work, which we have been teaching for 3 years, consists of a scientific investigation. We create a case from A to Z and then our students (15 to 16 years old) are meant to collect samples and clues from a reconstituted crime scene and then have to catch the culprit thanks to laboratory tests crossing four subjects: Physics and Chemistry, Biology, Math and English.

I'm a biology teacher and I work with 3 other teachers in my school.

The objectives of these activities are:

- Make sciences more attractive by putting them into a context of crime investigation.
- Use science techniques to find a culprit or to clear a suspect.
- To acquire scientific knowledge.
- Realize that the different scientific subjects complement each other to carry out a survey.
- Use English language and improve it.

The investigation consists of doing experiments after collecting different samples and clues on the crime scene.

Examples of Biology experimentation:

- Detecting the origin of the blood samples found on the crime scene. Students observe blood samples with a microscope and compare the characteristics to those of human blood found on the web. They discover that blood samples found aren't human blood because the red cells have a nucleus. By using the information given in the scenario, they discover that blood sample belongs to the parrot of a suspect. Students, also take a photo of their microscopic preparations, add title and caption and so they learn the cell's structure and the characteristics of blood cells.
- In another case, students have to study the blood sample found under the victims fingernails. They observe blood preparation and compare it to the blood of a suspect who has a genetic disease: drepanocytosis. So, they discover the characteristics of blood cells by comparing them to sickle cells.
- DNA electrophoresis to identify DNA found, for example, on the gun.
- Blood type identification. They discover how blood types work, the different antigens in the plasma and antibodies on the red cells.

In three years, we have solved 3 different cases. Here is the link to our website:  
<https://sites.google.com/site/websvtberbey/mps—science-et-investigation-policiere>

\*Saint Jean is the name of our secondary school.