

## Evidence

### Teacher copy

#### Evidence at the Crime Scene

- The storage door has tool marks on it from the crowbar, and the keyhole was stripped.
- A piece of white cotton fabric with blue marker on it was on the window ledge. Blouse belongs to Samantha.
- Fairly fresh gum (Wintergreen) was found outside the window, belongs to Samantha.
- A torn piece of a playing card found outside the window, but no fingerprints could be recovered (too smudged).
- Spilled zinc metal outside the window spilled as the girls were leaving.
- Several footprints were found outside the window, but they were on top of each other and could not be distinguished as to what kind. One size could be determined as 10 women's (or 9 men's).
- Two different types of shoeprints with sticky residue of spilled soda left in the back room. One set of prints is 10 women's (or 9 men's) and the other is 5 women's (or 4 men's).
- Two different types of soils found in the back room, determined to have fallen out of grooves in shoes belonging to Sally and Samantha. From Sally's shoes: pH 4, lighter soil, almost orange with very fine granules. From Samantha's shoes: pH 7, medium size granules, darker color with large amounts of minerals and fertilizers.
- Partial footprints leading from the storage room to the window also left by the sticky residue. They matched a size 10 women's Adidas and a size 5 women's Doc Martens.
- A ladder beside the chemical shelf had spilled sodium borate powder, a cleaning agent.
- Nine chemicals were missing but none strong enough to eat skin: zeolite (powerful deodorizer), aluminum potassium (powerful astringent), potassium chloride (fertilizer), sodium silicate (gel), and sodium chloride (salt). Zinc, manganese, hydrochloric acid, and hydrogen peroxide were taken because the students had just completed a lab in Ms. Miller's class in which these chemicals could generate hydrogen and oxygen gases to make rocket fuel.
- Fingerprints were all over the storage room. None of the fingerprints belonged to this group. The students wore gloves. Seven different prints were recovered matching Ms. Miller, Ashley, Ms. Anderson, Ms. White, the custodian, and two unknowns. Ms. Miller's prints were all over the room; the custodian's were on the doorknob and the chemical shelf; Ashley's prints were found all over the shelves with the chemicals and on the table; Ms. Anderson's prints were found on the shelves where the paper is stored and on the water bottle; Ms. White's prints were found on the shelf with the napkins, plates, and cups; and two sets of unknown prints were on the door, shelves, and some chemical bottles.
- Zinc metal was spilled on the ground in the storage room.
- Broken glass was on the ground in the storage room.
- A chemical inventory was found on the table in the storage room.
- A bloody napkin (Sally's type AB) was in the trash can in the storage room.
- Natural blonde hair and some blood (AB) were found on the ledge of a shelf about 5 feet high, belonging to Sally.
- Dyed blonde hair strands were found on the window, belonging to Samantha.
- Black dog hair from a black lab (which belongs to Sally's black lab) was found in the soil in the back room.

#### Other Evidence (not at crime scene)

- A crowbar found at Sally's house in garage. The girls put it there thinking it would just go unnoticed in her dad's tools. The crowbar has paint chips from the school door. (Search warrant)
- The same glass density found on Sally's and Samantha's shoe soles match the jar in room. Also, the glass has residue of black carbon powder. (Search warrant)
- A mold with the master key imprint found in George's bedroom. He kept it in case he needed it later. (Search warrant)

- Samantha's torn shirt left at Sally's house. It is white cotton with blue permanent marker on it. (Search warrant)
- Latex gloves found in a trash can outside the school belong to George, and the prints can be lifted from the inside.
- Zeolite found in George's shoes at home. (Search warrant)
- Sally's and Samantha's gloves found in the trash at Sally's house. Prints of both girls can be lifted from these. (Search warrant)
- Police report filed by Bob's neighbors describes a disturbance in the area two days after the breaking and entering.
- Residue of the chemicals taken found out in the field where neighbors reported disturbance two days after the breaking and entering of Ms. Miller's room.
- Shoeprints found in the field near the explosion, size 11 men's Etnies (or 12 women's) and a size 10 women's Doc Martens (or size 9 men's).
- A playing card was found in the bathroom (with several fingerprints that match Samantha, George, and Sally) behind the sink as well as traces of food (cheese popcorn and chips) and sticky residue from soda that was spilled.
- An activity report on the principal's computer (completed every 24 hours) notes a modified file from the discipline database at 11:50 p.m. Further investigation shows that it was George's discipline file.
- Video camera surveillance revealed three unknown people entering Ms. Miller's room with a key. Their faces were not shown. Two of these people never left the room. One person (about 5'6") left the room and entered the custodian's room, then the principal's office, then went back to the custodian's room, then to Ms. Miller's room with something long in his hand. He then left Ms. Miller's room to go back to the principal's office and then left through the side doors. He threw something in the outside trash and took off running. This was about midnight.
- Handwriting analysis matches Samantha's writing on the "Thanks Ashley" that had been erased from the white board in the storage room.
- A luminal test under UV light detected blood in the storage room. The approximate blood loss is .80 mL and the type is AB for the blood found on the shelf. Students can also do a drop analysis. The blood was found on the lip of a shelf perpendicular to the chemical shelf. This was the same type of blood found on some napkins in the trash. There was also some blood found on a razor blade that was type O. The cut was probably a slice about 2 ml deep.
- A police report filed two days after the crime, noted that an explosion happened in some farm field (by Bob's house). They found traces of manganese, zinc, hydrochloric acid, and hydrogen peroxide. They were able to distinguish one shoe print that matches a pair of Etnies, size 11 men's.

### **Red Herring Evidence**

- Water bottle with lipstick (Ruby Red by Estee Lauder) on the rim belongs to Ms. Anderson. She often borrows construction paper from Ms. Miller's back room and left her water. The lip print and fingerprint on the bottle matches her.
- Spilled black carbon powder was spilled by Ms. Miller several weeks ago, and she didn't clean it up very well.
- Mr. Evan's door left open by accident.
- Sierra, an angry student, overheard saying she wanted a chemical to eat skin. None of the chemicals taken are strong enough to do this. The HCl is only strong enough to burn and irritate skin.
- To confuse matters, the custodians had used explosives involving potassium chloride (one of the chemicals stolen), to uproot a tree stump on O'Leary's property. The explosive they used was manufactured and involved several chemicals.
- Razor blade with Ms. Miller's blood from a previous accident (type O).
- Tire tread marks matching a 2002 Dodge Caravan\* (Ms. Anderson's) were found by Ms. Miller's back door. Tracks were less than one day old, and the tire tread was new. Two different types of soil were found in the track print, with a pH of 5 (probably O'Leary) and a pH of 8.

### **Evidence that is processed by labs**

- Fabric test: Students compare how different fabrics react to flame.
- Hair analysis: Students use microscopes to compare crime scene samples of animal and human hair (dyed and natural colors).
- Fingerprint analysis: Students compare fingerprint patterns on fingerprint cards for suspects and the prints from the back room.
- Soil analysis: Students are given the soil samples from the crime scene, and they compare the granule size, color, pH, and mineral content (with UV light) with soil samples from different locations in the county limits.
- Presences of blood: Students spray the back room with a chemical and then use the UV light to see how much blood residue if found. This is when they rule out a gruesome crime scene because they don't find much.
- Glass density: Students find the density of the broken glass so they have it for reference when they discover broken glass on shoes.
- Shoeprint (Math lab)
- Blood drop (Math labs)
- Fingerprints: Students lift prints from inside a latex glove and the water bottle and do a fingerprint analysis.
- Lip print: Students do a lip print matching lab.

**Evidence that is given as a lab report:**

- Tool mark identification
- Gum analysis
- Sticky pop residue
- Chemical analysis: Students are given a chart (or can do the research on the Internet) on each of the chemicals and their most common five uses
- Chemical inventory
- Handwriting analysis
- Napkin analysis
- Video surveillance
- Computer activity report
- Police report
- Tire track report
- Grid search of field for anything unusual when explosion went off

**pH locations**

- O'Leary's pH is 5.5
- Samantha's soil at her house is pH 7
- Sally's soil at her house is pH 4
- George's soil at his house is pH 9
- Custodian's soil at his house is pH 2
- Ashley's soil at her house is pH 7.5
- Bob's soil at his house is pH 4
- Ms. Miller's soil at her house is pH 5
- Ms. Anderson's soil at her house is pH 8

**Interviews**

- Ashley
- Bob's parents
- Custodian (Paul)
- George
- George's parents
- Mr. Evans (teacher)
- Ms. Anderson (teacher)
- Ms. Miller (teacher)
- Ms. Ramirez (teacher)
- Ms. White (teacher)
- Principal

- Sally
- Sally's parents
- Samantha
- Samantha's parents
- Sierra