

Part 1 – Case Background

CONTEXTUAL OUTLINE

Science is the development of ideas. These ideas are usually termed 'models', 'theories' or 'laws', depending on which evidence scientists have available to them, and how scientists interpret this evidence.

For example, ideas on what the atom looks like are called 'models', because scientists cannot directly observe an atom – they are too small. Scientists have developed successive models of the atom by observing evidence that identifies the properties of atoms, and by interpreting evidence about the behaviour of sub-atomic particles.

The process of gathering and interpreting evidence is called scientific inquiry. A research scientist may spend a whole lifetime gathering and interpreting evidence for one idea (model, theory or law). However, forensic scientists must view every crime as a short scientific inquiry. Therefore, scientists and police need to develop a different idea for each crime scene. In forensic science the main idea is the connection between a suspect and the crime in question. As with all science the main idea depends on how scientists gather and interpret the evidence.

This unit will focus on the skills required by scientists (including forensic scientists) as they gather and interpret evidence. The process of gathering evidence involves scientists asking scientific questions, devising hypotheses, conducting surveys, designing fair tests, and organising observations and data. Interpreting evidence requires scientists to evaluate the relevance of evidence, identify patterns in data and information, make inferences, and finally, make connections in order to develop ideas. Forensic scientists communicate their ideas by writing scientific reports and explanations.

Your team of forensic scientists has been employed to gather, analyse and interpret evidence related to the theft of computers at Casper Secondary College over several weeks. A letter from Detective I. S. Otterman introduces the crime and the potential suspects. All other evidence will be made available as you complete the worksheets.

VILLAGE OF CASPER
POLICE DEPARTMENT
Casper, Southern Territory 3742

18 April 2005

Director of Research
Casper Forensics Laboratories
67 Monica Rd.
Casper, ST 3742

Dear Director,

As you will be aware, Casper Secondary College has recently had a string of burglaries of computer hardware. I understand that a team from Casper Forensics Laboratories has already gathered evidence from Computer Laboratory 4 at Casper Secondary College, the scene of the latest theft.

We are able to link three people in some way to the scene of the crime, but we want to be sure of the evidence before we declare them suspects. We have enclosed samples of trace evidence from the clothes worn by these people on the day of the theft, as well as information from witness statements provided by key personnel, that may assist in the identification of the materials.

Two of the possible suspects are teenagers present in the school at the time of the theft but not in class. A computer science teacher is another possible suspect.

We look forward to working with you on this case.

Yours sincerely,

Detective I. S. Otterman
Casper Police Department

Detective I. S. Otterman's notebook

18 March 2005

Witness Statements: Information from statements provided by key personnel

Mrs Tang was conducting her year 9 English class when a student, Jaimee realised that her wallet was missing from her pencil case. Mrs Tang gave Jaimee the keys to Computer Laboratory 4 to look for her wallet. Jaimee had arrived at English from a computer science class, so this seemed the most likely location for the missing wallet.

Jaimee left Mrs Tang's room at 10.30am, however, she failed to return to Mrs Tang's class, or to return the keys. Mrs Fizzy, Head Teacher of Computing, said that she noticed the door of Computer Laboratory 4 open, and the computer from Bay 7 missing, at 11.30am.

After questioning several staff and students the Principal, Ms Bottle, asked Liz in the office to locate Jaimee in class. Liz reported that she had no record of a student by that name in the school, and since Liz took care of all the enrolments Liz knew that Jaimee had never enrolled. Teachers reported that Jaimee had arrived in their classes several weeks earlier. One student in year 9 knew where Jaimee lived.

When the police arrived at Jaimee's home her parents confirmed that Jaimee was not enrolled at Casper Secondary College, and assured the police that they would instead find her in class at Uptown High School. Jaimee was indeed in class at Uptown High School, and stated that she had never been to Casper Secondary College.

Several teachers reported seeing Matt, a rather gangly year 10 student, walk out of school at 11am carrying something rather heavy in a large garbage bag. School records show Matt truanting all his classes after 10.20am. Matt is the only student in the school reported as truanting that day.

Mrs Fizzy was the only other person known to have access Computer Laboratory 4 that morning. She ran her computing science class from 9.10am to 10.20am.

NOTE

More witness statements, particularly statements relevant to specific pieces of evidence, will be given to you at the start of each investigation that you conduct on the evidence.

Crime Scene Summary Report

Investigation team members:

Location of crime:

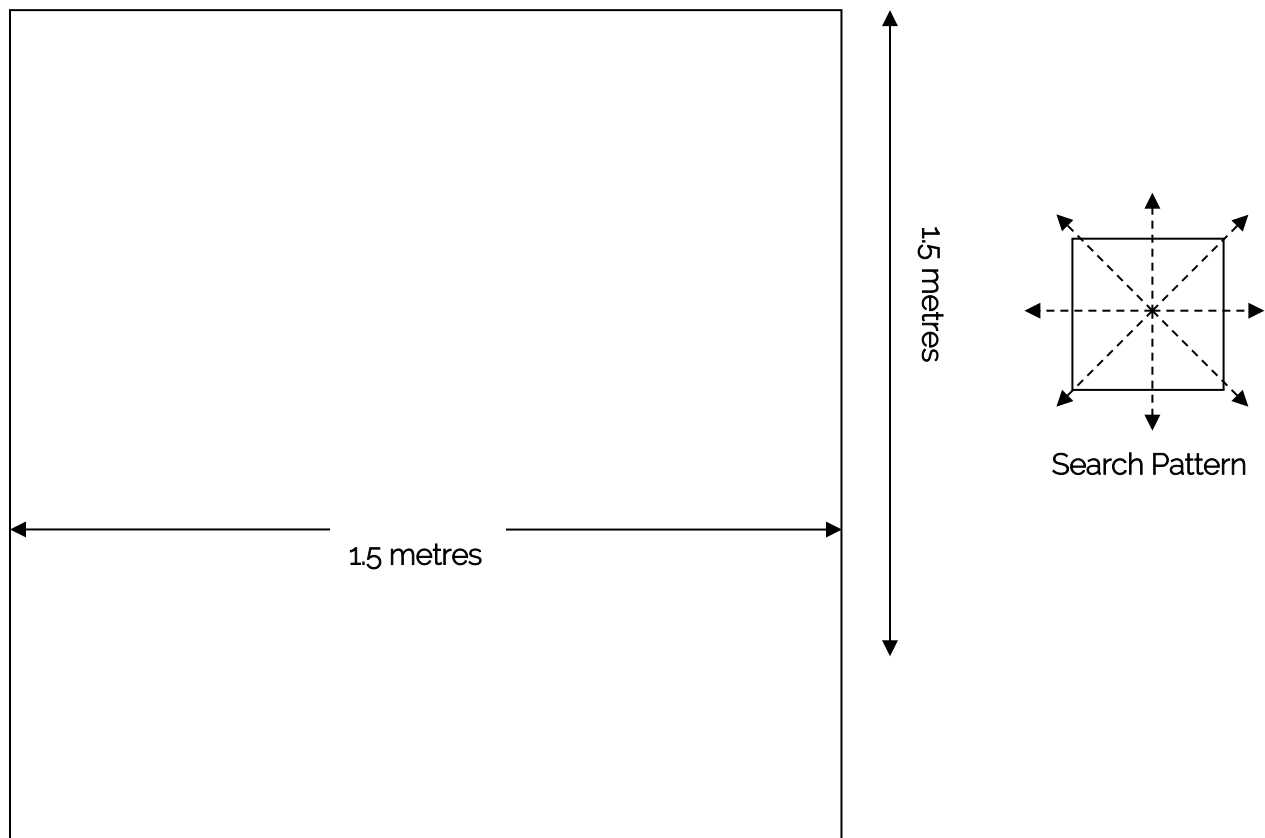
Description of crime:

Constructing an evidence grid (visual observations from the crime scene):

Equipment: 1m ruler, pencil, string (6m), small plastic bags, twist ties, spatulas, gloves

Procedure:

1. Construct a square (1.5m × 1.5m) around the crime scene using string.
2. Without stepping into the square, sketch the crime scene, identifying the locations of each item of evidence. Measure distances by placing the 1m ruler only into the crime scene.
3. Step into the square and search the crime scene for less obvious evidence using the search pattern shown below.
4. Recover all the evidence from the crime scene and seal into plastic bags.



The Evidence Bags

Evidence Bag	Evidence	Teacher Notes
Computer Laboratory 4 Evidence Bag	<ul style="list-style-type: none"> • Metal chain with one link detached (Note attached: Chain used to anchor the stolen computer) • Pollen • Sand / salt mixture • Small piece of plasticine with a clothing weave imprint. A piece of thread is stuck in the plasticine. 	<ul style="list-style-type: none"> • <i>Pollen is the same as the pollen in Jaimee's evidence bag</i> • <i>Ratio of sand to salt is 9:1</i> • <i>The weave imprint in the plasticine, and piece of thread are from the 'square of fabric' in Mrs Fizzy's evidence bag.</i>
Jaimee's Evidence Bag	<ul style="list-style-type: none"> • Black pen (Note attached: Found in a pencil case in Jaimee's possession) • Strip of filter paper with an ink line 1cm from the bottom (Note attached: Represents writing on a page of the English book left in Mrs Tang's room) • 5 small plastic bags containing white crystals • Pollen • Square of fabric (Note attached: Part of a long-sleeved shirt worn by Jaimee on day of theft) 	<ul style="list-style-type: none"> • <i>Use this pen to make the line on the strip of filter paper below.</i> • <i>Place about 30g of sodium chloride salt in each bag.</i> • <i>Same as the pollen in Computer Laboratory 4 evidence bag</i>
Matt's Evidence Bag	<ul style="list-style-type: none"> • White Powder • Garbage bag (Note attached: Matt was carrying this bag when he was seen leaving the school at 11am) • A metal link from a piece of chain (Note attached: This metal link was found inside the garbage bag that Matt was carrying) • Sand / salt mixture (Note attached: This sand is from Bungy Beach) • Square of fabric (Note attached: Part of a long-sleeved shirt worn by Matt on day of theft) 	<ul style="list-style-type: none"> • <i>The powder is sodium carbonate Na_2CO_3</i> • <i>Make the garbage bag as light weight (thin) as possible, with no damage but crumpled.</i> • <i>The metal link must be a different type of metal than the one used for the chain in computer room.</i> • <i>Ratio of sand to salt is 2 :1</i>
Mrs Fizzy's Evidence Bag	<ul style="list-style-type: none"> • White powder • Sand / salt mixture from sand pit in yard <p>Teacher information:</p> <ul style="list-style-type: none"> • Square of fabric (Note attached: Part of a long-sleeved shirt worn by Mrs Fizzy on day of theft) from this square and stick to the plasticine. 	<ul style="list-style-type: none"> • <i>The powder is corn flour</i> • <i>Ratio of sand to salt is 9:1</i> • <i>This square of fabric makes the imprint in the plasticine found in Computer Laboratory 4. Pull a thread</i>
Stolen Computer Evidence Bag	<ul style="list-style-type: none"> • Clear piece of skin • White powder 	<ul style="list-style-type: none"> • <i>The skin should come from an onion</i> • <i>The powder is corn flour</i>

Evidence Summary

Investigation team members:

Location of crime:

Evidence found at the crime scene and on the stolen computer:

Potential suspect	Evidence in common with the crime scene
Jaimee	
Matt	
Mrs Fizzy	

Notes: Identify any other information about the evidence that you feel increases your understanding of the suspects and / or the crime:

Suggested Answers

Evidence Summary

- Evidence found at the crime scene and on the stolen computer:
- Metal chain with one link detached (Chain used to anchor the stolen computer)
- Pollen
- Sand / salt mixture with 90% sand
- Small piece of plasticine with a clothing weave imprint. A piece of thread is stuck in the plasticine.
- A piece of onion skin was found on the stolen computer.
- Corn flour was found on the stolen computer.
- The computer room door could not have been open at 11.30am (Inferences worksheet)

Potential suspect	Evidence in common with the crime scene
Jaimee	<ul style="list-style-type: none"> • Pen used to write in the English book left in Mrs Tang's room was found in Jaimee's possession (Chromatography experiment). This evidence only places Jaimee inside the school and does not directly link her to the crime. • Jaimee was given the keys to the computer room around the time that the computer was stolen
Matt	No evidence links Matt to the computer or the computer room.
Mrs Fizzy	<ul style="list-style-type: none"> • Mrs Fizzy was cutting onions on the morning of the crime. Some onion skin was found on the stolen computer. • Mrs Fizzy used corn flour on the morning of the crime, and corn flour was found on the stolen computer. • Mrs Fizzy said in her witness statement that the computer room door was open at 11.30am. This information is inconsistent with the data logger evidence showing temperature changes in the room throughout the morning. • Mrs Fizzy's sand pit is a possible source of the sand in Computer Laboratory 4, because the sand from her home contains about 90% sand, as does the sand in the computer laboratory

Notes:

Evidence suggests that it may be a coincidence that Jaimee was in the school at the same time as several computers were stolen. Jaimee did lie to the police by saying that she had never attended Casper Secondary College, however, she probably lied to hide the fact that she was selling sodium chloride to students and telling them that it is a drug.