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# Project: Forensic Investigators - The Aussie Case File

## A One-Week Immersive Forensics Unit for a Homeschool Student (Age 17)

**Focus:** This unit is designed to be hands-on and project-based, minimizing the need for extensive reading and writing to accommodate dyslexia and dysgraphia. The focus is on critical thinking, observation, verbal communication, and scientific application. The final assessment is a verbal presentation of the case findings.

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## Materials Needed:

### General:

- Computer with internet access
- Smartphone or camera for photos/video
- Notebook or digital tool for logging evidence (can use speech-to-text)
- Printer (optional, for printing evidence markers)
- Whiteboard or large paper for mind mapping the case

### For the Crime Scene (Set up by parent/teacher before Day 1):

- A designated "crime scene" area (a room or part of a room)
- "Caution" tape or string/yarn to secure the area
- A "victim" outline (can be made with masking tape on the floor)
- **Evidence to plant:**
  - A "ransom" note written with a specific pen
  - A glass or cup with clear fingerprints on it
  - A muddy footprint on a piece of paper or cardboard
  - "Blood" spatters (made from ketchup or red food colouring mixed with corn syrup) on a piece of cardboard
  - A few strands of "hair" (can be from a wig or different family members)

### For Lab Activities:

- Clear tape (for fingerprinting)
- Fine powder (cocoa powder, cornflour, or charcoal powder)
- Small, soft brush (like a makeup brush)
- Paper (white and black, for contrasting with powder)
- Magnifying glass
- Coffee filters or paper towels
- Several different black felt-tip pens (including the one used for the note)
- Small cups or jars for water
- Plaster of Paris
- A shallow box or tray for casting the footprint
- Protractor and string (for blood spatter analysis)
- Tweezers
- Small bags or envelopes for evidence collection ("evidence bags")
- Gloves

## Daily Lesson Plan

### Day 1: The Emergency Call & First Responders

**Key Learning Areas:** Health, Social Sciences (Civics), English (Oral Communication)

- **Activity 1: Understanding Australian First Responders (1 hour)**

Instead of reading, watch short, engaging videos about the roles of different first responders in Australia. Discuss their primary duties.

- **Police:** Search for "Australian Federal Police recruiting" or "Day in the life of a NSW Police Officer" on YouTube.
- **Paramedics:** Search for "Inside an Ambulance Australia" clips.
- **Firefighters:** Search for "Fire and Rescue NSW station tour."

**Verbal Task:** After watching, verbally explain the key responsibilities of each service at a crime scene. Who arrives first? Who is in charge? What is the paramedic's main goal versus the police officer's?

- **Activity 2: The Crime is Reported! (30 mins)**

Introduce the mock crime scene. The student's first task is to act as the dispatcher and the first responding officer.

**Verbal/Audio Task:** Create an "emergency call" script. The student can act out both parts (the caller and the dispatcher) and record it as an audio file. Focus on the key questions a dispatcher would ask: "*What is your emergency?*", "*Where are you located?*", "*Is anyone injured?*".

- **Activity 3: Securing the Scene (30 mins)**

As the "first officer on scene," the student's job is not to touch anything, but to secure the area. Use the string or tape to create a perimeter around the crime scene. Create a simple "Scene Entry Log" on a whiteboard, noting the name of anyone who enters or exits and the time. This introduces the concept of chain of custody and preventing contamination.

### Day 2: Documenting the Crime Scene

**Key Learning Areas:** The Arts (Photography, Drawing), Mathematics (Measurement, Scale), Technology

- **Activity 1: Crime Scene Photography (1 hour)**

Explain the three types of crime scene photos: overall views, mid-range photos of evidence in relation to objects, and close-ups of specific evidence (with a ruler for scale). Using a smartphone or camera, the student must document the entire scene and all pieces of evidence following this protocol. This is a visual task that requires no writing.

- **Activity 2: Crime Scene Sketching (1.5 hours)**

Instead of a formal, written report, forensic investigators create sketches.

- **Rough Sketch:** The student will draw a bird's-eye view of the scene. It doesn't need to

be perfect. They should draw and label the furniture, victim outline, and evidence locations. They can use symbols or simple drawings instead of words (e.g., a cup shape for the glass).

- **Scale Diagram (Maths Link):** Choose one wall of the room. Measure the wall and the location of two pieces of evidence from the corners. Now, create a simple scale drawing of that wall on graph paper (e.g., 1 cm = 20 cm). This practices measurement and proportion without heavy calculation.

### Day 3: Evidence Collection

**Key Learning Areas:** Science (Process & Procedure), Health (Safety)

- **Activity 1: Bag It and Tag It! (1.5 hours)**

This is a purely hands-on activity.

1. Watch a short video on "how to properly collect forensic evidence." Focus on avoiding contamination.
2. The student will put on gloves. They will use the tweezers for small items like hair.
3. Each piece of evidence identified on Day 2 will be carefully collected and placed into its own "evidence bag" (envelope or zip-lock bag).
4. **Labelling Task (Dysgraphia-friendly):** Instead of handwriting detailed labels, create simple pre-printed labels they can fill in with minimal info: **Case #, Item #, Date, Collected by (Initials)**. Or, they can dictate the information for the parent/teacher to scribe.

- **Activity 2: Casting an Impression (1 hour)**

Let's collect the footprint evidence. Place the paper with the muddy footprint inside the shallow box. Mix the Plaster of Paris according to the instructions and gently pour it over the impression. Let it set. This is a great tactile and scientific process.

### Day 4: In the Crime Lab

**Key Learning Areas:** Science (Chemistry, Biology), Mathematics (Geometry)

Today is all about hands-on analysis of the collected evidence. Set these up as stations.

- **Station 1: Fingerprint Analysis (1 hour)**

Dust the collected glass/cup for prints using the soft brush and fine powder. Use a contrasting powder colour to the surface. Gently "lift" the best print using a piece of clear tape and stick it onto a contrasting piece of paper. Compare the lifted print to "reference prints" from household members. Can you find a match?

- **Station 2: Ink Chromatography (30 mins)**

Let's analyze the note. Cut a strip from the coffee filter. Draw a thick line with the pen from the "ransom note" about 2 cm from the bottom. Do the same on separate strips for the other "suspect" pens. Suspend the strips in a jar with the bottom edge just touching the water. Watch as the water travels up the paper, separating the ink pigments. Does the ink from the note match any of the suspect pens?

- **Station 3: Blood Spatter Analysis (1 hour)**

Using the "blood spatter" cardboard, identify one or two distinct drops. For each drop, measure its width and length. Use an online calculator (search "blood spatter angle of impact

calculator") to find the angle. Then, using a string, trace the angle back from the spatter to see if you can determine the "area of origin" from which the blood came. This is a fantastic application of trigonometry without the complex formulas.

## Day 5: Cracking the Case!

**Key Learning Areas:** English (Persuasive Speaking), Critical Thinking, Logic

- **Activity 1: Connecting the Dots (1.5 hours)**

Lay out all the evidence analysis results from Day 4 (the lifted fingerprint, the chromatograms, the plaster cast, the hair samples, the blood spatter photos/notes). Use a whiteboard or large paper to create a mind map. Draw lines connecting the evidence to potential suspects (family members can be the "suspects"). Who does the evidence point to? There is no need to write a full report; the student can use pictures, symbols, and single words to organize their thoughts.

- **Activity 2: The Final Briefing (1 hour) - (Final Assessment)**

The student's final task is to present their findings verbally to a "lead detective" (parent/teacher). The presentation should cover:

1. A brief summary of the crime scene.
2. What each piece of evidence was and what the lab analysis revealed.
3. Their conclusion about who is responsible for the crime, supported by the evidence.

This assesses their understanding, reasoning, and communication skills without the pressure of a written exam. It's a powerful way to synthesize a week of learning.

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