

Forensics Kit



Mid-Valley
STEM-CTE HUB



www.midvalleystem.org
midvalleystemctehub@linnbenton.edu
Linn-Benton Community College
Albany Campus - CC-212



Forensics Kit

The Forensics STEAM Kit invites students to step into the role of young investigators as they explore the fascinating world of forensic science. With hands-on tools and engaging books, this kit blends chemistry, biology, and deductive reasoning to spark curiosity and critical thinking across multiple disciplines.



Grade Level

4th - 9th

Group Size

15 - 20 students

Time Duration

30 - 60 minutes. Though longer activities like full investigations can take up to 90 minutes.

Content of Kits

Components

- Book - “Forensics for Kids” by Melissa Ross
- Book - “Forensic Science” by Alex Firth
- Glow-in-the-dark beads
- Invisible ink
- Lights
- Black light pens
- Forensic sampling kit
- Indicator paper



Usage

Getting Started

1. **Introduce Forensic Science with Books -**
Begin with selected readings from Forensics for Kids or Forensic Science to introduce key concepts like DNA, evidence collection, or chemical analysis.
2. **Demonstrate Each Tool Separately -** Show how to use black lights, invisible ink, and universal indicator paper in simple demonstrations before students use them in investigations.
3. **Review Lab Safety and Handling -** Brief students on proper use of black light flashlights, chemical indicators, and DNA materials to set expectations for safe experimentation.
4. **Assign Group Roles -** Roles like “Lead Investigator,” “Evidence Recorder,” “Lab Technician,” and “DNA Analyst” help manage tasks and encourage collaboration.
5. **Set Up a Controlled Investigation Area -** Use darkened corners, lab trays, or designated stations for UV light and ink experiments to improve visibility and focus.

Storage

- **Protect Light-Sensitive and Liquid Materials -** Keep glow-in-the-dark beads and invisible ink pens in opaque bags or containers to preserve functionality.
- **Keep Books and Paper Materials Dry -** Store books and indicator paper in plastic sleeves or folders to avoid spills or moisture damage.

Troubleshooting

- **Black Light Not Working -** Check or replace batteries and ensure the flashlight is not used in brightly lit areas that overpower the UV effect.
- **Invisible Ink Not Showing Up -** Test on clean, dry paper and hold close to the black light source. Some pens may require re-inking if left uncapped too long.
- **Indicator Paper Not Changing Color -** Dip quickly and test with a known solution first to ensure the strips are still reactive; avoid over-saturation.



Activity Guide

Beginner

Secret Message Reveal

Students write secret messages or codes with black light pens, then trade and reveal each other's messages using black light flashlights. This introduces the use of ultraviolet light in forensics and sparks curiosity around hidden evidence.

Intermediate

Chemical Clue Analysis

Students test mystery "substances" (e.g., lemon juice, baking soda solution, vinegar) using universal indicator paper. They record and compare results, learning how pH and chemical testing help identify unknown substances in real investigations.

Advanced

DNA Extraction Lab

Students use the included DNA kit to extract DNA from a fruit (like strawberries). They document each step and analyze the visible DNA strands, connecting biology concepts to crime scene investigation and genetics.

Extension Activities:

The Case of the Missing Artifact

Students are given a staged "crime scene" with clues: invisible ink notes, mystery liquids, glow-in-the-dark items, and DNA evidence. Working in teams, they analyze each clue using the tools from the kit and present their conclusions in a case report.



Learning Extensions

STEAM Connections: Science - Math - Technology

Learning Objectives:

- Understand foundational forensic science techniques such as evidence detection, chemical testing, and DNA analysis.
- Apply the scientific method through observation, hypothesis formation, and investigation.
- Develop logical reasoning and deductive thinking by analyzing clues and drawing conclusions.
- Strengthen lab skills including measurement, data collection, and handling specialized tools.
- Communicate scientific findings through written case reports and verbal presentations.

Career Connections:

- **Forensic Scientist** – Uses scientific techniques to analyze evidence and assist in criminal investigations.
- **Crime Scene Investigator (CSI)** – Collects, documents, and processes evidence at crime scenes.
- **Toxicologist** – Tests chemicals and substances to determine their properties or identify contamination.
- **Geneticist or Lab Technician** – Extracts and analyzes DNA for research or identification.
- **Detective** – Applies critical thinking and pattern recognition to piece together clues and solve problems.

Essential Employability Skills:

- Problem-Solving
- Attention to Detail
- Teamwork
- Communication
- Adaptability





Resources and Accessibility

Safety Guidelines

- **Use UV Light Responsibly** – Do not shine black lights directly into eyes. Always supervise their use in a controlled, dim area.
- **Handle Chemicals with Care** – Only use the universal indicator paper and DNA kit materials with adult supervision. Avoid contact with eyes or mouth.
- **Clean Up After Labs** – Dispose of used indicator strips and DNA materials properly. Wipe down surfaces after experiments.
- **Avoid Ink Ingestion** – Do not allow students to draw on skin or near the face with black light pens or invisible ink markers.
- **Protect Books and Paper** – Keep books and paper-based tools away from wet lab stations to avoid damage.

Accessibility

- **Use Step-by-Step Visual Instructions** – Provide illustrated guides or photo cards for hands-on tasks like DNA extraction or indicator testing.
- **Offer Flexible Group Roles** – Allow students to participate as notetakers, clue readers, or analysts if lab tasks are physically challenging.
- **Enlarge Labels and Clues** – Use large-print versions of written clues or color-coded stickers for easier identification.
- **Pre-Measure Materials** – Prepare small portions of test liquids or setup trays ahead of time for students with motor difficulties.

Library Catalog



Library Resources



Feedback

QR to feedback survey

