

CSI: Crime Scene Investigation

In this demonstration students will conduct multiple reviews of common crime scene investigation techniques and learn how they apply to real world crimes. Students will become familiar with interpreting handwriting samples and learn how to use chromatography skills to identify ink samples. Students will also have the opportunity to examine their own fingerprints up close and see how each fingerprint is unique. At the end, the students get the opportunity to solve their own mystery

Grade-Specific Summary Table

This table provides a quick overview of which demo slides/activities match Alberta curriculum for each grade.

Grade	Curriculum Focus	Demo Activity	Slide/Activity Reference	Key Concept(s)
K	Scientific Thinking: Observation & Evidence (Kindergarten-Friendly Version)	Fingerprint analysis Handwriting comparison Footprint matching Cookie jar mystery	K Version: Fingerprints (slides 5-7) Handwriting (slide 8) Footprints (slide 9) Mystery (slides 11-18)	Using evidence to solve problems, Observation skills, Pattern recognition, Sequential reasoning
4	Scientific Method: Evidence & Investigation	Optional: All forensic activities	Regular Version: All activities can supplement Grade 4 investigations	Making observations, Gathering evidence, Drawing conclusions, Testing hypotheses,
5	Scientific Method: Hypothesis & Testing	Optional: All forensic activities	Regular Version: Chromatography, fingerprints, handwriting, mystery solving	Formulating hypotheses, Testing predictions, Analyzing data, Evaluating evidence
6	Evidence & Investigation: Forensic Science	Chromatography Handwriting analysis Fingerprint classification Witness	Regular Version: Chromatography (slides 4-5) Handwriting (slides 6-7) Fingerprints	Paper chromatography, Classifying fingerprints, Observing footprints,

		testimony Cookie jar mystery	(slides 8-11) Mystery (slides 12-16)	Making inferences from evidence, Comparing fabric/materials
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Detailed Curriculum Links and Objectives by Grade

Kindergarten: Scientific Thinking - Observation & Evidence

Curriculum Link:

- While not directly correlated to kindergarten curriculum, this demo introduces students to how science is applied in the real world and provides opportunity to apply knowledge to solve problems as a class.
- Incorporates scientific method discussion (question, hypothesis, methods, conclusion).

Objectives:

- Use observation skills to identify patterns in fingerprints, handwriting, and footprints.
- Understand that evidence provides clues to solve problems.
- Apply learned concepts to solve a class mystery using multiple types of evidence.
- Practice sequential reasoning by analyzing clues in order.
- Develop critical thinking by discussing why certain evidence matches or does not match.

Grade 4: Scientific Method - Evidence & Investigation (Optional)

Curriculum Link:

- Students learn to make observations, gather evidence, and draw conclusions based on data.

Objectives:

- Practice making careful observations of evidence
- Gather multiple types of data to support conclusions.
- Understand that strong evidence requires multiple supporting pieces of information.

Grade 5: Scientific Method - Hypothesis & Testing (Optional)

Curriculum Link:

- Students formulate hypotheses, test predictions, and analyze data to evaluate results.

Objectives:

- Formulate hypotheses about who committed the crime based on initial evidence.
- Test predictions by gathering additional evidence through experiments.
- Analyze data from multiple sources (chromatography, fingerprints, handwriting).
- Evaluate strength of different types of evidence.

Grade 6: Evidence & Investigation - Forensic Science

Curriculum Link:

- The Grade 6 Evidence and Investigation unit directly includes observing footprints, making inferences from evidence, paper chromatography, classifying fingerprints, analyzing handwriting, and comparing fabric.
- Scientific Method is incorporated throughout all activities.

Objectives:

- Conduct paper chromatography to separate ink colors and match markers to crime scene notes.
- Classify fingerprints using loop, arch, and whorl patterns.
- Compare handwriting samples to identify matches based on specific characteristics.
- Observe and analyze footprint evidence to determine suspect information.
- Make inferences from multiple types of evidence to solve a mystery.
- Understand limitations of different evidence types (e.g., fingerprints cannot determine when someone touched something).
- Discuss concept of alibis and witness testimony in investigations.

Scientific Method Integration (All Grades)

Both versions of the CSI demo incorporate the scientific method throughout:

- Question: Who stole the last cookie?
- Hypothesis: After each piece of evidence, students predict the culprit
- Methods: Using chromatography, fingerprint analysis, handwriting comparison, footprint matching
- Observation: Carefully examining patterns and matches
- Conclusion: Determining the culprit based on all available evidence
- Discussion: Why other suspects had partial evidence matches (visited on different days, left notes previously)

Activity-Based Summary Table

Demo Activity	Slides (Regular/K Version)	Alberta Curriculum Outcome	Key Concepts
Chromatography Experiment	4-5 / Not in K version	Evidence analysis, separation techniques	Ink separation, pattern recognition, matching evidence
Handwriting Analysis	6-7 / Slide 8 (K)	Observation, pattern comparison	Individual writing characteristics, evidence comparison
Fingerprint Classification	8-11 / Slides 5-7 (K)	Pattern recognition, unique identifiers	Loops, arches, whorls, individual uniqueness
Footprint Investigation	Not emphasized / Slide 9 (K)	Physical evidence, inference	Shoe size, patterns, weight/height estimation
Cookie Jar Mystery	12-16 / Slides 11-18 (K)	Problem-solving, scientific method	Hypothesis testing, evidence synthesis, conclusion
Witness Testimony Discussion	4/ Not in K	Critical thinking, alibi concepts	Verification, reliability of evidence, time factors