

Trace Evidence

Content Area: **Science**
Course(s): **CP Forensics**
Time Period: **Marking Period 4**
Length: **1.5 weeks**
Status: **Published**

Course Pacing Guide

	Unit	MP	Weeks
Trace Evidence		4	1.5

Unit Overview

In this unit, students learn about the different types of trace evidence; hair, fiber, paint, and glass.

Enduring Understandings

Students will gain the understanding of the forensic significance of trace evidence including Locard's Exchange Principal and how trace evidence is used in an investigation.

Essential Questions

What are the different types of glass and how do they break?

How can a chip of automotive paint be used in an investigation to determine the type of car that was driven?

how can you determine the type of fiber found?

What are the three layers of hair and how can it be used for speciation and narrowing down a suspect pool?

New Jersey Student Learning Standards (No CCS)

9-12.HS-ETS1-1.1.1	Analyze complex real-world problems by specifying criteria and constraints for successful solutions.
9-12.HS-ETS1-3.6.1	Evaluate a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

Amistad Integration

The Amistad Bill (A1301), which became law in 2002, calls on New Jersey schools to incorporate African-American history into their **social studies** curriculum.

This course does not fall in this category.

Holocaust/Genocide Education

a. Every board of education shall include instruction on the Holocaust and genocides **in an appropriate place in the curriculum** of all elementary and secondary school pupils.

This lesson does not fall in this category

Interdisciplinary Connections

VPA.1.1.12.C.CS2	Characters have physical, emotional, and social dimensions that can be communicated through the application of acting techniques.
VPA.1.3.12.C.CS2	Presentation of believable, multidimensional characters in scripted and improvised performances requires application of specific physical choices, sustained vocal technique, and clearly motivated actions.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.B.CS2	Create original works as a means of personal or group expression.
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21st Century Themes/Careers

Financial Literacy Integration

1. The State Board of Education shall require that a school district incorporate in each of the grades ¹[kindergarten] six¹ through eight financial literacy instruction to pupils enrolled in those grades. The purpose of the instruction shall be to provide ¹[elementary and]¹middle school students with the basic financial literacy necessary for sound financial decision-making.

This course dose not fall in this range.

Instructional Strategies & Learning Activities

In this unit, students examine hair and fiber under the microscope to better see the differences in hair from different species as well as diffrences in human hair. They also conduct the burn test to determine how natural and synthetic fibers react to exposure to flame.

Forensic Science – Trace Evidence

For Trace Evidence, you will be investigating one of the four major types of trace evidence: hair, fibers, glass, or paint. Your group will be researching your particular type of evidence and giving an oral presentation on your findings. Essentially, you will be teaching the content which will be on the test. For guidance, I have included a page with focus questions and topics for coverage. Everything on the sheet should be researchable and presentable by your group. Anything not covered will be covered by Mr. Kidd. However, your grade will (in part) reflect the quality and comprehensiveness of your lesson.

Your presentation should be performed using Power Point, and should be conducted using at least 2 of your group members. In addition, you must construct some type of handout for student use while you present.

You may use any resource you like for your research, including textbooks. All resources should be cited.

Trace Evidence Presentation Rubric

I. Content:

Accuracy (5 pts)	_____
Depth (5 pts)	_____
Forensic Significance (5 pts)	_____

II. Oral Presentation:

Clarity (5 pts)	_____
Interesting (5 pts)	_____
Visually Appealing (5 pts)	_____
Logical progression (5 pts)	_____
Team Contribution (5 pts)	_____
Media (5 pts)	_____

III. Handout

Understandable (5 pts)	_____
Useful (5 pts)	_____
Alignment with presentation (5 pts)	_____

TOTAL (possible 60 pts)

Differentiated Instruction

- Curriculum Map
- Inquiry/Problem-Based Learning
- Learning preferences integration (visual, auditory, kinesthetic)
- Tiered Learning Targets
- Learning through play
- Relationship-Building & Team-Building
- Self-Directed Learning

- Debate
- Student Data Inventories
- Mastery Learning (feedback toward goal)
- Goal-Setting & Learning Contracts
- Grouping
- Rubrics
- Flipped Classroom
- Mentoring
- Assessment Design & Backwards Planning

Formative Assessments

Open ended questions asked during the lesson to gauge student understanding and address any misconceptions.

Summative Assessment

students are asked to identify breakage patterns in glass, identify hair, and identify fibers.

Benchmark Assessments

There are no gradelevel standards for this class.

Alternate Assessments

students are asked to identify breakage patterns in glass, identify hair, and identify fibers.

Resources & Technology

Powerpoint and SMART Board presentations are used to introduce new material. Students will also work in groups to create a presentation about one of the four types of trace evidence.

BOE Approved Texts

Saferstein, Richard, 1941-. **Criminalistics : An Introduction to Forensic Science**. Upper Saddle River, NJ :Prentice Hall, 1998.

Closure

students are asked to identify breakage patterns in glass, identify hair, and identify fibers.

ELL

- Teacher Modeling
- Group work
- Simplified Written and Verbal Instructions
- Google Translate

Special Education

- Specify and list exactly what the student will need to learn to pass.
- Evaluate the classroom structure against the student's needs (flexible structure, firm limits, etc.).
- Keep workspaces clear of unrelated materials.
- Reduce visual distractions in the classroom (mobiles, etc.).
- Provide a computer for written work.
- Seat the student close to the teacher or a positive role model.
- Provide an unobstructed view of the chalkboard, teacher, movie screen, etc.
- Keep extra supplies of classroom materials (pencils, books) on hand.
- Maintain adequate space between desks.
- Give directions in small steps and in as few words as possible.
- Number and sequence the steps in a task.
- Have student repeat the directions for a task.
- Provide visual aids.
- Go over directions orally.
- Allow the student to complete an independent project as an alternative test.
- Grade spelling separately from content.
- Show a model of the end product of directions (e.g., a completed math problem or finished quiz).
- Stand near the student when giving directions or presenting a lesson.

- preferential seating
- extended time on tests and assignments
- modified textbooks or audio-video materials
- behavior management support
- excused lateness, absence, or missed classwork

At Risk

- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Assistance in maintaining uncluttered space
- No penalty for spelling errors or sloppy handwriting
- Follow a routine/schedule
- Teach time management skills
- Verbal and visual cues regarding directions and staying on task
- Visual daily schedule
- Immediate feedback
- Work-in-progress check
- Pace long-term projects
- Cue/model expected behavior
- Use de-escalating strategies
- Use peer supports and mentoring
- Chart progress and maintain data

Gifted and Talented

Focus on effort and practice

Offer the Most Difficult First

Offer choice

Speak to Student Interests

Allow G/T students to work together

Encourage risk taking

