Unit 04: Trace Evidence

Content Area: **Science**
Course(s): **Forensics**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Standards

SCI.HS.LS1.A	Structure and Function
	Obtaining, Evaluating, and Communicating Information
	Structure and Function
	Constructing Explanations and Designing Solutions
	Cause and Effect
	Stability and Change
	Asking Questions and Defining Problems

Enduring Understandings

1. The anatomical structure of hair can be analyzed on the macroscopic and microscopic level to identify class and individual characteristics.
2. Mitochondrial DNA is contained within the hair shaft and nuclear DNA is contained in the root/follicle of the hair.
3. Fibers can be identified by their chemical and physical properties.
4. There are many techniques which can be used to identify pigments and other components of paint in order to determine their composition.

Essential Questions

1. Why is hair such an important piece of evidence?
2. What characteristics of hair allow it to be used as evidence?
3. What characteristics of fibers allow them to be used as evidence?
4. What other examples of trace evidence (besides hair and fiber)?
5. How can forensic scientists use trace evidence to explain what happened at a crime scene?

Knowledge and Skills

Knowledge:

1. Students will know and be able to identify the anatomical structure of hair and explain how macroscopic and microscopic characteristics of hair can be used in crime scene investigation.
2. Students will know how to explain the difference between mitochondrial DNA and nuclear DNA as it pertains to hair.
3. Students will know how to identify various types of fibers and explain how microscopic properties of fibers can be used in crime scene investigation.
4. Students will know how to analyze paint to determine its composition.

Skills:

1. Evaluate the significance of hair evidence found at a crime scene.
2. Solve a case using hair specimens.
3. Test fibers using a burn analysis to determine the identity of an unknown fiber.
4. Apply knowledge of paint analysis to the detection of forged paintings.

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit