Unit 2: Types of Identification

Content Area: **Science**
Course(s):
Time Period: **Generic Time Period**
Length: **7 weeks**
Status: **Published**

Unit Introduction

This topic will cover the methods of identification utilized in Forensics Science. Subcontent topics will include the Bertillon System, Fingerprinting, Odontology, Anthropology, DNA Fingerprinting/Genetics, and Hair Analysis.

Standards

SCI.9-12.HS-ESS1-5.1.1	Empirical evidence is needed to identify patterns.
SCI.9-12.HS-ESS1-1.3.1	students understand the significance of a phenomenon is dependent on the scale, proportion, and quantity at which it occurs. They recognize patterns observable at one scale may not be observable or exist at other scales, and some systems can only be studied indirectly as they are too small, too large, too fast, or too slow to observe directly. Students use orders of magnitude to understand how a model at one scale relates to a model at another scale. They use algebraic thinking to examine scientific data and predict the effect of a change in one variable on another (e.g., linear growth vs. exponential growth).
SCI.9-12.HS-ESS2-1.7.1	Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.
SCI.9-12.HS-ESS1-6.7.1	students understand much of science deals with constructing explanations of how things change and how they remain stable. They quantify and model changes in systems over very short or very long periods of time. They see some changes are irreversible, and negative feedback can stabilize a system, while positive feedback can destabilize it. They recognize systems can be designed for greater or lesser stability.
SCI.9-12.HS-ETS1-4.4.1	Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions— including energy, matter, and information flows— within and between systems at different scales.
SCI.9-12.HS-LS1-1.6.1	students investigate systems by examining the properties of different materials, the structures of different components, and their interconnections to reveal the system's function and/or solve a problem. They infer the functions and properties of natural and designed objects and systems from their overall structure, the way their components are shaped and used, and the molecular substructures of their various materials.
SCI.9-12.HS-PS1-1.1.1	students observe patterns in systems at different scales and cite patterns as empirical evidence for causality in supporting their explanations of phenomena. They recognize classifications or explanations used at one scale may not be useful or need revision using a different scale; thus requiring improved investigations and experiments. They use mathematical representations to identify certain patterns and analyze patterns of performance in order to reengineer and improve a designed system.
SCI.9-12.HS-PS4-5.2.1	Systems can be designed to cause a desired effect.
SCI.9-12.HS-PS4-4.2.1	Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms

within the system.

SCI.9-12.HS-PS1-2.6	Constructing Explanations and Designing Solutions
SCI.9-12.HS-PS1-2.6.1	Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Essential Questions

Why was the Bertillon System so useful?

What is the significance of physical evidence as it relates to criminal investigations?

Content / Skills

Content:

- The importance of the Bertillon System
- The history of Fingerprints
- Analyze specific charateristics of teeth
- Identify key charactertistics of skeletal remains
- Compare DNA sequences and genetic characteristics
- Describe patterns of hair under a microscope

Skills:

- Analyze common types of physical evidence encountered at crime scenes
- Evaluate the significance of various types of physical evidence
- Determine the age, race, and gender of a person based on skeletal remains
- Determine the value of the contributions from the Bertillon System
- Analyze differnces and similarities between humans based on DNA sequence
- Compare the characteristics of hair to determine race and body part origin

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