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| **WCSD High School Forensic Science Unit Overview**  This course model arranges the Performance Expectations for High School Forensics into different units with guiding questions.  NOTE: HS-ETS1-2 applies to every unit throughout the year although it is listed only in the units in first semester. | | | | |
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| **1st Semester Forensics** | | | | |
| **Unit title:**  **Crime Scene Investigation and Evidence Collection**  **Guiding Questions**  How are crime scenes investigated? | **Unit title:**  **Fingerprints and Impressions**  **Guiding Questions**  How can fingerprints and other impressions be associated with a particular source? | **Unit title:**  **Hair and Fibers Evidence**  **Guiding Questions**  How can forensic analysis use the macro and microscopic characteristics of hair and fiber to identify the source? | **Unit title:**  **Trace Evidence**  **Options include: Soil, Glass, Pollen, Physical Match, fire debri and ignitable liquids**  **Guiding Questions**  What are the types of trace evidence and how are they used in Forensic Science? | **Unit title:**  **Questioned Documents**  **Forensic Careers (Optional)**  **Guiding Questions**  What are questioned documents and how can they be analyzed? What careers are related to Forensic Science? |
| HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instruction for characteristic trait passed from parents to offspring.  HS-LS3-3- Apply concepts of statistics and probability to explain variation and distributions of express traits in a population.  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.  HS-ETS1-2 Design a solution to a complex real- world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.  HS-LS3-3 Apply concepts of statistics and probability to explain variation and distributions of express traits in a population.  HS-PS1-3 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | HS-PS1-3 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.  HS-ETS1-2 Design a solution to a complex real- world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. | HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.  HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.  WCSD 21st Century Competencies |

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| **2nd Semester Forensics** | | | | |
| **Unit title:**  **Biological Evidence including DNA, Serology, Blood Spatter**  **Guiding Question:**  How can bodily fluids be used in forensic analysis? | **Unit title:**  **Toxicology and Seized Drugs**  **Guiding Questions:**  How are toxins, drugs, and poisons classified, identified and used as Forensic Evidence? | **Unit title:**  **Anthropology and Odontology**  **Guiding Questions:**  How can information from skeletal remains be used to construct a biological profile? | **Unit title:**  **Fire Arms and Tool Marks**  **Guiding Question:**  How do Forensic scientists analyze evidence from tools and firearms to help solve crimes? | **Unit Title: (Optional)**  **Death Cause, Criminal Profiling, entomology**    **Guiding Questions**  How can insect evidence be used to determine the time and location of death?  Can the physical and psychological characteristics of a serial criminal be determined by profiling?  What is COD and how is it determined? |
| HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.  HS-LS3-3 Apply concepts of statistics and probability to explain variation and distributions of express traits in a population.  HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. | HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.  HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.  HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.  HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.  HS-PS1-6 Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. | HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.  HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. | HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.  HS-PS2-1 Analyze data to support the claim that Newton’s second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.  HS-PS4-1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media. | HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.  HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).  WCSD 21st Century Competencies |