

Forensics : Unit 3 Evidence unit 2 (Ballistics, Impression, Documents, Fibers)

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> - Students will demonstrate the ability to observe and describe patterns in natural and human designed phenomena and use those patterns to support claims about the observed or predicted relationships among phenomena. - Students will demonstrate the ability to investigate, explain, and evaluate potential causal relationships by using evidence to support claims and predictions about the mechanisms that drive those relationships. - Students will demonstrate the ability to investigate and analyze a natural or human designed system in terms of its boundaries, inputs, outputs, interactions, and behaviors and use this information to develop a system model that can be used to understand and empirically evaluate the accuracy of models in terms of representing the underlying system. - Students will demonstrate the ability to investigate and analyze static and dynamic conditions of natural and human designed systems in order to explain and predict changes over time. - Student will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations using a variety of research methods in a various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions. - Students will demonstrate ability to analyze and summarize text and integrate knowledge to make meaning of discipline-specific materials. - Students will demonstrate the ability to produce coherent and supported writing in order to communicate effectively for a range of discipline-specific tasks, purposes, and audiences. - Students will demonstrate the ability to speak purposefully and effectively by strategically making decisions about content, language use, and discourse style. <u>Content Standards:</u> - HS-LS1-1 Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including student's own	Transfer	
	Students will be able to independently use their learning to compare and contrast information to draw conclusions.	
	Meaning	
	ENDURING UNDERSTANDINGS Students will understand that... - all objects have distinguishing physical characteristics that can be identified in an impression. These objects (tool marks, tire tracks, bite marks, shoe impressions and ballistics) can be identified by their impression through comparing key physical characteristics. - attention to detail and adhering to logic is critical to be successful in many situations	ESSENTIAL QUESTIONS - What is reality? - How can things be hidden in plain sight?
	Acquisition	
	Students will know... - that handwriting becomes personalized almost as soon as students begin learning it - that questioned documents and other collected documents can be analyzed for handwriting comparisons to determine if the author of each is the same. - that inks (printer, pen and photocopier) can be compared to determine if they share a common source. - questioned documents may be analyzed for alterations, obliterations, erasures, or variations in pen inks. - that there are anti-counterfeiting features on U.S. currency. - that LD 50 is a method to classify how toxic a substance is. - that fibers are either natural or synthetic	Students will be skilled at... -Constructing and revising explanations -Developing models -Applying scientific principles and evidence to provide an explanation -refining the design of a system -using mathematical representation -planning and conducting investigations -communicating scientific and technical information -Quantifying results -performing basic statistical analysis

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 - HS-LS1-2 Develop and use a model based on evidence to illustrate the relationship between systems or between components of a system - HS-LS1-3 Plan and conduct an investigation individually and collaboratively to produce data to service as a basis for evidence, an in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on precision of the data (e.g., number of trials, cost, risk, times), and refine the design accordingly. - HS-LS2-7 Design, evaluate and refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and trade off consideration. - HS-LS3-1 Ask questions that arise form examining models or a theory to clarify relationships. - HS-LS3-2 make and defend a claim based on evidence about the natural world that reflected scientific knowledge, and student generated evidence. - HS-LS4-1 Communicate scientific information (e.g. about phenomena and/or the process of development and the design and performance of a proposed process of system) in multiple formats (including orally, graphically, textually, and mathematically)..	<i>that structural variations and irregularities caused by scratches, nicks breaks and wear, allow a criminalist to relate a bullet to a gun.</i> <i>that structural variations and irregularities caused by scratches, nicks breaks and wear, allow a criminalist to relate a scratch or abrasion to a tool.</i> <i>that structural variations and irregularities caused by scratches, nicks breaks and wear, allow a criminalist to relate a tire track to a vehicle. .</i> <u>vocabulary:</u> authentic, forged, counterfeit, LD 50, textiles, circumstantial. latent, plastic and patent impressions, rifling, caliber, barrel, trajectory.	
Content Area Literacy Standards	21 st Century Skills	
- RST.11-12.1 CITE SPECIFIC TEXTUAL EVIDENCE TO SUPPORT ANALYSIS OF SCIENCE AND TECHNICAL TEXTS, ATTENDING TO IMPORTANT DISTINCTIONS THE AUTHOR MAKES AND TO ANY GAPS OR INCONSISTENCIES IN THE ACCOUNT. - RST.11-12.2 DETERMINE THE CENTRAL IDEAS OR CONCLUSIONS OF A TEXT; SUMMARIZE COMPLEX CONCEPTS, PROCESSES, OR INFORMATION PRESENTED IN A TEXT BY PARAPHRASING THEM IN SIMPLER BUT STILL ACCURATE TERMS. - RST 11-12.3 FOLLOW PRECISELY A COMPLEX MULTISTEP PROCEDURE WHEN CARRYING OUT EXPERIMENTS, TAKING MEASUREMENTS, OR PERFORMING TECHNICAL TASKS; ANALYZE THE SPECIFIC RESULTS BASED ON EXPLANATIONS IN THE TEXT. - RST.11-12.4 DETERMINE THE MEANING OF SYMBOLS, KEY TERMS, AND OTHER DOMAIN-SPECIFIC WORDS AND PHRASES AS THEY ARE USED IN A SPECIFIC SCIENTIFIC OR TECHNICAL CONTEXT RELEVANT TO GRADES 11-12 TEXT AND TOPICS - RST.11-12.7 INTEGRATE AND EVALUATE MULTIPLE SOURCES OF INFORMATION PRESENTED IN DIVERSE FORMATS AND MEDIA (E.G. QUANTITATIVE DATA, VIDEO, MULTIMEDIA) IN ORDER TO ADDRESS A QUESTION OR SOLVE A PROBLEM. - RST11-12.8 EVALUATE THE HYPOTHESIS, DATA, ANALYSIS AND CONCLUSIONS IN A SCIENCE OR TECHNICAL TEXT, VERIFYING THE DATA WHEN POSSIBLE AND CORROBORATING OR CHALLENGING CONCLUSIONS WITH OTHER SOURCES OF INFORMATION - RST.11-12.9 SYNTHESIZE INFORMATION FROM A RANGE OF SOURCES (E.G. TEXTS, EXPERIMENT, SIMULATIONS) INTO A COHERENT UNDERSTANDING OF A PROCESS, PHENOMENON, OR CONCEPT, RESOLVING CONFLICTING INFORMATION WHEN POSSIBLE.	<i>Use systems thinking</i> <i>solve problems</i>	

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| <ul style="list-style-type: none">● WHST 11-12.2 Write informative/ explanatory texts including the narration of historical events, scientific procedures/ experiment, or technical processes.● WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject; demonstrating understanding of the subject under investigation● WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection and research. | |
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Stage 2 - Evidence	
<i>Evaluative Criteria</i>	<i>Assessment Evidence</i>
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
<i>Language Arts Integration</i>	<i>Mathematics Integration</i>
1.OA.1 Use	1.OA.1 Use
<i>Technology Integration</i>	<i>District Materials</i>
1.OA.1 Use	
<i>Science and Engineering Practices</i>	
S&EP 1. Asking questions and defining problems S&EP 2. Developing and using models	

S&EP 3. Planning and carrying out investigations S&EP 4. Analyzing and interpreting data S&EP 5. Using mathematics and computational thinking S&EP 6. Constructing explanations (for science) and designing solutions (for engineering) S&EP 7. Engaging in argument from evidence S&EP 8. Obtaining, evaluating and communicating information	
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