

Forensic Science Curriculum

Course Title: Forensic Science

Content Area: Science

Grade Level(s): 11-12

Date Revised: 7/17/2019

Date Adopted: 9/1/2019

Course Description: Forensic Science is a half-year course where students will learn the contents of chemistry, physics, and biology and their application to the criminal and civil laws that are enforced by police agencies in a criminal justice system. It includes the investigation of fingerprints, fiber analysis, hair, and blood evidence. Students are taught the proper collection, preservation, and laboratory analysis of various samples.

Total Number of Units:5

Pacing Guide

Crime Scene Investigations: 25 Days

As an introduction to forensic science, it is necessary to talk about how our observations are perceived by our brains. This is tied into looking for patterns in order to make sense of evidence and a situation.

Activities in this unit help students see that like science, crime cases are solved by making conclusions based on observations. However, we recognize the unreliability of eyewitness testimony or observations that are made by humans. Students study that there are internal and external influences on our ability to make reliable observations. This leads into our study of the Innocence Project and how in turn, this leads to the importance of physical evidence in a case.

Fingerprints: 16 Days

The patterns found on the skin of our fingers were realized long ago, but fingerprint analysis was a major breakthrough in forensic science as a means of personal identification. This was a massive development and is still used today as individual evidence to clear the innocent and convict the guilty. Close attention to detail and patience are a must throughout this unit.

Hair: 16 Days

Hair is a frequently found piece of class evidence which can identify a group or class of people who share similar traits. Hair has the ability to narrow the suspect pool, playing a crucial role at a crime scene. Hair also has severe limitations on its use in court. Students will compare and contrast human and other animal hair as well as use the biology adage, "function follows form." This is the first unit in which students will ask a testable question and then design an investigation to answer their question, followed by communicating the results to colleagues. It is assumed students have working knowledge of a compound light microscope but a review during this unit is advisable.

Fiber: 15 Days

Apply forensic science techniques to analyze fibers. Fibers from clothing can be transferred from one person to another or discarded unnoticed at the crime scene. The presence of unique fibers on a suspect's clothing or belongings does not prove guilt, but can link them to a particular person or location. Since fiber evidence is considered class evidence, understanding the importance of probability and statistics help the development of probative evidence in a criminal case.

Blood: 18 Days

In order to use blood in an investigation, one must understand the function and composition of blood in the human body. The presence of blood at a crime scene can help to eliminate suspects based on blood type. Forensics scientists not only test blood type, but also may be able to test for a DNA profile. Before these tests, scientists first use chemical reactions to determine that the stain is indeed blood and furthermore that it is human blood. This unit leads into the physics of blood in the next unit on blood spatter.

Unit 1: Crime Scene Investigations

Time Frame: 25 Days

Essential Questions

- What processes, skills and habits of mind do forensic scientists employ to discover new information, answer questions and solve problems?
- What are the main categories of evidence?
- How do you process evidence at a crime scene?

Standards

Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science

[HS-ETS1-1](#) Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

[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-ETS1-3](#) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

[HS-ETS1-4](#) Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

ELA/ Literacy

[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

[RST.11-12.8](#) Evaluate the hypotheses, 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, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics

[MP.2](#) Reason abstractly and quantitatively.

[MP.4](#) Model with mathematics.

Highlighted career Ready practices:

Attend to personal health and financial well-being.

Demonstrate creativity and innovation.

Model integrity, ethical leadership and effective management.

Work productively in teams while using cultural global competence.

SEL Practices & Competencies:

Self-Awareness

- Label and recognize own and others' emotions.
- Analyze emotions and how they affect others.
- Identify own needs and values

Self-Management

- Overcome obstacles and create strategies for more long-term goals.
- Regulate emotions such as impulses, aggression, and self-destructive behavior.
- Exhibit positive motivation, hope, and optimism.
- Advocate for oneself.

Social Awareness

- Predict others' feelings and reactions.
- Respect others (e.g., listen carefully and accurately).
- Appreciate diversity (recognize individual and group similarities and differences).

Relationship Skills

- Demonstrate capacity to make friends.
- Evaluate own skills to communicate with others.
- Communicate effectively.
- Prevent interpersonal conflict, but manage and resolve it when does occur.

Responsible Decision Making

- Identify decisions one makes at school.
- Identify problems when making decisions, and generate alternatives.
- Make responsible decisions that affect the individual, school, and community.

Overall Goal (What is the big idea?)

What role does forensic science play in a crime scene?

Pre-Assessment: KWL Chart

(SLO) Student Learning Objectives	Student Learning Strategies	<u>Formative Assessment</u>	Activities	Modifications & Reflections
WALT relate observational skills to their use in forensics. HS-ETS1-2 HS-ETS1-3 RST.11-12.9	Setting Objectives Nonlinguistic Representations Direct Instruction Scaffolding Instructions KWL Chart	Do Now Three Summaries Self-Evaluation Highlighter Think-Pair-Share Illustrations Exit Tickets One minute paper	PowerPoint notes Observations	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies Mentoring of other students

<p>WALT describe the parts of a crime scene.</p> <p>HS-ETS1-1 RST.11-12.7</p>	<p>Identifying Similarities and Differences</p> <p>Homework</p> <p>Scaffolding Instructions</p> <p>Provide opportunities for student practice</p> <p>Reciprocal Teaching</p> <p>Response Notebooks</p>	<p>Do Now</p> <p>Hand it in, Pass it out</p> <p>Highlighter</p> <p>Transfer the concept</p> <p>Think-Pair-Share</p> <p>Exit Tickets</p> <p>One minute paper</p>	<p>Crime labs</p> <p>Case Studies</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT describe the types of evidence with examples.</p> <p>HS-ETS1-2 RST.11-12.8 MP.2</p>	<p>Cues, Questions & Advance Organizers</p> <p>Individualized Instruction</p> <p>Concept Mapping</p> <p>Developing high expectations for each student</p> <p>Teacher clarity</p> <p>Learning feedback that is detailed and specific</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Partner Quiz</p> <p>Think-Pair-Share</p> <p>Stop and Go</p> <p>Exit Tickets</p> <p>Metacognition sheet</p>	<p>Class evidence activity</p> <p>Processing a crime scene</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT narrow a suspect pool using class evidence.</p> <p>HS-ETS1-3 RST.11-12.7 RST.11-12.9 MP.2</p>	<p>Setting Objectives</p> <p>Generating & Testing Hypotheses</p> <p>Scaffolding Instructions</p> <p>Inquiry-Based Teaching</p> <p>Reciprocal Teaching</p>	<p>Do Now</p> <p>Self-Evaluation</p> <p>Highlighter</p> <p>Transfer the concept</p> <p>Virtual Classroom</p> <p>Exit Tickets</p> <p>One minute paper</p>	<p>Crime Scene Investigation</p> <p>Who-done-It activity</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p>

	Promoting student metacognition Anticipation Guides			Mentoring of other students
WALT properly document a crime scene and package evidence. HS-ETS1-4 RST.11-12.9 MP.4	Summarizing & Note Taking Identifying Similarities and Differences Homework Provide opportunities for student practice Concept Mapping Promoting student metacognition Setting goals or objectives	Do Now Transfer the concept Think-Pair-Share Illustrations Letter through time Exit Tickets	Evidence collection Scaled Sketch	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies Mentoring of other students

21st Century Theme Targeted – Global Awareness					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
	Processing a crime scene	Case studies	Who-done-It activity		Scaled sketch
Summative Assessments: Unit Test					

Unit 2: Fingerprints

Time Frame: 16 Days

Essential Questions

- What makes fingerprints individual evidence?
- How, when, and why do fingerprints form?
- How did the use of fingerprints change over time?

Standards

Standards / CPIs (cumulative Progress Indicators) taught and assessed:
Science

[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-ETS1-3](#) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

[HS-ETS1-4](#) Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

ELA/ Literacy

[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

[RST.11-12.8](#) Evaluate the hypotheses, 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, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics

[MP.2](#) Reason abstractly and quantitatively.

Highlighted career Ready practices:

Apply appropriate academic and technical skills.

Consider the environmental, social and economic impacts of decisions.

Utilize critical thinking to make sense of problems and persevere in solving them.
Use technology to enhance productivity.

SEL Practices & Competencies:

Self-Awareness

- Analyze emotions and how they affect others.
- Accurately recognize own strengths and limitations
- Identify own needs and values

Self-Management

- Set plans and work toward goals
- Monitor progress toward personal and academic short- and long-term goals.
- Attention control (maintain optimal work performance).
- Exhibit positive motivation, hope, and optimism.

Social Awareness

- Evaluate others' emotional reactions.
- Respect others (e.g., listen carefully and accurately).
- Understand other points of view and perspectives.

Relationship Skills

- Demonstrate capacity to make friends.
- Manage and express emotions in relationships, respecting diverse viewpoints.
- Provide help to those who need it.
- Resist inappropriate social pressures.

Responsible Decision Making

- Identify decisions one makes at school.
- Identify problems when making decisions, and generate alternatives.
- Implement problem-solving skills when making decisions, when appropriate.

Overall Goal (What is the big idea?)

What makes fingerprints case evidence?

Pre-Assessment: Pre-test

(SLO) Student Learning Objectives	Student Learning Strategies	<u>Formative Assessment</u>	Activities	Modifications & Reflections
<p>WALT identify that fingerprints have distinct features that allow for personal identification.</p> <p>HS-ETS1-2 RST.11-12.9 MP.2</p>	<p>Setting Objectives</p> <p>Summarizing & Note Taking</p> <p>Direct Instruction</p> <p>Provide opportunities for student practice</p> <p>Concept Mapping</p> <p>Providing clear and effective learning feedback</p> <p>KWL Chart</p> <p>Anticipation Guides</p>	<p>Do Now</p> <p>Four Corners</p> <p>Self-Evaluation</p> <p>Highlighter</p> <p>Jigsaw</p> <p>Illustrations</p> <p>Exit Tickets</p>	<p>How to lift prints video</p> <p>Rolling Fingerprints</p> <p>Taking prints</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT distinguish that fingerprints are unique and do not change over an individual's lifetime.</p> <p>HS-ETS1-3 RST.11-12.8 MP.2</p>	<p>Generating & Testing Hypotheses</p> <p>Individualized Instruction</p> <p>20. Developing high expectations for each student</p> <p>Setting goals or objectives</p> <p>Higher-level questioning</p> <p>Question-Answer Relationship</p> <p>Response Notebooks</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Self-Evaluation</p> <p>Highlighter</p> <p>Jigsaw</p> <p>Stop and Go</p> <p>Illustrations</p> <p>Exit Tickets</p> <p>One minute paper</p>	<p>Fingerprint Cards</p> <p>Matching Prints</p> <p>Socratic Circle</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>

<p>WALT determine how the use of fingerprints changed over time.</p> <p>HS-ETS1-4 RST.11-12.7 MP.2</p>	<p>Nonlinguistic Representations</p> <p>Identifying Similarities and Differences</p> <p>Direct Instruction</p> <p>Individualized Instruction</p> <p>Concept Mapping</p> <p>Teacher clarity</p> <p>Learning feedback that is detailed and specific</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Self-Evaluation</p> <p>Transfer the concept</p> <p>Think-Pair-Share</p> <p>Stop and Go</p> <p>Illustrations</p> <p>Letter through time</p> <p>Exit Tickets</p>	<p>Quiz</p> <p>Fingerprint game</p> <p>Minutiae Lab</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
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21 st Century Theme Targeted – Economic					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
			Fingerprint cards	Socratic Circle	Minutiae Lab
Summative Assessments: Unit Test					

<p>Unit 3: Hair Evidence Time Frame: 16 Days</p>
<p>Essential Questions</p> <ul style="list-style-type: none"> How can you identify the hair as animal or human?

- How can you individualize the hair to a particular person or animal?
- How are hair samples collected for evidence?
- How does the Locard Principle connect to the discovery of hair as forensic evidence?

Standards

Standards / CPIs (cumulative Progress Indicators) taught and assessed:
Science

[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-ETS1-3](#) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

ELA/ Literacy

[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

[RST.11-12.8](#) Evaluate the hypotheses, 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, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics

[MP.2](#) Reason abstractly and quantitatively.

Highlighted career Ready practices:

Attend to personal health and financial well-being.

Employ valid and reliable research strategies.

Use technology to enhance productivity.

Work productively in teams while using cultural global competence.

SEL Practices & Competencies:

[Self-Awareness](#)

- Label and recognize own and others' emotions.
- Analyze emotions and how they affect others.
- Possess self-efficacy and self-esteem

[Self-Management](#)

- Set plans and work toward goals
- Overcome obstacles and create strategies for more long-term goals.
- Attention control (maintain optimal work performance).

[Social Awareness](#)

- Identify social cues (verbal, physical) to determine how others feel.

- Predict others' feelings and reactions.
- Identify and use the resources of family, school, and community

Relationship Skills

- Demonstrate capacity to make friends.
- Exhibit cooperative learning and working toward group goals.
- Cultivate relationships with those who can be resources when help is needed.
- Resist inappropriate social pressures.

Responsible Decision Making

- Identify decisions one makes at school.
- Discuss strategies used to resist peer pressure.
- Reflect on how current choices affect one's future.
- Make responsible decisions that affect the individual, school, and community.

Overall Goal (What is the big idea?)

How does hair evidence play an important role in forensic science?

Pre-Assessment: KWL Chart

(SLO) Student Learning Objectives	Student Learning Strategies	<u>Formative Assessment</u>	Activities	Modifications & Reflections
WALT understand how hair is class evidence. HS-ETS1-2 RST.11-12.7 MP.2	Setting Objectives Summarizing & Note Taking Direct Instruction Individualized Instruction Reciprocal Teaching	Do Now Three Summaries Self-Evaluation Highlighter Think-Pair-Share Virtual Classroom	PowerPoint notes Hair Diagrams Probable cause activity	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments

	<p>Teacher clarity</p> <p>Setting goals or objectives</p> <p>KWL Chart</p>	<p>Letter through time</p> <p>Exit Tickets</p>		<p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT explain how hair absorbs substances from within the body and from the environment.</p> <p>HS-ETS1-3 RST.11-12.8 MP.2</p>	<p>Identifying Similarities and Differences</p> <p>Generating & Testing Hypotheses</p> <p>Homework</p> <p>Scaffolding Instructions</p> <p>Provide opportunities for student practice</p> <p>Individualized Instruction</p> <p>Providing clear and effective learning feedback</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Partner Quiz</p> <p>Highlighter</p> <p>Transfer the concept</p> <p>Illustrations</p> <p>Exit Tickets</p> <p>One minute paper</p>	<p>Observation chart</p> <p>Slide comparison</p> <p>Hair Absorb</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT Identify the structure of hair and the purpose of each.</p> <p>HS-ETS1-2 RST.11-12.7 MP.2</p>	<p>Generating & Testing Hypotheses</p> <p>Direct Instruction</p> <p>Inquiry-Based Teaching</p> <p>Promoting student metacognition</p> <p>Developing high expectations for each student</p> <p>Higher-level questioning</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Self-Evaluation</p> <p>Highlighter</p> <p>Transfer the concept</p> <p>Exit Tickets</p>	<p>Case Study</p> <p>Identification Lab</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>

	Learning feedback that is detailed and specific			
WALT use the microscope to identify the scale pattern and medulla patterns of hair. HS-ETS1-3 RST.11-12.9 MP.2	Cooperative Learning Generating & Testing Hypotheses Individualized Instruction Concept Mapping Learning feedback that is detailed and specific Response Notebooks	Do Now Self-Evaluation Highlighter Transfer the concept Letter through time Exit Tickets	Review notes Microscope use Jeopardy review game	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies Mentoring of other students

21 st Century Theme Targeted – Global Awareness					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
	Hair Diagrams	Case Study		Observation chart	
Summative Assessments: Unit Test					

Unit 4: Fiber Evidence

Time Frame: 15 Days

Essential Questions

- What are fibers?
- How can fibers be identified?
- What factors increase the probative value of fibers?

Standards

Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science

[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-ETS1-3](#) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

ELA/ Literacy

[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

[RST.11-12.8](#) Evaluate the hypotheses, 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, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics

[MP.2](#) Reason abstractly and quantitatively.

Highlighted career Ready practices:

Apply appropriate academic and technical skills.

Consider the environmental, social and economic impacts of decisions.

Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:

Self-Awareness

- Label and recognize own and others' emotions.
- Analyze emotions and how they affect others.
- Identify own needs and values

Self-Management

- Set plans and work toward goals
- Monitor progress toward personal and academic short- and long-term goals.
- Manage personal and interpersonal stress.
- Seek help when needed. Display grit, determination, or perseverance.

Social Awareness

- Identify social cues (verbal, physical) to determine how others feel.
- Evaluate others' emotional reactions.
- Understand other points of view and perspectives.
- Identify and use the resources of family, school, and community

Relationship Skills

- Demonstrate capacity to make friends.
- Evaluate own skills to communicate with others.
- Communicate effectively.
- Prevent interpersonal conflict, but manage and resolve it when does occur.

Responsible Decision Making

- Identify decisions one makes at school.
- Discuss strategies used to resist peer pressure.
- Implement problem-solving skills when making decisions, when appropriate.
- Make responsible decisions that affect the individual, school, and community.

Overall Goal (What is the big idea?)

What does the presence of fibers indicate at a crime scene?

Pre-Assessment: Pre-Test

(SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment	Activities	Modifications & Reflections
<p>WALT identify weave patterns to help identify material left at a crime scene.</p> <p>HS-ETS1-2 RST.11-12.9 MP.2</p>	<p>Setting Objectives</p> <p>Homework</p> <p>Direct Instruction</p> <p>Individualized Instruction</p> <p>Concept Mapping</p> <p>Setting goals or objectives</p> <p>KWL Chart</p>	<p>Do Now</p> <p>Self-Evaluation</p> <p>Highlighter</p> <p>Think-Pair-Share</p> <p>Illustrations</p> <p>Exit Tickets</p>	<p>Fiber PowerPoint</p> <p>Fibers</p> <p>Fibers analysis packet</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT analyze fiber evidence and understand how it can be useful class evidence.</p> <p>HS-ETS1-3 RST.11-12.7 MP.2</p>	<p>Cues, Questions & Advance Organizers</p> <p>Generating & Testing Hypotheses</p> <p>with a clear purpose (Foyle 1985)</p> <p>Direct Instruction</p> <p>Scaffolding Instructions</p> <p>Provide opportunities for student practice</p> <p>Reciprocal Teaching</p> <p>Teacher clarity</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Partner Quiz</p> <p>Think-Pair-Share</p> <p>Illustrations</p> <p>Exit Tickets</p> <p>One minute paper</p>	<p>Writing letters</p> <p>Fiber Lab</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>

	Learning feedback that is detailed and specific			
<p>WALT compare and contrast various types of fibers.</p> <p>HS-ETS1-2 RST.11-12.9 MP.2</p>	<p>Identifying Similarities and Differences</p> <p>Scaffolding Instructions</p> <p>Developing high expectations for each student</p> <p>Consistent, ‘low-threat’ assessment</p> <p>Higher-level questioning</p> <p>Question-Answer Relationship</p> <p>Response Notebooks</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Self-Evaluation</p> <p>Illustrations</p> <p>Exit Tickets</p> <p>Metacognition sheet</p>	<p>Thread count lab</p> <p>Types of fibers</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>
<p>WALT describe principal characteristics of common fibers used in their identification.</p> <p>HS-ETS1-3 RST.11-12.7 RST.11-12.8</p>	<p>Cooperative Learning</p> <p>Individualized Instruction</p> <p>Reciprocal Teaching</p> <p>Developing high expectations for each student</p> <p>Providing clear and effective learning feedback</p> <p>Setting goals or objectives</p>	<p>Do Now</p> <p>Three Summaries</p> <p>Self-Evaluation</p> <p>Transfer the concept</p> <p>Think-Pair-Share</p> <p>Exit Tickets</p>	<p>Fiber identification lab</p> <p>Fiber Information</p> <p>Review game</p>	<p>Less complex reading level</p> <p>Shortened assignments</p> <p>Different goals</p> <p>IEP modifications for summative and formative assessment</p> <p>Alternative assignments</p> <p>Independent studies</p> <p>Mentoring of other students</p>

21st Century Theme Targeted – Global Awareness					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
Fiber identification lab	Thread count lab			Writing letters	
Summative Assessments: Lab reports, Unit test.					

Unit 5: Blood Evidence Time Frame: 18 Days
Essential Questions
<ul style="list-style-type: none"> • What components make up human blood?

- How can you identify a substance is blood?
- What can blood spatter patterns tell an investigator about a crime?
- How is blood typed?

Standards

Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science

[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-ETS1-3](#) Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.

ELA/ Literacy

[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

[RST.11-12.8](#) Evaluate the hypotheses, 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, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics

[MP.2](#) Reason abstractly and quantitatively.

Highlighted career Ready practices:

Act as a responsible and contributing citizen and employee.

Apply appropriate academic and technical skills.

Consider the environmental, social and economic impacts of decisions.

Employ valid and reliable research strategies.

Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:

Self-Awareness

- Identify what triggers own emotions.
- Analyze emotions and how they affect others.
- Possess self-efficacy and self-esteem

Self-Management

- Overcome obstacles and create strategies for more long-term goals.
- Monitor progress toward personal and academic short- and long-term goals.
- Regulate emotions such as impulses, aggression, and self-destructive behavior.
- Exhibit positive motivation, hope, and optimism.

Social Awareness

- Identify social cues (verbal, physical) to determine how others feel.
- Respect others (e.g., listen carefully and accurately).
- Understand other points of view and perspectives.
- Identify and use the resources of family, school, and community

Relationship Skills

- Demonstrate capacity to make friends.
- Manage and express emotions in relationships, respecting diverse viewpoints.
- Provide help to those who need it.
- Prevent interpersonal conflict, but manage and resolve it when does occur.

Responsible Decision Making

- Identify decisions one makes at school.
- Discuss strategies used to resist peer pressure.
- Reflect on how current choices affect one’s future.

Overall Goal (What is the big idea?)

Pre-Assessment: KWL Chart, pre-test

(SLO) Student Learning Objectives	Student Learning Strategies	<u>Formative Assessment</u>	Activities	Modifications & Reflections
WALT explain how blood is characterized. HS-ETS1-2 RST.11-12.7 MP.2	Setting Objectives Summarizing & Note Taking Direct Instruction Individualized Instruction Concept Mapping	Do Now Three Summaries Self-Evaluation Highlighter Jigsaw Exit Tickets One minute paper	PowerPoint Notes Transfusions	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies

	Teacher clarity KWL Chart			Mentoring of other students
WALT determine blood type of an unknown blood sample. HS-ETS1-3 RST.11-12.8 MP.2	Summarizing & Note Taking Generating & Testing Hypotheses Scaffolding Instructions Provide opportunities for student practice Consistent, 'low-threat' assessment	Do Now Three Summaries Self-Evaluation Highlighter Transfer the concept Exit Tickets	Blood Typing Lab Comparing Speeds	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies Mentoring of other students
WALT describe how to screen for the presence of human blood. HS-ETS1-3 RST.11-12.9 MP.2	Identifying Similarities and Differences Homework for later grades Inquiry-Based Teaching Developing high expectations for each student Teacher clarity	Do Now Three Summaries Self-Evaluation Transfer the concept Think-Pair-Share Exit Tickets One minute paper	Blood Spatter Lab Comparing substances	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments Independent studies Mentoring of other students
WALT describe a brief history of the use of blood in forensics. HS-ETS1-2 RST.11-12.7 MP.2	Scaffolding Instructions Provide opportunities for student practice Concept Mapping	Do Now Three Summaries Self-Evaluation Highlighter Jigsaw Letter through time	Evolution of blood in forensics timeline Blood History Review game	Less complex reading level Shortened assignments Different goals IEP modifications for summative and formative assessment Alternative assignments

	Developing high expectations for each student Providing clear and effective learning feedback Anticipation Guides Response Notebooks	Exit Tickets Metacognition sheet		Independent studies Mentoring of other students
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21st Century Theme Targeted – Global Awareness					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
	Blood typing lab	Evolution of blood in forensics timeline	Blood spatter lab		
Summative Assessments: Final Exam					