Kenilworth Public Schools

Curriculum Guide

Content Area: Forensic Science
Grade: 10-12
BOE Approved: 5/11/2020

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Submitted by: Marie Gallina
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Forensic Science – Grades 10-12 Scope and Sequence

Unit 1- Intro to Forensic Science	Unit 2- Crime Scene Investigation	Unit 3- Hair & Fiber Analysis	Unit 4- Fingerprints & Impressions
Weeks 1-2	Weeks 3-5	Weeks 6-7	Weeks 8-9
Unit Description: This unit will cover the history of forensic science and what a forensic scientist does. Students will be learning about observations skills, how eyewitness accounts can be unreliable, and how to improve their own observation skills.	*Unit Description:* This unit will cover the key components in a crime scene investigation. Students will demonstrate the ability to identify, collect and preserve evidence. Students will demonstrate proper crime scene processing, including securing the scene and documentation.	*Unit Description:* This unit will focus on how hair and fiber sample are used in forensic science. Students will be able to distinguish between the different types of hair and fibers. Students will demonstrate the use forensic techniques to identify hair and fiber samples.	*Unit Description:* This unit will focus on how fingerprinting & impressions have been used in forensic science, including characteristics and collection procedures of fingerprints and impressions such as tires. Students will demonstrate their ability to lift a fingerprint, cast impressions such as shoe and tire, and analyze them.
Unit Targets: • Be able to will demonstrate the ability to explain the history and philosophy of forensic science. • Recognize the scope of forensic science and its applications to the criminal justice system. • Define observation and describe what changes occur in the brain. • Describe examples of factors influencing eyewitness accounts of events after creating their own experiment and sharing relevant data.	*Unit Targets:* • Describe Locard's exchange principle. • Distinguish between the different types of evidence. • Identify the type of professionals who are present at a crime scene. • Differentiate between the steps involved in processing and evaluating evidence at a crime scene. • Understand that physical evidence can be used in a variety of ways and be tested in several ways to	*Unit Targets:* • Identify the various parts of a hair. • Distinguish between human and nonhuman animal hair. • Determine if two examples of hair are likely to be from the same person. • Explain how hair can be used in a forensic investigation. • Identify and describe common weave patterns of textile samples. • Compare and contrast various types of fibers through physical	*Unit Targets:* • Describe the characteristics of fingerprints. • Determine the reliability of fingerprints as a means of identification. • Explain how fingerprint evidence is collected. • Determine if a fingerprint matches a fingerprint on record. • Describe examples of how impression evidence gives clues about the crime scene, person(s) at

• Compare the reliability of eyewitness testimony to what happened. • Practice and improve their own observation skills. • Analyze current case studies.	produce results that can be used to solve the crime. • Appreciate that documenting the crime scene is just as important as collecting evidence. • Explain the importance of securing the crime scene. • Demonstrate proper technique in collecting and packaging trace evidence. • Describe how evidence from a crime scene is analyzed.	and chemical analysis. • Describe principal characteristics of common fibers used in their identification. • Apply forensic science techniques to analyze fibers.	a crime scene, and events that occurred at the scene. • Distinguish between latent, patent and plastic impressions. • Analyze impression evidence to determine if it is consistent with evidence from a crime scene

Forensic Science – Grades 10-12 Scope and Sequence

Unit 5- DNA & Blood	Unit 6- Specializations in Forensics	Unit 7- Solve a Crime
Weeks 10-12	Weeks 13-14	Weeks 15-18
Unit Description: This unit will focus on the formation of DNA evidence and how it is used in solving crimes. Students will distinguish between the different types of procedures done when processing DNA. This unit will also highlight blood, it's characteristics and the different patterns of blood that can form at a crime scene. Student will be able to analyze blood spatter patterns.	*Unit Description:* This unit will focus on a specific subject area of forensics in accordance with the interests of that class. Choices are pathology, anthropology, toxicology, handwriting and forgery, arson, and cybersecurity.	*Unit Description:* This unit will focus on students' ability to demonstrate the techniques taught in this course to solve a mock crime. Students will be given a crime scene, suspects, and other details. They will have to analyze and construct their own investigation. They will present their findings as their final project.
Unit Targets: • Contrast between nuclear DNA and mitochondrial DNA. • Describe how crime-scene evidence is collected for DNA analysis. • Explain how PCR can be used to amplify minute amounts of DNA found at a crime scene. • Describe how DNA evidence is analyzes and compared for matching. • Explain how to use DNA fingerprinting to identify DNA from a parent, child, or relative of another person. • Describe the composition of blood. • Describe how to screen for the presence of human blood. • Calculate the probability of certain blood types within a population. • Analyze blood splatter evidence to help reconstruct a crime scene.	*Unit Targets:* • Describe how the chosen topic is important towards forensic science. • Explain the role of the specialized forensic scientist in the chosen area. • Explain how evidence is collected for the chosen topic. • Identify key components involved in the chosen topic. • Demonstrate how to analyze collected evidence for the chosen topic.	*Unit Targets:* • Demonstrate understanding of the topics covered over the course of the semester. • Investigate a mock crime scene using proper techniques. • Analyze evidence from the mock crime scene. • Construct a presentation based on the findings of the investigation.

Forensic Science – Grades 10-12 – Unit 1

Unit Title: Intro to Forensic Science

Unit Summary: This unit will cover the history of forensic science and what a forensic scientist does. Students will be learning about observations skills, how eyewitness accounts can be unreliable, and how to improve their own observation skills.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: Forensic scientists and witness observations can have an important impact in criminal cases.

Unit Essential Questions:

- What is the importance of laboratory safety?
- What is a forensic scientist's role when called to a court of law?
- How do emotions affect our mental state when we are observing something?
- How will understanding the forensic nature of a case shape the verdict in the criminal justice system?

Unit Enduring Understandings:

- Be exposed to the basics and history of forensic science to prepare them for deeper understanding of specific topics in the following units.
- Understand that physical evidence is the basis for building a criminal case against a suspect.
- Practice and improve their powers of observation.

Unit Learning Targets

Students will…

- Be able to will demonstrate the ability to explain the history and philosophy of forensic science.
- Recognize the scope of forensic science and its applications to the criminal justice system.
- Define observation and describe what changes occur in the brain.
- Describe examples of factors influencing eyewitness accounts of events after creating their own experiment and sharing relevant data.

- Compare the reliability of eyewitness testimony to what happened.
- Practice and improve their own observation skills.
- Analyze current case studies.

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Vocabulary activity • Observational skills activity • Teacher PowerPoint /notes	Weeks 1-2
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations

• Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace and content of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 2

Unit Title: Crime Scene Investigation

Unit Summary: This unit will cover the key components in a crime scene investigation. Students will demonstrate the ability to identify, collect and preserve evidence. Students will demonstrate proper crime scene processing, including securing the scene and documentation.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: Investigating and analyzing a crime scene requires the collaboration between team members, following proper procedures, and gathering evidence.

Unit Essential Questions:

- Is all evidence found at a crime scene significant?
- What are the implications in analyzing evidence related to Locard's Principle of Exchange?
- Does human activity have an impact on the collection and evaluation of evidence?
- Has technology revolutionized forensic science and in what ways is technology used to solve crimes?
- Why is it important to "separate the witnesses" at the crime scene?
- What procedures are required when collecting evidence from a crime scene?
- What are the essential elements of a crime scene sketch?

Unit Enduring Understandings:

- Crime scenes must be processed in a procedural manner.
- Evidence is needed to determine the method by which a crime has been committed and to build a criminal case against a suspect.
- Breaking the chain of custody, not securing a crime scene and/or not following proper investigation procedures can have drastic results in criminal cases.

Unit Learning Targets
Students will…

- Describe Locard's exchange principle.
- Distinguish between the different types of evidence.
- Identify the type of professionals who are present at a crime scene.
- Differentiate between the seven steps involved in processing and evaluating evidence at a crime scene.
- Understand that physical evidence can be used in a variety of ways and be tested in several ways to produce results that can be used to solve the crime.
- Appreciate that documenting the crime scene is just as important as collecting evidence.
- Explain the importance of securing the crime scene.
- Demonstrate proper technique in collecting and packaging trace evidence.
- Describe how evidence from a crime scene is analyzed.

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Crime scene sketch activity • Locard's principle activity • Mock crime scene investigation • Case studies • Vocabulary activity • Teacher PowerPoint /notes	Weeks 3-5
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite	

-Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations
• Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:

• Adjusting the pace and content of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:

• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 3

Unit Title: Hair & Fiber Analysis

Unit Summary: This unit will focus on how hair and fiber sample are used in forensic science. Students will be able to distinguish between the different types of hair and fibers. Students will demonstrate the use forensic techniques to identify hair and fiber samples.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2, HS-PS2-6

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: There are different types of hair and fibers, each with their own characteristics, which can provide clues towards recreating a crime scene and solving a crime.

Unit Essential Questions:

- Has computer technology changed the science of analyzing trace evidence for the better?
- Are hair & fiber evidence just as useful in identifying a suspect as DNA?
- How are the parts of a hair used for various forensic investigations?
- How do natural fibers differ from synthetic fibers?

Unit Enduring Understandings:

- Hair can be analyzed chemically and with a microscope for visual characteristics.
- Fiber evidence can be used in forensic science to create a link between crime and suspect.
- Class evidence, such as hair and fiber, is used to match individuals to crime scenes. Class evidence is not unique to individuals but is used with statistical analysis to place individuals at the crime scene.

Unit Learning Targets

Students will…

- Identify the various parts of a hair.
- Distinguish between human and nonhuman animal hair.
- Determine if two examples of hair are likely to be from the same person.
- Explain how hair can be used in a forensic investigation.
- Identify and describe common weave patterns of textile samples.
- Compare and contrast various types of fibers through physical and chemical analysis.

- Describe principal characteristics of common fibers used in their identification.
- Apply forensic science techniques to analyze fibers.

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Vocabulary activity • Hair & fiber sample lab • Teacher PowerPoint /notes	Weeks 6-7
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations
• Authentic assessments (ex: write an email to your state senator about a current event issue you

are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:
• Adjusting the pace and content of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 4

Unit Title: Fingerprints & Impressions

Unit Summary: This unit will focus on how fingerprinting & impressions have been used in forensic science, including characteristics and collection procedures of fingerprints and impressions such as tires. Students will demonstrate their ability to lift a fingerprint, cast impressions such as shoe and tire, and analyze them.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2, HS-PS2-1

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: Fingerprinting & impressions can aid investigations by identifying potential suspects or victims and reconstruct crime scenes.

Unit Essential Questions:

- Has computer technology changed the science of fingerprinting for the better?
- How is fingerprint evidence used to determine whether a crime has been committed?
- Why is the use of fingerprints an imperfect form of identification?
- How are impressions useful in recreating a crime scene? (class evidence and individual evidence)?
- Can tire impressions, dental impressions and footwear impressions make them more useful as evidence in a criminal investigation?

Unit Enduring Understandings:

- Fingerprints are unique to individuals and can be used as evidence in arguing which individuals were present at a crime scene.
- There are three basic fingerprint patterns that make up everyone's prints.
- The FBI has developed a database of fingerprints (CODIS) used by police agencies around the world to help identify any prints lifted from a crime scene.
- Tires, teeth, feet, and other weapons leave unique microscopic impressions that can be analyzed and matched to reconstruct a crime scene.

Unit Learning Targets

Students will…

- Describe the characteristics of fingerprints.
- Determine the reliability of fingerprints as a means of identification.
- Explain how fingerprint evidence is collected.
- Determine if a fingerprint matches a fingerprint on record.
- Describe examples of how impression evidence gives clues about the crime scene, person(s) at a crime scene, and events that occurred at the scene.
- Distinguish between latent, patent and plastic impressions.
- Analyze impression evidence to determine if it is consistent with evidence from a crime scene

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Vocabulary activity • Teacher PowerPoint /notes • Fingerprinting activities • Minutiae & pattern charts • Tire tread lab • Footprint impression activity	Weeks 8-9
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction:
Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content, student products, and assessment tools (rubrics for example)
- Testing accommodations
- Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:

- Adjusting the pace and content of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 5

Unit Title: DNA & Blood

Unit Summary: This unit will focus on the formation of DNA evidence and how it is used in solving crimes. Students will distinguish between the different types of procedures done when processing DNA. This unit will also highlight blood, it's characteristics and the different patterns of blood that can form at a crime scene. Student will be able to analyze blood spatter patterns.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D, G-MG

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2, HS-LS3-1, HS-L3-3, HS-PS2-1

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: The use of DNA evidence has changed since it was first introduced. DNA can be processed in different ways to help identification during an investigation. The characteristics of blood and different blood-spatter patterns have become useful in recreating crime scenes.

Unit Essential Questions:

- What techniques are used in analyzing DNA evidence?
- How is crime scene evidence is processed to obtain DNA evidence in criminal cases?
- What is the composition of blood?
- How are blood types determined?
- How are blood-spatter patterns created?
- Does blood evidence have value in criminal investigation?

Unit Enduring Understandings:

- DNA evidence is an excellent tool for identification in forensic science because no two people except identical twins have the same DNA.
- Differences in DNA sequences can be analyzed with biotechnology to provide statistically significant matches to an individual, used to identify or clear a suspect.
- There is a difference between nuclear and mitochondrial DNA and therefore they must be processed differently.
- Blood spatter shapes and patterns can be used to interpret and reconstruct what happened at the crime scene.
- Different blood types have key markers that help distinguish them from each other.

Unit Learning Targets
Students will…

- Contrast between nuclear DNA and mitochondrial DNA.
- Describe how crime-scene evidence is collected for DNA analysis.
- Explain how PCR can be used to amplify minute amounts of DNA found at a crime scene.
- Describe how DNA evidence is analyzes and compared for matching.
- Explain how to use DNA fingerprinting to identify DNA from a parent, child, or relative of another person.
- Describe the composition of blood.
- Describe how to screen for the presence of human blood.
- Calculate the probability of certain blood types within a population.
- Analyze blood splatter evidence to help reconstruct a crime scene. .

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Vocabulary activity • Blood spatter lab • Blood typing lab • DNA profiling activity • Teacher PowerPoint /notes	Weeks 10-12
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck	

-Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations
• Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:

• Adjusting the pace and content of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:

• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 6

Unit Title: Specializations in Forensics

Unit Summary: This unit will focus on a specific subject area of forensics in accordance with the interests of that class. Choices are pathology, anthropology, toxicology, handwriting and forgery, arson, and cybersecurity.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: Forensic scientists can specialize in a variety of fields and become "experts," especially when it comes to testimony in courts.

Unit Essential Questions:	**Unit Enduring Understandings:**
• What techniques are used in analyzing this evidence? • How is this evidence important in piecing together investigations?	• Understand the importance of specialized areas in forensic science. • Understand how the evidence collected can help reconstruct a crime/series of events. • Demonstrate analysis techniques in a specialized area.

Unit Learning Targets
Students will…

- Describe how the chosen topic is important towards forensic science.
- Explain the role of the specialized forensic scientist in the chosen area.
- Explain how evidence is collected for the chosen topic.
- Identify key components involved in the chosen topic.
- Demonstrate how to analyze collected evidence for the chosen topic.

Evidence of Learning

Summative Assessment: Projects, Labs, Tests

Formative Assessments:

- Classwork
- Mini-Labs
- Quizzes
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Vocabulary activity • Lab activity based on specific topic • Teacher PowerPoint /notes	Weeks 13-14
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations
• Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:

• Adjusting the pace and content of lessons
• Curriculum compacting

• Inquiry-based instruction
• Independent study
• Higher-order thinking skills
• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
• Pre-teaching of vocabulary and concepts
• Visual learning, including graphic organizers
• Use of cognates to increase comprehension
• Teacher modeling
• Pairing students with beginning English language skills with students who have more advanced English language skills
• Scaffolding
•Word walls
•Sentence frames
•Think-pair-share
•Cooperative learning groups

Forensic Science – Grades 10-12 – Unit 7

Unit Title: Solve a Crime

Unit Summary: This unit will focus on students' ability to demonstrate the techniques taught in this course to solve a mock crime. Students will be given a crime scene, suspects, and other details. They will have to analyze and construct their own investigation. They will present their findings as their final project.

Primary Interdisciplinary Connections: N-Q.A, A-REI.A, G-CO.A.1, G-CO.D, G-MG

Career Readiness, Life Literacies, and Key Skills: 9.2.12.CAP.5, 9.2.12.CAP.6, 9.4.12.CI.2, 9.4.12.CT.1, 9.4.12.CT.2, 9.4.12.IML.3, 9.4.12.IML.4

Learning Targets

NJSLS Standards: HS-LS1-1, HS-ETS1-2

Computer Science and Design Thinking Standards: 8.1.12.IC.1, 8.1.12.IC.3, 8.1.12.DA.1, 8.1.12.DA.6, 8.1.12.AP.4

Climate Change Standards: HS-ESS3-1

ELA Companion Standards: RST.11-12.7, RST.11-12.8, RST.11-12.9, RST.11-12.1, WHST.9-12.2, WHST.9-12.9

Big Idea: Forensic scientists have an important role in determining what happened at a crime scene.

Unit Essential Questions:	**Unit Enduring Understandings:**
• Were all of the crime scene procedures following appropriately? • Was the investigation conducted without any bias? • Was the crime solved accurately?	• Utilize the appropriate techniques to analyze a crime scene. • Analyze properly the evidence collected from the crime scene. • Present findings from the investigation to "jury," indicating suspect of the crime.

Unit Learning Targets
Students will…

- Demonstrate understanding of the topics covered over the course of the semester.
- Investigate a mock crime scene using proper techniques.
- Analyze evidence from the mock crime scene.
- Construct a presentation based on the findings of the investigation.

Evidence of Learning

Summative Assessment: Project

Formative Assessments:

- Classwork
- Homework
- Other activities at teacher's discretion

Lesson Plans

Activities/Interdisciplinary Connections	*Timeframe*
• Case studies • Teacher Instructions • Mock-crime scene • Resources needed to conduct investigations	Weeks 15-18
Teacher Resources	*Teacher Note*
• Bertino Forensic Science Textbook • Lab Materials • Video Segments from various crime tv shows • Tools -Google Suite -Pear Deck -Kahoot -Kami -Quizizz	

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

• Use of visual and multisensory formats
• Use of assisted technology
• Use of prompts
• Modification of content, student products, and assessment tools (rubrics for example)
• Testing accommodations
• Authentic assessments (ex: write an email to your state senator about a current event issue you are passionate about, design/implement a class debate, create and balance a college freshman budget, create a commercial that dispels a myth about climate change)

Examples of Strategies and Practices that Support Gifted & Talented Students:

• Adjusting the pace and content of lessons
• Curriculum compacting
• Inquiry-based instruction
• Independent study
• Higher-order thinking skills

• Interest-based content
• Student-driven instruction
• Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:
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