Wall Township Public Schools	Board Approval Date: 8/19/2025

Course Title: Forensic Science

Course Description:
This course provides students an introduction to the science of forensics. Students explore concepts through a variety of laboratory investigations. Topics of study include DNA analysis, crime, anthropology, comparative skeletal anatomy, blood composition and behavior, entomology as it relates to crime solving, genetics, odontology, and pathology.

New Jersey Student Learning Standards - Science (Click here to skip below to a description about the Standards)

Course Sequence & Pacing

Unit Title	Estimated Number of Instructional Periods
Unit 1: Introduction to Forensic Science	approx 16
Unit 2: Crime Scene Investigation	approx 16
Unit 3: Types of Evidence - Physical, Biological, Testimonial	approx 16
Unit 4: Fingerprint Analysis	approx 13
Unit 5: Blood Evidence Analysis & Serology	approx 13

Unit 6: Anthropology & Pathology	approx 13
Unit 7: Biological Evidence & DNA Profiling & Genetic Genealogy	approx 16
Unit 8: Entomology	approx 11
Unit 9: Toxicology	approx 11
unit 10: End of Year Project	approx 10

Unit # 1 Introduction to Forensic Science

Stage 1 Desired Results

Unit #1: Introduction to Forensic Science

Unit Summary:

Explore the history, purpose, and key principles of forensic science, including the crucial Locard's Exchange Principle. Train students in keen observation skills and the ability to draw logical conclusions based on evidence, crucial for successful investigations. Explore different professions within forensic science (e.g., crime scene investigator, forensic toxicologist, digital forensics expert).

Unit #1 - Learning Standards / Targets

NJSLS Science (Science & Engineering Practices):

- **HS-ETS1-1** Analyze a major global challenge to specify qualitative and quantitative criteria and constraints.
- **HS-ETS1-3** Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs
- **Analyzing and Interpreting Data:** Critical for examining evidence and drawing conclusions.
- **Patterns:** Recognizing patterns in evidence to make connections.
- **Cause and Effect:** Understanding how different factors contribute to forensic outcomes.

Unit Enduring Understandings:	**Unit Essential Questions:**
• Forensic science integrates knowledge from various scientific disciplines like biology, chemistry, and physics to analyze evidence and solve crimes. • It's not just one subject but a collection of specialized fields working together. • Understanding how these different disciplines contribute to forensic investigations is crucial.	• What is forensic science? • How do forensic scientists help solve mysteries? • Why is observation important in forensic science? • How is television impacting the study of forensics?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving

Computer Science & Design Thinking ***(****CS & DT****)*:

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- **SL.PE.9–10.1.** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

- **SL.II.11–12.2.** Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (HS-ETS1-1),(HS-ETS1-3)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit # 1 - Stage 2 Assessment Evidence

Formative Assessments:

- Lab: Locard's Exchange Principle
- Lab: Personal Identification – Bertillion System
- Research a Career in the Field of Forensic Science; Present to class
- Introduction to Forensics Lecture
- "Modern Marvels - FBI's Crime Lab" - view and complete questions
- Forensic Files Episodes - view and answer questions

Summative Assessments: (includes alternative assessments were applicable)

- Create a timeline of major developments in forensic science
- Case study analysis of a historically significant forensic case/Innocence Project

Unit # 1 - Stage 3 Learning Plan

Potential Unit Launches

- Students will research a specific forensic science career of their choice, gathering information about the responsibilities, required education and training, tools and technologies used, work environments, and how the role contributes to solving crimes and supporting the legal system
- Forensics : Beyond the CSI Effect (PBS): This special tackles the portrayal of forensic science on television and clarifies how real-world forensic science and criminal investigations operate

Potential Supporting Lessons

- SWBAT Define forensics and list the major disciplines it encompasses
- SWBAT Recognize the major contributions to the development of forensic science
- SWBAT Account for the rapid growth of forensic laboratories in the past forty years
- SWBAT Describe the services of a typical comprehensive crime laboratory in the criminal justice system
- SWBAT List and explain the function of national database available to forensic scientists

Unit # 2 - Crime Scene Investigation

Stage 1 Desired Results

Unit #2: Crime Scene Investigation

Unit Summary:

Students will learn the fundamental principles and procedures of crime scene investigation, developing skills in systematic observation, evidence recognition, proper documentation, and maintaining the integrity of physical evidence. This unit establishes the foundation for all subsequent forensic analysis units.

Unit #2 - Learning Standards / Targets

NJSLS Science (Science & Engineering Practices):

- **HS-ETS1-3** – Engineering Design -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-PS1-3** -Matter and Its Interactions - 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.
- **Analyzing and Interpreting Data:** Critical for examining evidence and drawing conclusions.
- **Patterns:** Recognizing patterns in evidence to make connections.
- **Cause and Effect:** Understanding how different factors contribute to forensic outcomes.

Unit Enduring Understandings:	**Unit Essential Questions:**
• Explain the systematic approach to crime scene processing from arrival to departure • Identify different types of physical evidence commonly found at crime scenes • Describe the importance of chain of custody documentation • Compare primary, secondary, and tertiary crime scenes	• How do investigators systematically process a crime scene to maximize evidence recovery? • What role does proper documentation play in the criminal justice system? • How can contamination or improper handling compromise an entire investigation? • What ethical and legal considerations guide crime scene investigators? • How are crime scenes properly secured and documented? • How is the chain of custody maintained?
Interdisciplinary Connections	
Career Readiness, Life Literacies, & Key Skills *(CLKS)*: • 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment. • 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources • 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving	
Computer Science & Design Thinking (*CS & DT***):** • 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society. • 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.	
NJSLS Companion Standards - ELA	

- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.
- W.WR.11–12.5. 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.

Connections to NJSLS - Mathematics

- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #2 - Stage 2 Assessment Evidence

Formative Assessments:

- Case study analysis: Famous crimes solved through crime scene evidence
- Career exploration: CSI certification requirements and education paths
- Forensic Files Episodes - view and answer questions- ¨Clear Cut Case¨
- Crime Scene Investigation Lecture

Summative Assessments: (includes alternative assessments were applicable)

- Crime scene mapping and sketching exercise
- Evidence collection and packaging lab
- Mock crime scene processing and documentation
- Chain of Custody Simulation

Unit #2 - Stage 3 Learning Plan

Potential Unit Launches

- Crime Scene Walkthrough & Initial Response - Immerse students in the role of first responders at a simulated crime scene to spark interest in the procedures and challenges of crime scene investigation.
- How can forensic investigators reconstruct what happened at a crime scene based solely on the physical evidence left behind?

Potential Supporting Lesson

- SWBAT Define and understand the concept of chain of custody
- SWBAT Discuss the responsibilities of the first police officer who arrives at a crime scene
- SWBAT Explain the steps to be taken to thoroughly record the crime scene
- SWBAT Investigate the techniques to photograph and sketch a crime scene
- SWBAT Demonstrate proper crime scene photography techniques including overall, mid-range, and close-up shots
- SWBAT Describe the proper procedures for conducting a systematic search of a crime scene for physical evidence
- SWBAT Learn the proper techniques of evidence collection, packaging, and preservation
- SWBAT Compare and contrast the Frye and Daubert decisions relating to the admissibility of scientific evidence in the courtroom

Unit # 3 Types of Evidence - Physical, Biological, Testimonial

Stage 1 Desired Results

Unit #3: Types of Evidence - Physical, Biological, Testimonial

Unit Summary:

Students will explore the three fundamental categories of evidence used in criminal investigations: physical, biological, and testimonial evidence. This unit develops critical thinking skills in evidence evaluation and establishes the foundation for understanding how different types of evidence work together to build a case. Students will learn to distinguish between direct and circumstantial evidence while understanding the strengths and limitations of each evidence type.

Unit #3 - Learning Standards / Targets

NJSLS Science (PE):

- **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-ETS1-3** - Analyze forensic evidence evaluation methods
- **Analyzing and Interpreting Data:** Critical for examining evidence and drawing conclusions.
- **Patterns:** Recognizing patterns in evidence to make connections.
- **Cause and Effect:** Understanding how different factors contribute to forensic outcomes.

Unit Enduring Understandings:	**Unit Essential Questions:**
• Physical evidence includes all objects that can establish that a crime has been committed and can link the crime and its victim to the perpetrator. Forensic scientists use identification and comparison methods to analyze physical evidence. • Define and categorize physical, biological, and testimonial evidence with specific examples • Explain the difference between direct and circumstantial evidence • Describe how evidence probative value is determined • Identify the strengths and limitations of each evidence type	• How do different types of evidence contribute unique information to an investigation? • What factors determine the reliability and probative value of various evidence types? • How do investigators prioritize and integrate multiple forms of evidence? • What are the legal and scientific standards for admissible evidence?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving
- 9.4.12.IML.8: Evaluate media sources for point of view, bias, and motivations

Computer Science & Design Thinking (*CS & DT*):

- 8.2.12.ED.3: Evaluate several models of the same type of product and make recommendations for a new design based on a cost benefit analysis.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- W.AW.11–12.1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

Connections to NJSLS - Mathematics

- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- **MP.2** Reason abstractly and quantitatively.

Unit #3 - Stage 2 Assessment Evidence

Formative Assessments:

- Forensic Files Episodes - Speck of Evidence (Season 3, Episode 11) - view and answer questions
- Types of Evidence Lecture
- Evidence classification worksheets
- Evidence type identification quizzes
- Documentary - Essay on different types of evidence collected and used in a nationally known crime story
- Review of famous cases highlighting each evidence type (OJ Simpson trial, Amanda Knox case, Serial podcast)

Summative Assessments:

- Design a Mock Crime Scene in the classroom - create different types of evidence, document, collect, and photograph crime scene
- Case Study Analysis - Identify direct vs circumstantial evidence

Unit #3 - Stage 3 Learning Plan

Potential Unit Launches

- Students will create a Mock Crime Scene Project and develop investigation report
- Two people are convicted of the same crime—one based on eyewitness testimony, the other based on DNA evidence. One is later proven innocent. How can different types of evidence lead to different outcomes in a criminal case?

Potential Supporting Lessons

- SWBAT Define physical evidence
- SWBAT Describe proper techniques for packaging common types of physical evidence.
- SWBAT Explain the difference between the identification and comparison of physical evidence
- SWBAT Define and contrast individual and class characteristics of physical evidence.
- SWBAT Appreciate the value of class evidence as it relates to a criminal investigation.

Unit # 4 Fingerprint Analysis

Stage 1 Desired Results

Unit #4: Fingerprint Analysis

Unit Summary:

Students will learn how fingerprints are used to identify people during criminal investigations. They will explore the different fingerprint patterns—loops, whorls, and arches—and practice how to collect, classify, and compare fingerprints. Students will also discover how each person's fingerprints are unique and stay the same for life. Through hands-on labs and activities, students will learn how to lift fingerprints from different surfaces and use them to match suspects to evidence. By the end of the unit, students will be able to explain why fingerprints are important in solving crimes and use their skills to help solve a mock case.

Unit #4 - Learning Standards / Targets

NJSLS Science (PE):

HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis

HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs

Science & Engineering Practices (SEPs):

- Asking Questions and Defining Problems
- Analyzing and Interpreting Data
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence

Crosscutting Concepts
Patterns (used to classify and compare fingerprints)
Cause and Effect (exploring how physical characteristics affect classification)

Unit Enduring Understandings:	**Unit Essential Questions:**
• Every individual has unique fingerprints that remain unchanged throughout life. • Fingerprint evidence is a powerful tool in forensic science but must be handled carefully to be valid and reliable. • Proper collection, classification, and analysis are essential in making fingerprints useful in investigations.	• What makes fingerprints useful for identifying individuals? • How are fingerprints collected, classified, and analyzed in a criminal investigation? • What are the strengths and limitations of fingerprint evidence?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources

- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving
- 9.4.12.IML.8: Evaluate media sources for point of view, bias, and motivations

Computer Science & Design Thinking (*CS & DT*):

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- **SL.PE.9–10.1.** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with peers on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- SL.II.11–12.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Connections to NJSLS - Mathematics

- **MP.2** Reason abstractly and quantitatively.
- **HS.S-ID.B.6** – Use data analysis to identify patterns and variability.

Unit #4 - Stage 2 Assessment Evidence

Formative Assessments:

- Lecture and Notes - Fingerprint formation, anatomy, and permanence
- Lab - Fingerprint Classification - Students take their own prints and classify by pattern
- Minutiae Matching Activity - Students analyze ridge details and match prints
- Lab: Lifting Latent Prints - Students lift prints from glass, plastic, or paper using dusting

Summative Assessments: (includes alternative assessments were applicable)

- Practical Lab Assessment: Lift, classify, and compare fingerprint samples
- Written Test: Terminology, pattern recognition, legal/ethical scenarios

Unit #4 - Stage 3 Learning Plan

Potential Unit Launches

- *Case study of a mistaken identity due to poor fingerprint analysis.* Students reflect: Can fingerprints ever be wrong?

Potential Supporting Lessons

- SWBAT Explain how fingerprints form and why they are unique.
- SWBAT Identify and classify fingerprint patterns and minutiae.
- SWBAT Lift and preserve latent prints from various surfaces.
- SWBAT Compare unknown prints to known prints for identification.
- SWBAT Evaluate the reliability and limitations of fingerprint evidence.

Unit # 5 Blood Evidence Analysis & Serology

Stage 1 Desired Results

Unit #5: Blood Evidence Analysis & Serology

Unit Summary:

Students explore the biological and chemical properties of blood and its use in criminal investigations. They will analyze blood types, simulate blood typing using serological tests, and examine how bloodstain pattern analysis (BPA) helps reconstruct crime scenes. The unit combines biology, chemistry, physics, and forensic reasoning to provide a comprehensive understanding of how blood evidence can link suspects to crimes or exonerate the innocent.

Unit #5 - Learning Standards / Targets

NJSLS Science (PE):

- **HS-LS1-2**: Develop and use a model to illustrate the hierarchical organization of interacting systems within multicellular organisms.
- **HS-PS2-2**: Use mathematical representations to support the claim that the total momentum of a system is conserved. (For BPA trajectory/impact)
- **HS-ETS1-3**: Evaluate a solution to a real-world problem based on criteria and trade-offs.

Science & Engineering Practices (SEPs):

- Asking Questions and Defining Problems
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Constructing Explanations

Unit Enduring Understandings:	**Unit Essential Questions:**
• Blood is a valuable form of biological evidence that can be used to identify individuals and reconstruct the events of a crime when properly analyzed • Each person's blood type is genetically determined and unique to population groups, making blood typing a reliable tool for narrowing down suspects or excluding individuals. • Bloodstain patterns are influenced by physics—including force, angle, and motion—and can be scientifically analyzed to determine the origin, direction, and nature of bloodshed events.	• How is blood used as forensic evidence in criminal investigations? • What can bloodstain patterns tell us about what happened at a crime scene? • What are the scientific limitations and legal concerns of blood evidence?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving
- 9.4.12.IML.8: Evaluate media sources for point of view, bias, and motivations

Computer Science & Design Thinking (*CS & DT*):

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- SL.UM.11–12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Connections to NJSLS - Mathematics

- **MP.2** Reason abstractly and quantitatively. (HS-PS2-2)
- **MP.4** Model with mathematics. (HS-PS2-2)
- **HSN.Q.A.1** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. (HS-PS2-2)
- **HSN.Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (HS-PS2-2)

Unit #5 - Stage 2 Assessment Evidence

Formative Assessments:

- Introduction to Serology - Lecture and Notes
- Forensic Files Episodes on Blood Analysis
- Blood type analysis worksheets
- BPA angle and direction calculations
- Class discussions and reflections
- Lab - Blood Typing Lab
- Lab - Blood Pattern Analysis

Summative Assessments:

- Lab Report: Blood typing or BPA analysis
- Written Test: Blood components, pattern types, interpretation
- Possible - Crime Scene Analysis Project: Students interpret blood evidence from a mock or virtual crime scene and present findings

Unit #5 - Stage 3 Learning Plan

Potential Unit Launches

- Forensic Files Episode - Trail of Blood - Season 2 Episode 6 - A suspect claims self-defense, but the blood spatter on the wall suggests otherwise. Can blood tell the truth when people don't? Students explore a case study or crime scene photo with conflicting accounts. They ask: What can we learn from blood?

Potential Supporting Lessons

- SWBAT Describe the components of blood and their forensic relevance.
- SWBAT Determine blood type using simulated serology tests.
- SWBAT Analyze bloodstain patterns to infer direction, velocity, angle of impact, and point of origin.
- SWBAT Interpret how blood evidence supports or challenges crime scene hypotheses.
- SWBAT Understand the legal and ethical issues in the handling and interpretation of blood evidence.

Unit # 6 Anthropology & Pathology

Stage 1 Desired Results

Unit #: Anthropology & Pathology

Unit Summary:

This unit introduces students to the disciplines of forensic anthropology and forensic pathology, exploring how experts analyze human remains to determine identity, cause of death, and manner of death. Students will engage in case studies, lab simulations, and skeletal analysis to apply scientific reasoning and forensic techniques to real-world investigations.

Unit #6 - Learning Standards / Targets

NJSLS Science (PE):

- HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
- HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
- HS-LS3-1: Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits.
- HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs.

Science and Engineering Practices:

- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Engaging in argument from evidence

Unit Enduring Understandings:	**Unit Essential Questions:**
• Human remains provide valuable information about identity and the circumstances of death. • Forensic anthropologists analyze skeletal features to estimate age, sex, ancestry, and stature. • Forensic pathologists perform autopsies to determine cause, mechanism, and manner of death. • Scientific analysis and proper procedures are critical for accurate and ethical forensic investigation.	• How do forensic anthropologists determine the identity of skeletal remains? • What are the steps and purposes of a forensic autopsy? • How can trauma to the body or skeleton reveal cause or manner of death? • What ethical and legal responsibilities do forensic scientists have when handling human remains?
Interdisciplinary Connections	
Career Readiness, Life Literacies, & Key Skills *(CLKS)*: • 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment. • 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources • 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving • 9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.	
Computer Science & Design Thinking (*CS & DT***):** • 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society. • 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.	
NJSLS Companion Standards - ELA	

SL.UM.11–12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (HS-ETS1-1),(HS-ETS1-3)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #6 - Stage 2 Assessment Evidence

Formative Assessments:

- Anthropology lecture and notes
- Skeleton Identification Worksheets
- Skeleton Labeling Quiz
- Virtual skeleton tools (e.g., Visible Body, BioDigital Human)
- Interactive autopsy simulation (e.g., The Autopsy or similar)
- Documentaries: *Forensic Files*, *The Body Farm*, *Dr. G: Medical Examiner*
- Case files from open-source forensic databases or teaching kits

Summative Assessments: (includes alternative assessments were applicable)

- Performance Task: Analyze a fictional or historical case (e.g., Ötzi the Iceman, JonBenét Ramsey)
- Project: “Build a BioProfile” — students create an identity based on a set of skeletal remains
- Unit test with multiple-choice, short answer, and scenario-based questions

Unit #6 - Stage 3 Learning Plan

Potential Unit Launches

- **Phenomenon:** *Hikers discover a partially buried skeleton in a remote forest. The only remains are bones, and no personal ID is found. Law enforcement must determine the person's identity and whether a crime has occurred.* **Launch Activity:** Present students with staged images or a fictional police report and initial skeletal evidence (skull, pelvis, long bones). **Driving Question:** *How can bones tell us who this person was and how they died?*

Potential Supporting Lessons

- SWBAT Identify and label major bones in the human skeleton.
- SWBAT Estimate age, sex, stature, and ancestry from skeletal remains.
- SWBAT Differentiate between cause, manner, and mechanism of death.
- SWBAT Describe the steps of an autopsy and types of trauma (blunt force, sharp force, gunshot, etc.).
- SWBAT Apply forensic techniques to analyze mock or simulated cases.

Unit # 7 Biological Evidence & DNA Profiling & Genetic Genealogy

Stage 1 Desired Results

Unit #7: Biological Evidence & DNA Profiling & Genetic Genealogy

Unit Summary:

This unit introduces students to biological evidence used in forensic investigations—such as blood, saliva, hair, skin cells, and other body fluids—and how DNA profiling is used to identify suspects and victims. Students will explore the science behind DNA extraction, electrophoresis, PCR, and CODIS while evaluating real-world cases and ethical implications.

Genetic Genealogy - This mini-unit introduces students to how forensic scientists use DNA profiles from biological evidence and match them with publicly available genetic databases to identify unknown suspects or remains. Students will explore real cold cases solved using genetic genealogy (e.g., Golden State Killer), learn how databases like GEDmatch work, and evaluate ethical issues around privacy and consent.

Unit #7 - Learning Standards / Targets

NJSLS Science (PE):

- **HS-LS1-1**: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins.

- **HS-LS3-1**: Ask questions to clarify the role of DNA and chromosomes in coding for traits.
  HS-LS3-2: Make and defend a claim based on evidence that genetic variations may result from mutations or genetic recombination.
  HS-ETS1-3: Evaluate solutions to complex real-world problems.

Unit Enduring Understandings:	**Unit Essential Questions:**
• DNA is unique to each individual and can be used to match biological evidence to individuals with high accuracy. • Proper collection and handling of biological evidence is critical to preserving the integrity of DNA. • Scientific techniques such as electrophoresis and PCR enable forensic scientists to visualize and compare DNA. • Ethical and legal considerations play a role in the storage and use of DNA evidence Genetic Genealogy • Genetic genealogy can link unknown DNA to distant relatives and help identify individuals. Forensic use of consumer DNA databases raises legal, social, and ethical questions. • DNA is a powerful investigative tool—but must be used responsibly.	• What makes DNA an effective tool for individual identification in forensics? • How is DNA extracted and analyzed in the lab? • How do forensic scientists ensure the integrity of biological evidence? • What are the benefits and concerns of using national DNA databases like CODIS? • How can DNA evidence be misinterpreted or misused? Genetic Genealogy • How is DNA from crime scenes used in genealogical databases to identify people? • What are the roles of forensic scientists and genealogists in solving cases? • What ethical concerns arise from using public DNA databases for law enforcement?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving
- 9.2.12.CAP.6: Identify transferable skills in career choices and design alternative career plans based on those skills.

Computer Science & Design Thinking (*CS & DT*):

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- SL.UM.11–12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (HS-ETS1-1),(HS-ETS1-3),(HS-LS3-2)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #7 - Stage 2 Assessment Evidence

Formative Assessments:

- DNA foldable or infographic
- Exit tickets and reflection journals
- Analysis of mock DNA evidence
- Video: "*How Police Use DNA Databases*" + Notes
- Case Study: Golden State Killer or Doe Identification

Videos & Docs - Genetic Genealogy:

- *PBS NOVA: Secrets in Our DNA*

- *The Genetic Detective* (ABC News)
- *Golden State Killer: Unmasking a Cold Case*

Summative Assessments: (includes alternative assessments were applicable)

- **Lab Report**: DNA Extraction or Electrophoresis
- **Performance Task**: Analyze mock DNA profiles and identify the suspect
- **Final Quiz/Test**: Vocabulary, lab process, profile interpretation
- **Optional Project**: Design a public awareness campaign on the use/misuse of DNA databases

Unit #7 - Stage 3 Learning Plan

Potential Unit Launches

- **Phenomenon:** A man imprisoned for 25 years is exonerated after DNA from a decades-old crime scene is re-tested using modern techniques—and doesn't match him. **Launch Activity:** Play a short video or read a summary of an actual Innocence Project case (e.g., Ronald Cotton). **Driving Question:** *How can DNA evidence overturn a conviction—and how reliable is it?*
- **Phenomenon- Genetic Genealogy:** A 1980s cold case is solved in 2018—not through fingerprints or STRs, but through a family tree and a third cousin who never met the suspect.

Potential Supporting Lessons

- SWBAT Describe the types of biological evidence and their forensic value
- SWBAT Explain the structure of DNA and its role in individual identification
- SWBAT Understand how DNA is extracted, amplified, and separated
- SWBAT Interpret DNA profiles using gel electrophoresis simulations
- SWBAT Discuss the use of CODIS and database privacy concerns
- SWBAT Evaluate evidence to match suspects using DNA profiles

Genetic Genealogy

- Explain how autosomal DNA and shared genetic markers can identify relatives.
  Describe how forensic investigators use family trees and databases to narrow down suspects.

- Analyze real-world cases where genetic genealogy was used to solve crimes.
  Debate the ethical implications of law enforcement access to public genetic data.

Unit # 8 Entomology

Stage 1 Desired Results

Unit #8: Entomology

Unit Summary:

Forensic entomology is the study of insects and arthropods in legal investigations. This unit explores how insect evidence can be used to estimate time of death, determine if a body has been moved, or identify signs of neglect or trauma. Students will examine the life cycles of blowflies and other insects, conduct simulations of insect succession, and analyze mock crime scenes to determine postmortem intervals (PMI).

Unit #8 - Learning Standards / Targets

NJSLS Science (PE):

- **HS-LS2-6**: Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms.
- **HS-LS1-5**: Use a model to illustrate how chemical reactions support growth and release of energy during decomposition.
- **HS-LS4-5**: Evaluate evidence of the role of group behavior on individual and species' chances to survive and reproduce.

Stage 1 Desired Results

Unit Enduring Understandings:

- Insects are among the first organisms to arrive at a decomposing body and follow a predictable pattern of succession.
- The development stages of specific insects can be used to estimate time since death.
- Environmental factors influence insect activity and decomposition rates.
- Forensic entomologists contribute critical information in criminal and civil investigations.

Unit Essential Questions:

- How do insects help forensic scientists estimate time of death?
- What factors affect insect activity on a body?
- How does forensic entomology contribute to solving crimes?
- What ethical considerations are involved in working with biological remains?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving
- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.

Computer Science & Design Thinking (*CS & DT***):**

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.
- 8.1.12.DA.5: Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.

NJSLS Companion Standards - ELA

- SL.UM.11–12.5. Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Stage 1 Desired Results

- SL.II.11–12.2. Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (HS-LS2-6)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #8 - Stage 2 Assessment Evidence

Formative Assessments:

- Entomology Lecture and Notes
- Insect Succession Simulation (using plastic insects, cards, or digital tool)
- PMI Calculation Lab – Use known developmental stages at different temps
- Fly Life Cycle Analysis (optional live larvae rearing if permitted)
- Case Study Analysis – Real cases like the "Body Farm" or Caylee Anthony

Summative Assessments: (includes alternative assessments were applicable)

- **Performance Task:** Analyze insect evidence from a mock case to estimate PMI
- **Entomologist Report:** Written report summarizing findings and PMI estimate
- **Unit Quiz:** Life cycle stages, species ID, succession patterns, case interpretation

Unit #8 - Stage 3 Learning Plan

Potential Unit Launches

- **A decomposed body is discovered in a wooded area. The only clues to the time of death are the insects found on the remains.** Show images or a video clip of insect activity on decomposition. Driving Question: Can

insects reveal when someone died—and if the body was moved?

Potential Supporting Lessons

- Identify common species used in forensic entomology (e.g., blowflies, flesh flies, beetles).
- Describe insect life cycles and their role in decomposition.
- Analyze insect evidence to estimate postmortem interval (PMI).
- Investigate the effects of temperature, weather, and body location on insect colonization.
- Apply entomological data to a simulated forensic case.

Unit # 9 Toxicology

Stage 1 Desired Results

Unit #9: Toxicology

Unit Summary:

Students will explore the science of forensic toxicology, which involves the detection and analysis of drugs, poisons, alcohol, and other chemicals in biological samples. Students will examine how toxins affect the body, how substances are metabolized, and how forensic toxicologists analyze and interpret evidence from blood, urine, and tissue samples. The unit emphasizes scientific inquiry, data analysis, and the role of toxicology in solving real-world cases involving overdose, poisoning, or impaired driving.

Unit #9 - Learning Standards / Targets

NJSLS Science (PE):

- HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

- HS-PS1-3: Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale.
- HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs.

Unit Enduring Understandings:	**Unit Essential Questions:**
• Chemical substances can be absorbed, metabolized, and detected using scientific methods in forensic investigations. • Toxicological evidence can link a person to a crime or exonerate the innocent. • Proper collection, handling, and interpretation of toxicological evidence is essential to ensure valid conclusions and avoid false accusations. • Toxicology requires an understanding of pharmacokinetics, chemical properties, and biological effects of substances.	• How do drugs, alcohol, and poisons affect the human body? • How are toxic substances detected, identified, and quantified in a forensic lab? • What challenges do toxicologists face in ensuring accurate and ethical interpretations of results? • What role does forensic toxicology play in both criminal and civil investigations?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*

- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving

Computer Science & Design Thinking (*CS & DT***):**

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.

NJSLS Companion Standards - ELA

- RI.CR.11–12.1. Accurately cite a range of thorough textual evidence and make relevant connections to strongly support a comprehensive analysis of multiple aspects of what an informational text says explicitly and inferentially, as well as interpretations of the text.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (*HS-LS1-3*)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #9 - Stage 2 Assessment Evidence

Formative Assessments:

- Lecture and notes - Introduction to Toxicology
- Graphic organizer + DEA controlled substances discussion
- Body system model + student notes

Summative Assessments: (includes alternative assessments were applicable)

- Toxicology Lab Portfolio
- Mock Case Investigation Report
- Unit Test (multiple choice, short answer, data interpretation)

Unit #9 - Stage 3 Learning Plan

Potential Unit Launches

- Phenomenon: Historical poisoning mystery (e.g., Napoleon, Tylenol murders)

Potential Supporting Lessons

- Define forensic toxicology and explain its role in criminal and civil investigations.
- Classify different types of toxins, drugs, and poisons (e.g., narcotics, stimulants, hallucinogens, alcohol, heavy metals) and describe their effects on human physiology.
- Describe the processes of absorption, distribution, metabolism, and elimination (ADME) of toxic substances in

the human body.
- Interpret data from toxicology reports, such as blood alcohol concentration (BAC), drug screening results, and postmortem toxicology findings.

Unit # 10 End of Year Project

Stage 1 Desired Results

Unit #10: End of Year Project - look up controversial cases as a possibility

Unit Summary:

This culminating unit empowers students to demonstrate their understanding of forensic science by choosing a topic of interest to explore in depth. Students will conduct research, apply scientific reasoning, and creatively present their findings through projects such as case study analyses, mock crime scenes, investigative reports, lab experiment proposals, or multimedia presentations.

Unit #10 - Learning Standards / Targets

NJSLS Science (PE):

- HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs.
- HS-LS1-3: Provide evidence that feedback mechanisms maintain homeostasis.
- HS-PS1-3: Gather evidence to compare structure and properties of substances.

Unit Enduring Understandings:	**Unit Essential Questions:**
• Forensic science is a multidisciplinary field that applies scientific principles and investigative techniques to solve legal and criminal questions. • Real-world forensic investigations require critical thinking, collaboration, ethical reasoning, and clear communication of evidence-based conclusions. • There are multiple career paths and areas of specialization within forensic science, each playing a unique role in the justice system. • Scientific literacy empowers individuals to evaluate forensic evidence, understand media portrayals of investigations, and engage in informed civic dialogue about crime, law, and technology. • Presenting research through a chosen format (e.g., case study, experiment design, creative media) fosters deeper understanding, personal relevance, and academic independence.	• How can forensic science be used to solve real-world problems and answer questions in the criminal justice system? • In what ways do scientific thinking and ethical decision-making influence the use and interpretation of forensic evidence? • How has forensic science evolved over time, and what role does it play in society today? • How do different types of forensic evidence (e.g., physical, biological, digital, chemical) contribute to solving a case? • What skills and knowledge are necessary to succeed in a forensic science career or related field?

Interdisciplinary Connections

Career Readiness, Life Literacies, & Key Skills *(CLKS)*:

- 9.2.12.CAP.4: Evaluate different careers and develop various plans (e.g., costs of public, private, training schools) and timetables for achieving them, including educational/training requirements, costs, loans, and debt repayment.
- 9.4.12.IML.2: Evaluate digital sources for timeliness, accuracy, perspective, credibility of the source, and relevance of information, in media, data, or other resources
- 9.4.12.CT.2: Explain the potential benefits of collaborating to enhance critical thinking and problem solving

Computer Science & Design Thinking (*CS & DT***):**

- 8.2.12.ED.3: Evaluate ethical implications of new technologies and the impact on society.

NJSLS Companion Standards - ELA

- W.WR.11–12.5. 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.

Connections to NJSLS - Mathematics

- **MP.2** Model with mathematics. (*HS-LS1-3*)
- **HSN-Q.A.3** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Unit #10 - Stage 2 Assessment Evidence

Formative Assessments:

- Project proposal and outline check-in
- Research log or bibliography draft
- Peer/teacher feedback loop

Summative Assessments: (includes alternative assessments were applicable)

- Final product (presentation, paper, model, video, display board, etc. students can investigate possible cybercrime topics)
- Written summary or reflection
- Oral presentation (with rubric)
- Self-evaluation and project rubric

Unit #10 - Stage 3 Learning Plan

Potential Unit Launches

- Famous Case File Investigation- Research a historical or modern forensic case (e.g., JonBenét Ramsey, Amanda Knox, Tylenol Murders, Golden State Killer) and present a detailed analysis of evidence, forensic techniques used, controversies, and outcomes.

- Mock Crime Scene Reconstruction- Design and document a fictional crime scene, collect and interpret mock evidence (e.g., fingerprints, blood spatter diagrams), and write a full investigative report or presentation.
- Career in Forensic Science Exploration- Research a career in forensic science (e.g., forensic anthropologist, medical examiner, toxicologist), including educational requirements, job responsibilities, real-world relevance, and ethical challenges.
- Forensic Science in Pop Culture- Analyze how forensic science is portrayed in a book, TV show, or film (e.g., CSI, NCIS, Bones, Dexter). Compare media representation to real forensic procedures and evaluate accuracy.
- Original Forensic Experiment Design- Propose and describe an original forensic experiment or lab activity related to a topic studied during the year (e.g., effect of different surfaces on fingerprint clarity).
- Debating Ethics in Forensics- Research and present both sides of an ethical issue (e.g., DNA privacy, genetic genealogy, wrongful convictions, use of AI in forensics) and formulate a position with evidence.

Potential Supporting Lessons

- SWBAT Apply forensic science knowledge and skills to a real-world problem, question, or investigation.
- SWBAT Conduct independent research using credible scientific and legal sources.
- SWBAT Create a project that synthesizes scientific knowledge, critical thinking, and evidence-based conclusions.
- SWBAT Communicate their findings clearly through written, oral, or multimedia formats.
- SWBAT Reflect on their own learning, challenges, and growth throughout the course.

Core Instructional & Supplemental Materials

Texts, Readings, Online Platforms & Other Resources:

- **Textbook - Forensic Science - Saferstein**
- **Netflix/Amazon Prime Video/Hulu - documentaries**

- **YouTube for Forensic Files and other online videos**

Accommodations and Modifications: Students with Disabilities, English Language Learners, Students at Risk of Failure, Students with 504s, Gifted & Talented Students

Specific Strategies and Practices that Support Students with Disabilities:

Students receiving Special Education programming have specific goals and objectives, as well as accommodations and modifications outlined within their Individualized Education Plans (IEP) due to an identified disability and/or diagnosis. In addition to exposure to the general education curriculum, the instruction is differentiated based upon the student's needs. The IEP acts as a supplemental curriculum guide inclusive of instructional strategies that support each learner.

- Small group/One to one - Additional time - Review of directions - Student restates information - Space for movement or breaks - Extra visual and verbal cues and prompts - Preferential seating - Follow a routine/schedule - Rest breaks - Verbal and visual cues regarding directions and staying on task - Checklists - Immediate feedback

Specific Strategies and Practices that Support English Language Learners

English language learner (ELL) is a national-origin-minority student who is limited-English-proficient. This term is often preferred over limited-English-proficient (LEP) as it highlights accomplishments rather than deficits.

- Pre-teaching of vocabulary and concepts - Personal Glossary - Extended Time - Simplified/Verbal Instructions - Frequent Breaks - 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 - Think-pair-share - Cooperative learning groups

Students at Risk of Failure

- Home/School Connection - Alternative Assessments - Learning Contracts - Homogenous Grouping - Supplemental Instruction - Think-Pair-Share by Readiness - Homework Options - Differentiated Online Practice - Leveled Rubrics - Tiered Level of Supports - Tiered Activities - Small Group Instruction - Work Alone Choice - Group Work Choice

Students with 504 Plans

Teachers are responsible for implementing designated services and strategies identified on a student's 504 Plan.
504 plans are formal plans that schools develop to give kids the support they need and covers any condition that limits daily activities in a major way. Students' accommodations are outlined in their individual 504 plan.

Specific Strategies and Practices that Support Gifted & Talented Students
It is critical that all teachers are able to recognize a high-ability student who may need more depth and complexity in instruction.

-Homogenous Grouping - Small Group In-Depth Instruction - Differentiated Online Practice - Alternative Assessments - Pre-Assess to provide Differentiated Instruction to Accelerate Learning

Unit 1: Introduction to Forensic Science

- Captions provided for all videos
- Forensic Pathway Project checklist
- Video presentation instead of oral presentation
- Work in Small group or individual
- Provide checklist for Timeline
- Template for Innocence Project
- Extra time if needed

Unit 2: Crime Scene Investigation

- Captions provided for all videos
- Checklist for Crime Scene Sketching
- Guided Notes
- Examples of Crime Scene sketches to model after
- Work in partners or individual
- Extra time if needed

Unit 3: Types of Evidence

- Captions provided for all videos
- Provide checklist for evidence typing
- Guided notes

- Word bank for identification quiz
- Provide Essay template for documentary essay
- Allow speech to text or oral responses
- Provide graphic organizers
- Extra time/flexible deadlines

Unit 4: Fingerprint Analysis

- Captions provided for all videos
- Guided notes
- Large diagrams provided for different fingerprints
- Small groups or individual
- Checklist for labs or flowchart
- Work in partners or individual
- Extra time
- Study Guide

Unit 5: Blood Evidence & Serology

- Captions provided for all videos
- Guided notes
- Work in partners or individual
- Visual aids and diagrams
- Study Guide
- Word Bank for written test

Unit 6: Anthropology and Pathology

- Captions provided for all videos
- Guided notes
- Word bank for skeleton quiz
- Provide pre-filled diagrams
- Extra time
- Work individually or in small group

Unit 7: Biology Evidence & DNA

- Captions provided for all videos
- Guided notes
- Provide templates for foldable
- Graphic organizers
- Word bank
- Checklist for Case Study
- Extra time
- Study Guide
- Work individually or in small group

Unit 8: Entomology

- Captions provided for all videos
- Guided notes
- Graphic organizers
- Provide labeled diagrams and color coded life cycles
- Bug identification cards and word banks
- Rubric for written report
- Study Guide
- Extra time
- Work individually or in small group

Unit 9: Toxicology

- Captions provided for all videos
- Guided notes
- Graphic organizer
- Checklist for Lab Portfolio
- Study Guide
- Extra time
- Work individually or in small group

Unit 10: End of Year Project

- Work in a small group
- Provide checklist or guided template
- Submit a video or live presentation
- Complete digital presentation or written
- Extra time

New Jersey Student Learning Standards - Science

Science

Scientific and technological advances have proliferated and now permeate most aspects of life in the 21st century. It is increasingly important that all members of our society develop an understanding of scientific and engineering concepts and processes. Learning how to construct scientific explanations and how to design evidence-based solutions provides students with tools to think critically about personal and societal issues and needs. Students can then contribute meaningfully to decision-making processes, such as discussions about climate change, new approaches to health care, and innovative solutions to local and global problems.

Three Dimensions of NJSLS Science

Performance Expectations (PE) are student learning standards devised with the three dimensions or components described below. For detailed information regarding the research and design behind the standards click here.

Disciplinary Core Ideas (DCI)

The fundamental ideas that are necessary for understanding a given science discipline. The core ideas all have

broad importance within or across science or engineering disciplines, provide a key tool for understanding or investigating complex ideas and solving problems, relate to societal or personal concerns, and can be taught over multiple grade levels at progressive levels of depth and complexity.

Disciplinary Core Ideas in Physical Science (PS)
Disciplinary Core Ideas in Life Science (LS)
Disciplinary Core Ideas in Earth and Space Science (ESS)
Disciplinary Core Ideas in Engineering, Technology, and the Application of Science (ETS)

Science and Engineering Practices (SEP)

The practices are what students DO to make sense of phenomena. They are both a set of skills and a set of knowledge to be internalized. The SEPs reflect the major practices that scientists and engineers use to investigate the world and design and build systems.

Crosscutting Concepts (CCC)

These are concepts that hold true across the natural and engineered world. Students can use them to make connections across seemingly disparate disciplines or situations, connect new learning to prior experiences, and more deeply engage with material across the other dimensions. The NGSS requires that students explicitly use their understanding of the CCCs to make sense of phenomena or solve problems.

Science and Engineering Practices (SEP)	**Crosscutting Concepts (CCC)**
• Asking Questions and Defining Problems • Planning and Carrying Out Investigations • Analyzing and Interpreting Data • Developing and Using Models • Constructing Explanations and Designing Solutions • Engaging in Argument from Evidence • Using Mathematics and Computational Thinking • Obtaining, Evaluating, and Communicating	• Patterns • Cause and Effect: Mechanism and Explanation • Scale, Proportion, and Quantity • Systems and System Models • Energy and Matter • Structure and Function • Stability and Change

Information	